

KNOWING AND THE ART OF IT MANAGEMENT

**An inquiry into
work practices in
one-stop shops**

**PhD dissertation
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*In memory of my mother, Jean McRae Eriksén,
who knew so well the complexities of everyday life,
and who gave them a voice full of humor
and a special kind
of magic.*

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Author's Note

What follows is based on my research work, work life experience, the reading and interpretation of various texts, and on numerous constructive discussions in which I have taken part during the past few years. Although much has been restructured for academic purposes, it must be regarded in its essence as the product of subjective, and at best inter-subjective, reasoning and sense-making.

It started out as an explorative journey in search of knowledge and factual information in a new field of work life. However, the landscape through which I was traveling changed character as I began to catch sight of *knowing*. I realized I had been there before. Yet it looked different.

T.S. Eliot once wrote:

'[...] the end of all our exploring will be to arrive where we began and know the place for the first time'.

I haven't reached the end of my exploring – in fact I've just begun – but on a clear day I can feel the wind in my hair, and rejoice at being on the road and headed in what feels like the right direction.

What follows is not very factual on IT management either.¹

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Prologue

Some twenty years ago, I read a book by Robert M. Pirsig called *Zen and the Art of Motorcycle Maintenance. An Inquiry into Values*. It was a cult book in those days, a book that, according to the front and back cover texts, would change my life in profound and important ways.

The narrator had a great talent for interweaving philosophical discourses with practical, down-to-earth reflections about maps and instructions, motorcycles and human relations. Somehow, he made it all seem possible to understand as connected parts of one and the same lived-in world. Metaphysics is good if it improves everyday life; otherwise forget it, was his motto. This talent was, as I interpreted it, an art related to the art of motorcycle maintenance; a capacity for seeing, in a specific situation, the relationships of and to a larger picture, for reframing problems and grasping possible connections. Today, making my own connections to an expanded inner picture, I might call it reflecting-in-action¹. Or taking context seriously.

There is one passage in Pirsig's book I remember more vividly than the rest. It comes at the very end. The young boy Chris has been riding behind his father – the narrator – on the back of his motorcycle on a trip across the midwest of the USA. They've covered a vast expanse of territory. It's been an extensive and exhaustive mental journey for them both as well, and all of it mainly undertaken on the father's conditions and initiative. The boy has grown more and more angry and resentful.

Now, on a windy road in California, they take their helmets off. Chris stands up on the foot pegs, holding on to his father's shoulders. Suddenly, everything looks different. The boy, for the first time, is looking beyond his father's back, seeing the world ahead of them with his own eyes. Within a few seconds, as they swerve around a curve and come from the flickering light and shadows of a leafy forest out into open sunlight, the boy's whole attitude to the journey changes. He's not just being taken for a ride. He's making a journey of his own.

Acknowledgments

The combined research and educational program within which I work is called MDA, an acronym formed from the Swedish words for *People*, *Computers* and *Work*. It is a new, interdisciplinary program, at a new university. We who work here are a mixed group, coming from many different disciplines. Getting involved in building up an educational program based on studying information technology *in use*, has meant questioning many basic assumptions about knowledge, practical skills, teaching and learning. As part of a context for research work focusing on change, development and learning, this communal rethinking process has been extremely valuable. I am grateful for all the support my colleagues in the MDA group have given me, and all the sharing and expanding of knowing through animated discussions during literature seminars, research planning meetings, interactive video analysis labs, lunches and coffee-breaks.

Having a disciplinary home base becomes of vital importance in a multifarious environment such as the one here in Ronneby. The department of Informatics at the Lund University provides me with a disciplinary foundation on which to hold my ground in the local mingling of disciplines in Ronneby. The cooperation between Danish and Swedish universities, through the Öresund doctoral program in design and management of information technology, has given me the opportunity to partake in international courses and workshops, which have helped to broaden and strengthen this base.

Special acknowledgment is due to those of my colleagues in Lund, and those associated with the Öresund doctoral program, who have chosen to work seriously and in depth with research questions concerning IT management. It is through no fault of theirs that I use the concept of IT management as I do in the following, without reference to relevant literature within the field, and deliberately reinterpreted to challenge and provoke my readers. It is, rather, the very attention and weight given to much of the research work done in this area, which makes the concept an alluring lever to apply when reasoning about IT in use and how it is supported¹.

During the past few years, I have come to appreciate the importance of taking part in supportive networks. A group with which I am affiliated, and which has given me valuable and heartfelt support during my first years of apprenticeship in the academic world, is the interdisciplinary network Friends of Cooperation at Work². The network for female Ph.D. students of Informatics in Lund, though small, has been supportive and sharing. Other appreciated sources of inspiration have been the SCORE-seminars³, the seminars on citizenship, information technology and public services held by the Institute for Futures Studies, the Nordic Network for One-stop Shops, the GaDIA net-

work⁴ and professor Bo Göranson's summer school and doctoral course in Skill and Technology.

Since 1996, I have been involved, on behalf of the University of Karlskrona/Ronneby, in the EC-funded research and technological development project ATTACH (Advanced Trans-European Telematics Applications for Community Help)⁵. During this time, I have learned much about the dynamics of balancing bureaucratic demands for accountability with making creative and efficient use of rapid, and largely unforeseeable, technological development. The obvious need for standardization, which was the driving force in the project from the start, has gradually been tempered by a growing awareness of, and attentiveness to, the varying local conditions, requirements and intentions which combine to make applications meaningful and useful in context. Perhaps, above all, through the cooperation across national, organizational and professional boundaries within the ATTACH project, I have come to realize the value of actively joining the discourse.

The initial cooperation with professor Benny Hjern, who specializes on implementation issues in political science, and the resulting contacts and cooperation with political and social scientists Göran Bostedt and Hans Rutqvist at the Mid Sweden University in Sundsvall, as well as the meetings arranged by the Ministry of Public Administration, an interested and active party in the development of one-stop shops in Sweden during the period 1992-96, have all been conducive in various ways to this thesis. As a result of the reorganizing of the Swedish central government in 1996, one-stop shops have now become an issue handled by the Ministry of the Interior. In March 1997 the ministry appointed a new work group, headed by Carl-Gunnar Peterson, to follow and support the development of one-stop shops. I was honored to be appointed as one of five experts in this work group, especially as the other four experts are real experts from the field, that is, they are all involved practically with the development of one-stop shops. While I hope that my research experience and networking can contribute to the work in this group, the appointment has also given me more insight into the construction processes of some of those very representations of front office work which my research results seem to challenge, or at least problematize.

The Swedish Council for Work Life Research⁶ has funded the research project *Working at the front* (project number 94-0349). It is within the framework of this three-year research project, led by professor Bo Helgeson, that the case studies referred to in this thesis have been carried out. The initial two case studies done in northern Sweden during 1992-1994 were sponsored through the county administrative board of Norrbotten with regional project resources and support from the Working Life Fund. The county administrative board of Norrbotten was one of the first county administrative boards in the

country to actively work for joint local service offices. It has been both instructive and inspiring to cooperate with them.

I am especially grateful to the many people who have facilitated and/or participated in the case studies upon which this thesis is based. Many of them have shown me great patience and forbearance. Through interviews and discussions, during observations and at workshops they have been active participants and taught me more than I expected and probably more than I am actually aware of.

Thanks are due also to Kajsa Cadwell Brimdyr, who has assisted me in some of my field studies, and compensated for much of my technical fumbling with tape- and video-recorders. Kajsa, now a Ph.D. student herself, has greatly extended the reach of my ears and eyes and reasoning. The same applies for the students who chose to do their projects within my research area, as well as those who had no choice but to help me with field studies in Sölvesborg in March 1996, as part of their course on using ethnographic methods to study work⁷. They worked creatively and with enthusiasm, and have helped me to see more, and to question more what I have seen.

Sissi Ingman and Jörn Nilsson, colleagues at the department of Informatics in Lund, read my manuscript and gave me valuable feedback and advice during the final stages of writing. Meta Ottosson and her extensive network of friends and professional translators helped me interpret and understand a profound key citation from Hegel about 'Schluss des Handelns'⁸. Lars-Olof Månsson helped me with effective information retrieval via Internet (truly an art), and the librarians at InfoCenter in Ronneby were invaluable at tracking down literature for me. As for contents – what's there and what's lacking – and choice of literary style, title and all, I am solely responsible.

Warm thanks to my family and friends for all their support, and, last but not least, to my supervisors, Bo Helgeson, who is in charge of developing the MDA research program in Ronneby, and Pelle Ehn, professor and director of Research and Development at the School of Art and Communication of the Malmö University. Without their faith and perseverance, this thesis would never have been completed.

Introduction

The development of modern information technology during the past few decades has been revolutionizing to work life in many parts of the world. In some ways, however, new technology seems to be developing much faster than the models, metaphors and methods that are applied for sharing and managing information, in organizations, in communities and in society in general. Shoshana Zuboff, author of the book *In the Age of the Smart Machine*, emphasizes what she calls the informing potential of information technology¹. Zuboff defines *informate* as the generation of information by a given application about the underlying processes through which an organization accomplishes its work. An important conclusion she draws, from her research into how business firms utilize information technology, is that organizational innovations are necessary to support technological innovations, in order to fully benefit from the informing process. 'It is a process', she writes, 'that has implications for the kinds of skills that organization members must develop, the articulation of roles and functions, and the design of systems and structures in an informed organization.'

One-stop shops have, during the past ten years, sometimes been presented as organizational innovations with the same kind of visionary excitement as the idea of personal computing induced in the sixties. They have been envisioned as bureaucratic revolutions in disguise, as spear-heads in the development of new forms of net-working organizations, offering client- and customer-oriented public service, and, beyond that, as offering opportunities of strengthening local democracy. The use of modern information and communication technology to support public service and local democracy has been an important issue in the discussions around the implementation of one-stop shops. The opportunity of studying the interrelated development of computer support and new forms of organizing in one-stop shops was, for someone who likes working with visions, ideas, and people, simply too good to be missed. So, when it came, I took it.

This thesis is based mainly on material and experience obtained through the resulting research project, *Working at the Front*². The aim of the project was to study and generate knowledge about skill, cooperation and computer support in public service one-stop shops.

Working at the front implies having a broad outlook, exploring new frontiers, working across and beyond old boundaries. These features are part of the basic concept of the generalist's work in public service one-stop shops. In these new front offices of public administration, the personnel are expected to be able to answer questions and give guidance concerning most of the services provided by the public sector. Their work entails understanding both the everyday

problems of the help-seeking public and the structure and workings of the back offices they themselves represent. The generalists are expected to interpret and facilitate communication in both directions.

In the research project *Working at the Front*, the name stands for the generalist's work as well as for our own research work. We have studied and used examples from within the generalist's evolving domain of work practice. But for us, working at the front has also signified using new combinations of research approaches and methods, and searching for new ways of integrating academic and other work life experience and knowledge.

Although grounded mainly in case studies of evolving front office work practice, the reasoning presented in this thesis is also based on my own many years of work life experience as a user and developer of administrative information systems. I have tried to find a form of narrative that leaves room for moving back and forth between descriptions of a larger social and political context, the desk level focus of my research, excerpts from my personal repertoire of 'war stories' and tentative theorizing. Using certain characteristic features of the framework from Pirsig's well-known book, for instance³, is part of a deliberate strategy on my part to find a style which allows me to remain a subject in my own text, associating freely, and using concepts situatedly and personally, constructing relationships between them as I go along⁴. At times, this may have gotten out of hand, at other times I've strayed rather deeply into philosophy. But basically, being, at heart, more of a reflective practitioner than an academic, my ambition has been to reason practically, not to theorize, about work practice.

My research approach has been explorative and open-ended, guided mainly by what has surfaced during the work of observing, asking questions and listening in the case studies involved. Working with video-recordings has made it possible to combine observation of front office work on the spot with subsequent interaction analysis of selected sequences. While scanning through video-recordings in search of 'interesting situations' to analyze in depth in this way, I have also been able to study the temporal flow of work throughout a morning, a day and a week – giving insights which have in turn brought new issues to the foreground. The empirical findings are used in discussions about different ways of seeing, describing and representing front office work, and about what relevance these different perspectives and the interrelations between them might have for design of work organization and technical support.

One of the hypotheses I put forth in this discussion is that there is added value in not only being aware of multiperspectivity as an issue, but of making use of it in design. Gradually during the research project I have come to see this as a question of the need to work with inverted indexicality of language⁵, in order to understand the construction of meaning in action. A problem here is that many traditional research methods, as well as most methods for systems

development, are designed to diminish rather than make use of ambiguity and diversity in the empirical material.

The inversion of indexicality turned everything on its head, which was, actually, a positive experience, although it has played havoc with the structure and coherence of my thesis. It brought me back to my own problems of making explicit plans and sticking to them, and forced me to see that taking intentionality seriously in action, and seeing meaning in the concrete and specific, are central to the social construction of meaning. This, once understood, leads to the further insight that we really do have to rethink our artifacts of thinking and organizing, and our ways of understanding our own active part in purposeful interaction, if we are going to be able to utilize the informing capacities of information technology. And we have to find new ways of conceptualizing IT management, including design issues. Metaphors like the art of IT management, gardening, nurturing, caring for, supporting knowing in action, continual design in use, designing for situated action as planning-as-you-go-along, are indicative of the issues at stake.

One-stop shops may well be organizational innovations such as those Zuboff is looking for, with the potential for bringing about informed – rather than automated – public service administration. But this will only happen if the intentions concerning organizational change voiced in project plans are taken seriously, and initiated and supported in reflective practice. Which is a more complex, revolutionary and far-reaching step than it may appear to be.

However, these were not issues I was really aware of from the outset. What I was interested in initially was studying and taking part in the development of computer support for front-office work in one-stop shops. And that brings us back to where we started, which is discussed in more detail in chapter one: *Why look at one-stop shops?*

1. Why look at one-stop shops?

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1.1 One-stop shops – a background

1.1.1 The emergence of public service one-stop shops

During the 1990:s, a new form of collocation and coordination of public services has been spreading among Swedish municipalities. Inspired by ideas and examples from Denmark, and encouraged by conferences and news-bulletins funded by the central government¹, many municipalities are assembling a new type of integrated front-office workplaces, commonly referred to as one-stop shops or citizens' offices. Basically, they consist of an office where citizens are offered several different kinds of public services at one and the same reception desk. In some cases the municipality and one or several local government offices have chosen to cooperate. For instance, certain police, postal, insurance and/or employment office services may be offered at the same place as purely municipal services such as the handling of questions concerning housing problems, child care, social welfare etc.

There is no single, exact definition of what constitutes a public service one-stop shop. The participating organizations, the degree of cooperation between them and the types of services offered vary from case to case. Some municipalities have two or more one-stop shops, with local variation between the offices depending on what part of the community they are located in and what groups of citizens they are intended to provide services for².

The spreading occurrence of one-stop shops should be seen in a broader context. During the last decade, the Swedish public sector has been undergoing extensive rationalization. New organizational and administrative forms are being tested. The power of authorities as well as boundaries between different authorities are being questioned and revised. This process is endorsed by the central government through the cutting back and redirecting of funding and through the promoting of various trial forms of local and regional coordination of public administration.

One-stop shops, thus, are one of a variety of on-going trial forms of integrative organizing of public services. The official goal for public service one-stop shops is to cut costs and simultaneously maintain – and if possible improve – the accessibility, quality and range of public services. Another issue which is often brought up in this context is that of supporting the development of local democracy through enhancing the interaction between citizens and public decision-makers. Modern information technology is looked upon as offering new possibilities for attaining these goals. The development of computer systems for support of the citizen-public service encounter is therefore seen as an important issue³.

In some municipalities, the concept of the 'electronic one-stop shop' has been used to signify the development of local public information and services made available to people electronically via Internet or a combination of Internet/local municipal intranet. This development is often connected with visions of the future IT-society, where information kiosks are as common as public telephones – or have replaced these – in public places like libraries, supermarkets, busy down-town street-corners and train-stations, and where most citizens from the age of seven upward have access to the public information network both from home, from work or from school.

Such visions do not seem as far-fetched today as they did a few years ago. However, as access to and use of Internet/intranet-services become more and more common and widespread, so do experiences of limitations in the contents and forms of existing public information and services on-line⁴. There is a growing insight of the importance of the quality and management of what goes in for the quality of what comes out. Public information and services in electronic networks need to be grounded in the organization and managed by people involved and skillful in the workings of public administration. In many municipalities, the development of public electronic information systems now seems to be converging with the development of an over-all public service strategy. In many cases, this strategy includes, makes use of and supports human resources in existing or evolving 'real life' one-stop shops⁵.

Thus the vision of the all-purpose public electronic information system, which for a while seemed to be threatening the concept of 'traditional' one-stop shops, has been somewhat deflated through experiences gained during attempted implementation. Gradually, a new vision may be taking its place, a vision built on ambitions to support local initiative and activity through *informing* rather than *automating* the local community. It would appear to involve, as a step in the right direction, informing rather than automating public administration⁶.

1.1.2 A new work role – the generalist

One-stop shops for coordinated public service are by definition cooperative, multifarious, often multiorganizational and always public, work settings. In these offices a new profession is emerging, a work role commonly referred to as that of the generalist⁷. Front office staff, who generally have a background in public service clerical work, are expected to handle a number of different administrative tasks. These tasks may range from providing general information, such as tourist information and open hours for various public institutions, to dealing with more or less routine official matters, such as registering reports of sick-leave for the social insurance office or registering a child to be put in queue

for community day-care. In some cases front office work may include certain types of specialist tasks, such as giving consumers' consultation.

The generalist typically provides services from several different authorities. This makes new demands, not only on the front office staff, but also on back office personnel and on the work organization and technical support. The ongoing decentralization of tasks that involve decision-making, and the increasing integration in the front office of services from different sectors in the back offices, requires a new kind of front-line general competence across different sectors of specialization. Not only is a broad span of general administrative competence called for, but there is also a need for a certain amount of specialization in several fields. The generalist is expected to have sufficient depth of knowledge to be able to process matters and take decisions in a qualified manner within a number of different sector areas.

Besides having practical knowledge on both a general level and in some depth in certain areas of public administration, the generalist is expected to be what is commonly termed as 'service-minded'. This involves being caring, friendly and helpful as well as knowledgeable and efficient, in his or her encounters with the public.

In many cases, when local authorities decide to cooperate in setting up a one-stop shop, there is also some form of verbalization within the project of a broader vision of long-term organizational change, in which the one-stop shop is seen as a first step. In such visions, the front-office staff may then be projected as taking on a spear-head role in a process of more far-reaching organizational change within public administration. Through experience and feedback from the front office, the back offices are envisioned as successively shifting focus from a standardized, bureaucratic to a more responsive, client- or customer-oriented view – which in this case is seen as a more public or citizen-oriented view – of what they are working with. Expectations are thus explicitly high on the generalists, and, more implicitly, high on the entire organization (or, in multi-organizational cases, on all involved organizations).

The emerging generalist's role in one-stop shops brings with it to the front questions of how to redesign divided and specialized work – and information systems – to support an integrated public-oriented service function, as well as to support cooperation and coordination with and between the sectors whose services the front office is offering.

1.1.3 Research on one-stop shops

The research which has been done so far on one-stop shops, in Sweden as well as in other European countries where these new forms of joint-service offices are being established, has mainly been initiated by political scientists and sociologists⁸. Compared to the close-up view I have taken of work, and of use and

management of IT, at and around the front desk, these research projects tend to take a wide-angled, 'organization'-oriented view of one-stop shops, more remote from the actual work practices. Another difference is that they are generally more customer-focused. The purpose of this type of research is usually to try to find aspects of the development in the individually studied cases which might be generalizable to some kind of system parameters which could be used to explain, or even predict, development in other cases.

In Sweden, the research touching on one-stop shops has mainly been centered around questions about local democracy, quality of the public services offered to the citizens, societal communication and institutionalization⁹. These issues are also central in the evaluation project spanning the period of 1995-1999, which is now being carried out by the Mid university. This project is being partially financed by the Swedish Ministry of the Interior. The main object of the project is to map how citizens/service receivers are reacting to the new phenomenon of one-stop shops and to what extent they have been actively involved in the planning and development of these new front offices. An attempt is also made to measure actual changes in the level of services offered.

The evaluation project is lead by two researchers from the Department of Development of Business and Public Administration at the Mid Sweden University, Göran Bostedt and Hans Rutqvist. All in all, approximately twenty-five one-stop shops will be studied and evaluated during a period varying between one and five years.

The following is a brief and general summary of the results which were presented in the first year's report from the evaluation project:

- *population and degree of urbanization in the area:*

Small towns and large cities seem to be the best sites for successful one-stop shops. Here they can greatly reduce the distance a citizen would have to travel to get the service from the regular office, which in the one case might be in another municipality altogether and in the other case might be in a central area of the same city but far from the person seeking service. In medium-sized towns the integrated front offices tend to compete with each administration's own regular offices.

- *constellations of organizations cooperating in the one-stop shop:*

Five of the seven one-stop shops studied so far offer municipal public services only. It has proven difficult to get local government administration interested in cooperating in these projects. When they do join in the cooperation, or even when different municipal offices decide to cooperate, it seems almost without exception to be in connection with large-scale development and change within the involved organizations themselves.

- *quality of services offered:*

Consumer's advice is the one area which seems definitely to have improved in both quality and quantity of services rendered by being offered in one-stop shops. This may have to do with the fact that this is such a small and autonomous unit within municipal administration – normally only one or two specialists are involved – that it has been able to benefit from the establishment of a front office to handle everything except specialist advice about clearing up debts and setting up budgets. The specialists have been able to rotate between front and back office duty and have more or less become part of the front office team.

The results from the survey indicate that the qualitative level of service is considered by citizens who have visited one-stop shops as at least as high as that of public service in general.

Issues of personal integrity and security were not experienced as being more problematic in one-stop shops than in other forms of public service, according to the citizens who had visited one-stop shops and who answered the survey.

The on-going development of one-stop shops in municipalities throughout the country has, during the past few years, lead to a growing awareness of, and interest in, the phenomenon. This has in turn resulted in an increasing number of student projects and papers about one-stop shops, written in subject areas dealing with information and communication. See for example Bäckström and Eriksson 1994, Wart 1995, Levin and Nordenhök 1996, Flodin and Lidberg 1997, Jansson and Sköldh 1998.

1.1.4 One-stop shops in Denmark – patterns and prototypes

The first one-stop shops in Denmark were opened to the public more than fifteen years ago. Many of the Swedish municipalities that are now establishing one-stop shops have been inspired by the rapid development of this type of offices in Denmark during the past decade. Today most municipalities in Denmark have some type of one-stop shop¹⁰, though the local organization of the shops, and the services offered, vary greatly from place to place. Some shops mainly offer municipal and tourist information, while others have the ambition to attend to around 80% of all matters they are consulted about on the spot (Kommunernes landsforening, 1991). Despite the fact that one-stop shops are now so wide-spread throughout Denmark, there does not appear to have been any scientific studies made of them so far.¹¹

The organization and sectorization of public services differs between Denmark and Sweden. In Denmark, most public services are administered by

the municipalities, whereas in Sweden certain areas, such as taxes, unemployment and social insurance, are administered by the national government. There are, however, many similarities between the on-going development in the two countries. Denmark, being first in Scandinavia with public service one-stop shops, has provided Swedish municipalities with patterns and prototypes for this type of development. It seems relevant, therefore, when studying the generalist's work, to take a closer look at what is happening in Denmark.

When searching for relevant publications on these issues, I have mainly come across reports which address the problem area more generally, as extensive on-going changes in division of work and work content in public administration at large. This is a perhaps useful reminder of the fact that one-stop shops and the evolving work role of the front office generalist should be seen as part of a larger process of changing work roles in public administration and, indeed, on the labor market in general. It is primarily this larger public administration context which has attracted the attention of the trade unions and resulted in several reports of interest in connection with evolving generalist work in Denmark (as for instance Bildt, Christensen & Hoff, 1992, *Det kommunale Efteruddannelsesudvalg*, 1992).

1.1.5 Shifting boundaries and changes in division of work

In Denmark, most employees in municipal administration belong to the union HK/Kommunal. In 1990, HK/Kommunal initiated an investigation about shifting boundaries between different areas of specialization in public service administration. The investigation, which focused on on-going changes in division of work, work content and work qualifications in Danish municipalities, was carried out by researchers at the Institute of Political Science at Copenhagen University. Basically this report takes the view that shifting boundaries and changing work roles are leading to more diverse and qualified work for the members of HK/Kommunal, but that old work hierarchies and power structures, as well as the defense by professionals of their traditional work domains, are impeding an otherwise constructive development. This corresponds fairly well to the predominant view in Swedish reports by political and social scientists about one-stop shops, according to which the defense of organizational preserves is one of the main obstacles to integrative work development¹².

Another book which focuses on municipal restructuring and changing work roles during the 1990:s was published in 1992 by *det kommunale Efteruddannelsesutvalg*¹³ with the aim of adding fuel to the on-going debate. Many of the questions raised in this publication are relevant for one-stop shops and the generalist role. One of the issues brought up is what will happen if the

previously specialized and sectorized municipal administration continues to become more and more integrated at the pace indicated in the early 1990:s.

Is it feasible that most municipalities will eventually turn into matrix organizations, where employees belong to a base organization that stretches across the traditional sectoral boundaries, and where the current assignment is what decides the staffing? If so, what skills will be most sought-after? Will generalist skills be in demand, i.e. the ability to work with a little of everything and show service-mindedness combined with a broad competence across several sectors or specialist areas? Or will there be a greater demand for specialist competence than ever before? Or will this difference between broad and deep competence become irrelevant as the demand for both creates an integration of these competencies in one and the same role?

If the current decentralization process continues, will more and more qualified decisions actually be made by the individual employee who comes directly in contact with the citizen? What types of specialist competence and what personal qualifications might be necessary in this case? And will such a development be fairly uniform in the whole administrative organization or will it only affect certain groups of employees?

Will a new and important task for municipal employees at all levels be to participate in setting distinct goals for their own work activities and thereby for the services offered through their work place?

These questions are as relevant to one-stop shops in Sweden as in Denmark. In Sweden the situation is made more complex by the fact that here public services are spread across several different authorities, on national government, county council and local government levels, than in Denmark.

1.2 A vision, three themes and some questions

1.2.1 A vision of new networking across old boundaries

Why look at work and technology in one-stop shops?

From the beginning, it was the beauty of the vision, the combined simplicity and complexity of the idea of one-stop shops, that attracted me. Here, in the concentrated area of a public reception office, was the opportunity to study the development of new work practice and the technology supporting it. I would be observing the effects of a deliberate step, taken by the public administration organizations themselves, away from bureaucratic sectorization towards a more customer- or client-oriented, integrated public service. The generalist's role seemed to be evolving at the center of a growing network of new forms of communication and sharing of information which was encompassing both the public and the public service administration. By focusing on work and computer support in the front office, I would be able to do case studies involving several interrelated research themes which had interested me for a long time. Yet at the same time I would be right on the spot for observing new and exciting developments which might lead to interesting rephrasings of these initial themes.

1.2.2 Integration of specialized information systems

What especially intrigued me from the start was the anticipation of being able to study the progressive integrating and front-end tailoring of different existing information systems to provide efficient computer support for the new generalist's role in the front office. The very nature of this organizational revolution in disguise would, I believed, enforce the use of participatory design methods and ensure that evolving practice inform continual design-in-use of the computer support.

Many of the existing systems in public service administration are centralized, main-frame based systems, originating from the 1970:s and designed for a whole different institutional context than the lean, decentralized administration of the 1990:s. Having worked for many years with administrative information systems, both as a user and as part of a systems development team¹⁴, I was aware of the difficulties, even within one and the same organization, of getting different computer systems to provide information that could be usefully integrated into a general overall view of on-going activities. It is as though design practice has long been able to analyze an organization neatly into bits and pieces and construct support for various functions – but

has sadly lacked the tools or concepts for getting these various functions back on speaking terms with each other again afterwards.

Now, with organizational pressures mounting for applying a customer-oriented view of on-going activities in public services, and especially of services offered in one-stop shops, the need for a shift from closed systems thinking to an open-ended, overall perspective seemed obvious. In order to design for this open-endedness and partial integration, what would be more natural than to look at work in front offices and learn from studying the existing computer support in use?

1.2.3 Work-related cooperation and supportive computers

Integrating systems is not just, or even mainly, about getting computers to talk to each other. It is to a large extent about communication and cooperation between people. One of the themes I was interested in from the start was in what ways technology can support cooperation in getting work done. During the past decade, an interdisciplinary research area called *Computer Supported Cooperative Work (CSCW)* has developed around these kinds of questions. A great deal of research is being carried out in this area, yet there is still a lot to be done in developing methods for studying cooperation at work. Shifting focus from the individual person, working with an individual task, to work groups and work activities in a cohesive context, involves more fundamental issues than simply expanding the same basic framework to encompass more objects of study, of which interaction between individuals becomes yet another. It changes the grid through which reality is interpreted, bringing into focus questions of intersubjective meaning and intention. It calls for new, interpretative models and new methods of analysis. There is a need to be able to focus both the work processes and practices of the group and those of the individuals within it.

One-stop shops are not one-person shops. The generalist is one of a team at the front desk. Besides the everyday cooperation required within the work team in the front office, the very concept of a one-stop shop is based on presumptions about frequent communication and cooperation between the front and back offices. The computer support in the front office needs to support and facilitate communication and cooperation with several different organizational units.

Cooperation and team work have been on the agenda of human work science since the sixties, but the focus of these studies has mainly been on the industrial sector. Few studies have been made of cooperation in clerical work in the public sector. Here, production-based team work, where it exists, has often developed on an informal basis rather than through management or union initiative, and has thus been less obvious to the outside observer. Much of the

current management literature on leadership, however, deals with issues which concern cooperation; work groups, team work and so called organizational learning¹⁵. The lack of actual case studies of cooperation in administrative office work is therefore becoming more apparent. This, to me, was part of the incentive for studying one-stop shops. It seemed that case studies of public service front office work and computer support should be of interest both to the CSCW research community and within the field of human work science in general.

1.2.4 Planning and implementation

Finally, there was a theme about planning and implementation which had interested me for years. Time after time, during many years of administrative office work, I had taken part as user representative in systems development projects. We would work for months writing and sketching detailed specifications about how the system being constructed should function. Ambitions would be high, the work put into the project by all parties would be serious and of good quality – yet when implemented, the new system would inevitably cause a number of unanticipated problems. Never once did a new system live up to the initial expectations – not even when experience had taught us to lower our expectations from the start. Not until months after the system had been installed would it be possible to see and adjust some of the basic flaws in it. By then the context in which it was working would often have changed, too, putting new demands on the system. I had become more and more convinced that development and implementation of computer support should be seen as a continual process, lasting the life-time of the system¹⁶. This fit in well with the concept of participatory design which I mentioned above. And, for that matter, with issues of CSCW. For participatory design is a cooperative process, dealing with the design of computer support, and should therefore, it would seem, naturally be supported in modern computer systems.

I have introduced three themes of interest which I brought with me into the research project on work and computer support in one-stop shops; integrating of information systems into information networks, support of cooperation at work and the relationship between planning/design and implementation, including issues of participatory design. These themes were composed from past studies in the discipline of informatics as well as from my work life experience¹⁷. But there were other themes, as well, newer to me at the outset because they originated from the discipline of human work science. These two disciplinary perspectives – informatics and human work science – have been combined in the project *Working at the Front*. In some ways they overlap. In many ways they are very different and may in fact cause double vision. At best

– perhaps tempered by my work life experience – I think the effect of this double vision could be stereoscopic.

Human work science has brought my attention to the work itself and how it gets done. To information technology *in use*. To situated action. But also to reflections about skill and technology, about the generalist's developing work practice and how it can be supported. It is the human work science perspective which has helped me start to seriously reconsider what is meant by skill, knowledge and information in practice, and how technology can be designed to support the work that is *really going on*, the *knowing in action*, in one-stop shops. It is through shifting perspectives between human work science and informatics that I have come to see that much of design work is done from a level of perception which does not differentiate between formalized representations of work – such as written plans and instructions – and work practice, and which thus fails to take into account how everyday work actually gets done.

The case studies presented in this thesis have not developed in quite the way we had anticipated. However, the results of the workshop as well as other reports, independent of our research project, indicate that what we have seen so far in the case studies does in fact in many ways mirror the development of the generalists' work practice and how it is supported in other one-stop shops in Sweden. The discrepancies between stated plans and actual development, rather than being toned down as an embarrassing miscalculation, are therefore high-lighted and reflected upon in this thesis. This development has also led to the accentuating in the report of a tendency I have of moving back and forth between different levels in the description of the generalist's work. Although it was my intention from the start to study front office work at office floor level – to keep a firm hold of the reception desk, as it were – much of what I had intended to study has still not happened at that level.

In his doctoral dissertation *Rationalitet og Magt I. Det konkrete videnskab* (Rationality and power. The science of the concrete), published in 1991, the Danish researcher Bent Flyvbjerg wrote about the usefulness of case studies for learning more about the relationships between rationality and power, visions and reality, plans and implementation. With the possible exception of plans and implementation, these were not entities of a type which I had expected could be focused at desk level in one-stop shops. Flyvbjerg, however, argues the opposite – only by studying concrete cases in context, by acknowledging the importance of the particular, by detailed and rich descriptions of everyday practice, can we catch sight of and begin to understand practical rationality. Context is essential for interpreting human activity.

My aim has not been to study the relationship between rationality and power. I set out to study cooperation, skill and computer support in front office work. Along the way, I have become increasingly aware of the comp-

lexity of the relationships between plans and actual development, between visions and reality. The data collected through various types of formal documentation, and much of the interview material, have mainly referred to plans and project organization, whereas front-office interviews, observations and workshop activities have given a different picture of the work and support in the front office. It is these differing pictures, and the ways in which they differ and yet are interrelated, which I have attempted to describe and reflect upon from a design perspective in this dissertation.

1.2.5 Some questions about front office work

Embarking on a research project enthused by broad themes of interest and a vision of a new and exciting work place and work practice to focus on is all very well. Very soon, however, it becomes necessary to apply some kind of more formal grid to delimit and structure the field of interest. This can be done, for example, by formulating what appear at the time to be relevant research questions. The open-ended questions we started out with focused on the generalist's work and ran as follows:

What is skill in front office work?

What does cooperation look like in the front office?

How can skill and cooperation in front office work be supported by information technology and the organization of work?

1.3 Management on the shop floor

1.3.1 Management models and metaphors and the articulation work of everyday work practice

As has been described already in the first part of this chapter, the central government in Sweden has, during the past two decades, been working on implementing a new administrative policy, with the aim of making the public sector more effective and less bureaucratic. The implementation of one-stop shops is a part of this policy. In a popularized presentation of the on-going changes, published by the Ministry of Public Administration in 1987, the final chapter, which has the heading *The renewal work goes on*, ends with these sentences:

Resolutions passed and decisions taken by the Government and the National Parliament provide the general framework and the basic conditions. The success of the on-going developmental work in public administration will ultimately depend on everyday activities in state, county council and municipal workplaces throughout the country.¹⁸

It is to the activities in the workplaces we should look, then, to understand the significance in everyday life of the new policy of public administration. It is here that the models and metaphors used in discourse by the central government, local authorities and various levels of management are articulated through daily work.

The term 'articulation work' is used in a paper by Gerson and Star, 1986, in reference to the work involved in developing local closures to the problems faced by an organization¹⁹. As they define it, articulation consists of all the tasks needed to coordinate a particular task, including scheduling subtasks, recovering from errors and assembling resources. It includes the work of recognizing, weighing and evaluating alternatives from conflicting sources, the local adjustments in the face of contingencies, that make the work possible in practice. The products of office work, in this perspective, are the result of decentralized negotiations in which office workers must reconcile multiple viewpoints with inconsistent and evolving knowledge bases.²⁰ It is another way – a constructive way, with roots in open systems thinking – of catching sight of and trying to grasp what knowing in action is about.

Government, like all kinds of organizing and managing, relies on models and metaphors with which to make sense of the world and structure on-going

activities. ('Articulation work' and 'knowing in action' are, after all, metaphorical concepts, too.) These models and metaphors not only contribute to the shaping of on-going activities, they are themselves continually being reshaped and re-presented in the process. Nor do all models and metaphors in use at one time, in one place, necessarily belong to one coherent world view and fit comfortably together without friction in between²¹. Various models may directly contradict each other, or, more subtly, be based on implicit assumptions which, if made explicit, would prove to be contradictory. On the other hand, what appears to be one and the same metaphor or model may be used in radically different ways. Or it may be interpreted very differently by different people, even when being presented with consistency. Then again, differing metaphors or models may be used in ways which largely overlap concerning the consequences for the conceptualization of a specific problem area.

The dynamics and problematics of this constant construction work based on differing conceptual blueprints surface, for instance, in the tensions between explicit plans and other accounts of intended, on-going or completed activities, and 'actual' development, as perceived by different individuals or groups of people involved in, affected by or observing what is going on or what has happened.

When customers desert one supplier of wares or services for some other, when clients change lawyers, or patients go to a different doctor, or citizens place their vote with a different candidate or political party than last time they voted, it is a demonstration, through action, of a choice made. Such an action is usually understood to imply that, somewhere, somehow, there has been a mismatch between expectations, as sparked by presentations of what was to come, and what was delivered, the product or process based, ultimately, on the everyday articulation work of the supplier.

Besides the mixing and mingling of metaphors and models and their many different interpretations in discourse, there is thus yet another dimension to the complexity of everyday life in organizations, and in society at large, namely the difference – or rather, the complex and dynamic interrelationship – between what is said and what is done, and between what is understood to be said and what is experienced as being done. At this level, where models and metaphors start fraying at the edges, plans seem to disseminate into procrastination, and life begins to look complex and chaotic, the relevance of asking 'by whom?', 'for whom?', 'when?', 'in what context?', 'for what specific purpose?' becomes surprisingly clear and simple. This is where action is situated. This is where the articulation work takes place.

Welcome to everyday life.

1.3.2 Ideas that travel around the world

Where do all the models and metaphors in use in organizations come from? Are they the same, and are they being used in the same way, in the public sector as in the private sector?

Although this thesis is not intended to be about organizational theory, the empirical material on which it is based, and the ways in which I have interpreted it, have surely been shaped by the models and metaphors currently in use in the organizations I have studied. Though I don't know how, or according to what value or measuring system, to assess it, I can't help asking myself how these models and metaphors are shaping front office work, and how they themselves are being articulated – if at all – in everyday work practice in one-stop shops. There must, after all, be *some* connectedness between the discourse and the everyday work practice.

This is where networks are useful. If you are not an expert yourself in a certain area, you can turn to people who are, and usually find out more. During our research work, we have come in contact with SCORE, Stockholm Center for Organizational Research within the public sector. SCORE has recently published two books presenting research results and current theoretical discourse on management of organizations and national states and governments. The researchers who have contributed to the publications are active within different disciplines, such as business administration, social anthropology, sociology and political science.

One of the publications is explicitly about national states and governments as organizations²². Here, in an article by Staffan Furusten and David Lerdell²³, there is a presentation of some of the models and metaphors used within popular management culture, and a discussion about how these – most of which stem from ideas about what characterizes excellency in leadership and management of private enterprise – have become increasingly influential in the public sector during the past two decades.

In 1990, PUMA, the Public Management Committee, replaced the Technical Co-operation Committee as the committee within OECD²⁴ where ideas and models concerning coordination and improved effectivity of public management²⁵ in the OECD countries are discussed. PUMA uses the concept of 'New Public Management' as a kind of standard for modern and effective public management. The aim of this attempt at standardization is to make it easier to communicate, cooperate and make comparisons between the public sectors of different OECD countries.

Many key concepts within New Public Management pertain to liberal ideas and entrepreneurial administrative techniques geared to diminish bureaucracy. They are echoed and reinforced in a great deal of the current popularized management literature about the public sector, as for instance in a much sold

book by the American consultants David Osborn and Ted Gaebler, *Reinventing Government – How the Entrepreneurial Spirit is Transforming the Public Sector* 1993. (On the front cover of a pocket book edition of the book, Bill Clinton, president of the US, is quoted as having said : ‘Should be read by every elected official in America. This book gives us the blueprint.’²⁶) Key concepts in *Reinventing Government* fit in well with those used within New Public Management; ‘results’, ‘market’, ‘customer orientation’, ‘competition’, ‘goals’, ‘enterprise’, and ideas about decentralizing, and giving people responsibility and the authority to act on it. Basically, these concepts aren’t new, although they are, in some sense, new to public bureaucracy. Osborn and Gaebler do, however, also present modern concepts such as ‘Total Quality Management’, (‘TQM’), ‘Business Process Reengineering’ (‘BPR’) and ‘Benchmarking’, which they feel should be relevant techniques for managing public service as well as private enterprise.

Furusten and Lerdell trace many of the ideas in New Public Management and *Reinventing Government* back to a book written nearly fifty years ago, *The Practice of Management* 1958, by Peter Drucker and beyond that to Gulick and Urwick [eds.] 1937, *Papers in the Science of Administration*, which can be viewed as a popularized version of Frederick W. Taylor’s ideas about scientific management. Gulick and Urwick introduced the acronym POSDCORB, which stands for Planning, Organizing, Structuring, Directing, CoOrdinating, Reporting and Budgeting – the essence, according to them, of management. These are ideas and ideals which surface again and again in popular management culture, and are widely spread through best-sellers such as *In Search of Excellence* 1982 by Tom Peters and Robert Waterman.

The concept of what an organization *is*, and how the actual organizing is accomplished, and by whom, is never really problematized.

The other recent publication from SCORE focuses on the concept of standards and standardization as an important, but hitherto neglected, phenomenon, which is being used, alongside of markets and hierarchies, as a way of coordinating, managing and governing activities²⁷. Many on-going projects which are being financed by the EC, are, basically, being coordinated around issues of standardization.

Standards are founded on knowledge, writes Staffan Furusten in one of the articles in this book²⁸. But what types of knowledge affect the contents of standards? Analyzing one of the most widely established and accepted administrative standards concerning quality and control of organizations, ISO 9000, he finds that it has few connections with on-going discourse in the research community about organizational theory. Rather, it ties in with more conventional ideas about what constitutes ‘good organizations’, ideas which are

widely spread in a popularized discourse about leadership (see also above and previous pages). Through popular books, articles in the business press, seminars focusing on leadership issues, meetings between consultants and customers, but also through higher education in organizational theory and business administration at many universities, the basic ideas and ideals of this popular management culture are disseminated throughout the world. They seem to be the ideas that travel most rapidly and readily²⁹.

According to Furusten's analysis, ISO 9000 is constructed around six principles for how quality can be assured. These six principles are customer orientation, identification and demarcation of processes, a view of organizations as units of control, use of measurable goals, leadership based on control, and continual documentation of every process. Organizations are seen as consisting of a network of processes. Processes should have owners, and owners should be in control of and responsible for what happens in the processes they own. Organizations, and processes in organizations, are understood as closed systems, except in those well-defined interfaces where different processes come in contact with each other.

Comparing the assumptions upon which ISO 9000 is founded with current discourse in the research community, Furusten points out some of the main differences. There is a good deal of research, much of it based on case studies, showing that organizations do not function as rational tools for managers who wish to attain their set goals³⁰. The idea that success is a function of premeditated strategies, optimal decisions, and actions which are equivalent to the correct performance according to these strategies and decisions, is thus open to debate. In studies of the work practices of top management, it has been found that they spend much more time responding to events which have already occurred than working on grand scale strategies for the future³¹.

In modern research work, organizations are often described as complex social systems which are governed by various social forces in society, of which the actions taken by managers is only one. Events and activities within and without the organization, and interaction not only with customers but with other organizations, have a lot to do with what directions development takes over time. Studies have shown that technology, for instance, often develops in and around contacts between organizations³².

ISO 9000 purports to codify present practice in successful enterprise. Empirical studies of organizations show otherwise. ISO 9000 sets up principles without touching upon the problematics of putting principles into practice, concludes Furusten. The standard completely disregards the results of more recent empirical research, which imply that rationality and control have limited importance, and that informal and not-always-preplanned action are important factors, for how organizations develop.

For my own part, I have come across these ideas about organizations as

constituted through constantly on-going processes of organization in for instance Czarniawska-Joerges 1994, Dahlbom 1992, Dahlbom and Mathiessen 1993, Dahlbom and Janlert 1995, Floyd 1992, and, more or less explicitly, in much of the literature I have read concerning participatory design, as well as, from a slightly different perspective, in open systems thinking, as presented by for example Lindblom in Emery [ed.] 1969. It does seem astounding, with so much talk going on about networking, team work, organizational learning etc., that these ideas about the dynamics of the social construction of reality have had practically no impact on popular management culture, as articulated in for instance ISO 9000. Rather, the effect seems to have been the reverse. Thus Ciborra 1997 points to the degenerating effect management culture – with its trend-sensitive shiftiness and need for rapid concept-switching on the one hand, yet basic resistance to more profound development and change as to world views, on the other – has had on some of the current research in business administration

Why has modern organizational research had so little impact on the popular discourse and on ISO 9000? Why is it that popular management culture, rather than scientific knowledge, has been made the standard? Furusten mentions the importance for enterprise of ‘the presentation of self’³³. We are highly geared to images of an ideal world, in which it is important for organizations to look successful. In a complex and chaotic world, is it really a wonder, he asks rhetorically, if many people look to explicit rules and instructions for how to recreate the ideal, rather than looking to critical reason with the ambition to understand the complexity of the real world?³⁴

1.3.3 Tinker, Taylor, soldier, sailor

Popular management culture, then, can be seen as a product of its own history, a re-using of many old ideas and ideals which are often only superficially redressed to look more modern. Furusten traces some of the ideals behind ISO 9000 back to Frederick W. Taylor and the ideals of scientific management. At the same time, there is a mingling and mixing, in all this, not only of a little bit of new and a great deal of old ideas, but of different problem definitions, different sources of inspiration, different ideals and different underlying assumptions about the meaning of central concepts and the interrelationships between them.

One current model of the manager’s role in a complex world is that of the tinker, who takes what he can find in a given situation – a bit of this, a bit of that – and fits it together to make a ‘good enough’ solution³⁵. The tinker as an alternative metaphor for management and leadership is, at least as seen to the basically pragmatic approach, not too far from the gardener. The gardener

metaphor, in turn, hinges on images of the manager as a service provider, not only, or even primarily, for higher levels of management, but for those whose work he is in charge of. It is his business to continually care for, and support, the people, processes and technology with which the organization gets its work done³⁶. Compare these models of what management is about, and which groups of people in the organization make a difference, with the following quote from Peter Drucker concerning what constitutes the 'knowledge organization':

But yesterday's middle management is being transformed into tomorrow's *knowledge organization*. This requires restructuring individual jobs, but also restructuring the organization and its design. In the knowledge organization the job, all the way down to the lowest professional or managerial level, has to focus on the company's objectives.³⁷

This was published in the nineteen-seventies, as was the following definition of the Swedish word 'handläggare', i.e. a civil servant who handles cases;

The civil servant who contributes to the handling of a case in such a way that the outcome of the case may depend on that contribution, is a person who 'handles' ['handläggare'] the case. A person who handles cases is assisted by people who type, sort and store documents, [...] take copies of documents [...] etc.³⁸

Neither of these two quotes is directly jarring to a modern reader, and yet both of them reference interrelated concepts of knowledge, authority, responsibility and job-division that are being challenged by recent and on-going technological and organizational developments. As observers of and participants in these developments, we need to develop a critical eye to the situatedness and historicity of the terminology, the definitions, the models and metaphors we are served by and use and their underlying assumptions.

The public sector, like popular management culture, is a product of its own history. What is defined, here, as an on-going process of change and development initiated to diminish bureaucracy and increase effectivity in public administration can hardly be viewed as one uniform process of change sweeping through a largely homogenous public sector. Kerstin Sahlin-Andersson, who is in charge of SCORE:s research program about professions and organizations in times of change, has written about how managing in public administration is to a large extent about managing a mixture of principles³⁹. Old ways of doing things, and the ideals they represent, are still present, and resisting change, in many existing structures, forms of cooperation, routines and expectations. The impression of on-going change may be exaggerated, if it is focused too exc-

lusively and separately from the surrounding organizational context and all that which remains, albeit in itself multifarious, largely as it was before.

The public sector consists of a number of different local, regional and national authorities and organizations, each with their own history as well as their own specific on-going changes. There is, besides this, the basic contradiction in public administration of being both a service provider and an authority with the power to take sanction against citizens/customers in certain situations. In practice, managers in the public sector have to manage in the constantly choppy waters where waves from different directions and different undertows meet. Especially so, it would seem, in coordinating activities in and around one-stop shops. What structuring devices, what metaphors and models, then, do managers use to navigate and handle change in choppy waters, as they try to implement new organizational structures and functions such as one-stop shops?

1.3.4 ROSA – Rational Organization and Service Administration

There is a management model – sometimes referred to as a tool-kit, rather than a model – which is commonly used in connection with the implementation of one-stop shops in Sweden. Although it's used almost everywhere here, it's not originally a Swedish invention. Like many of the ideas around one-stop shops, it was originally imported from Denmark.

In Denmark, the National Association of Local Authorities, Kommunernes Landsforening (KL), has actively taken part in the development of one-stop shops throughout the country. In the ROSA project, where ROSA stands for Rational Organization and Service Administration, working material for analysis and development of service organizations has been put together for, among other purposes, building up new one-stop shops within the existing municipal administration. The ROSA tool-kit is offered as part of KL's consultancy services. It is also widely used by consultants for reorganization of municipal administration in Sweden.

The ROSA tool-kit contains models and methods for handling the simultaneous and harmonious development of system, technology, personnel and organization. It also contains models and methods for deciding what types of tasks might be handled in the front office of one-stop shops and what types of tasks should be left to specialists in the back offices, i.e. the more traditional 'back land' organization of public administration.

A central concept in the ROSA tool-kit is the *task-cruncher* (see figure 1), a model used to categorize work tasks according to their different levels of assessed complexity and degree of reliance on specialist competence.

When the ROSA methods are used as intended, all employees who are directly affected by the reorganization at hand are instructed to perform a

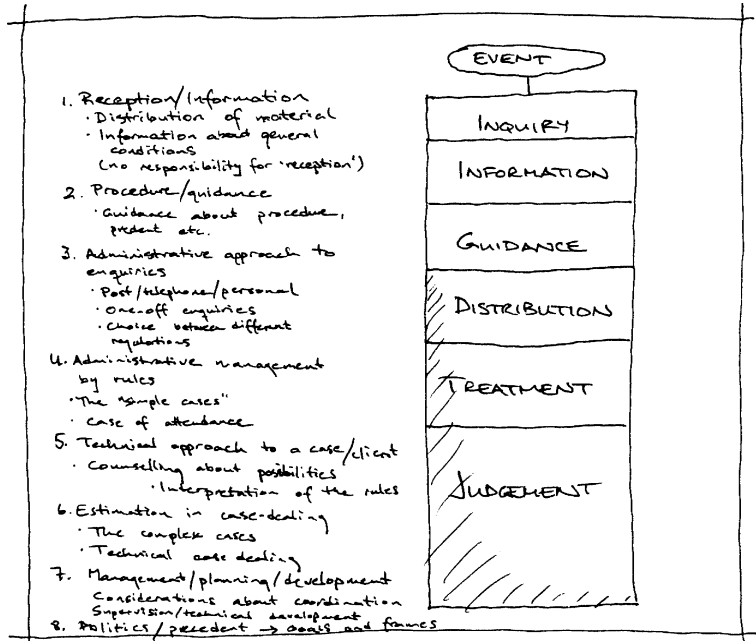


Figure 1. The task-cruncher is frequently used as part of the basis for deciding what tasks should be moved to the front.

personal work study and write an account of what types of tasks they work with and how many hours a week they spend performing each type of task.

The task-cruncher template consists of 10 to 12 different categories, starting on the most basic level with what are classified as unqualified, routine tasks (giving information and simple forms of guidance), and ending on the top level with highly qualified leadership and political assignments. The job descriptions that are constructed in this way by the employees themselves are then analyzed in order to decide what tasks are suitable to move out to the front office and what tasks should continue to be handled in the back office.

A rule of thumb is that the upper limit for what can successfully be handled in the front office should be drawn between routine investigations, where all that is needed is the checking-up of certain details, and more qualified investigations that call for the competence of a specialist. The ultimate recommended border for front office work tasks is thus set between level 5 and 6 in the basic task-cruncher model. Depending on local conditions and ambitions, the responsible authorities may choose to move only certain information services to the front desk, or they may choose to move various combinations of tasks ranging from levels one to five from one or several different back offices.

The ROSA concept has been developed by consultants who have worked for many years in reorganization projects in Danish public administration and who are acquainted with Scandinavian traditions of work place democracy and participatory design. ROSA is based on the idea that it should be used in close and extensive cooperation with the employees who are being affected by the reorganization, and that they in this way should be given the opportunity to take an active part in the redesigning of their own work. However, it is also based on the outset condition that employees should conduct what appears to be a white-collar version of a time and motion study on themselves, categorizing their work tasks according to a typology which is based on presumptions about their work over which they have very little control. KL, the instigator and promoter of the ROSA tool-kit and the task-cruncher template, is essentially an employers' association. The very fact that there seems to be no discussion what so ever within the involved trade unions or among the employees themselves about the politics of using the ROSA model, has made me curious to take a closer look at the model and how it is applied. Is it because of changes in the Scandinavian political and/or economical climate in the last decade that there is no debate about this employer's tool for measuring and dividing labor? Is it such a useful tool for everyone involved that it has been generally accepted for that reason? What effect does the use of the ROSA model actually have on the work itself?

In one of my case studies, Sølvesborg, the normative ROSA model has been purposefully used in the organizational development work around the establishing of the one-stop shop. A question I was interested in here from the start, therefore, was to what extent the results of the ROSA analysis are actually being followed in the daily work practice. What is the norm and what is the practice? How far up the scale are the people at the front desk supposed to handle cases? How far up the scale do the tasks they perform *actually* go? What do the decisions they make involve in the way of choices and evaluations, what types of judgment do they apply – not only according to their job-specifications but according to themselves and according to our observations? Whom do they consult? Where do they draw the line and turn to a specialist in the back-land? When they do pass cases on, why?

The ROSA model is a consultant's tool, a plan. It is a resource for planners and politicians. As such, it may well improve the degree of connectedness between the political and administrative levels of planning. However, plans are situated in a context⁴⁰. Used as an instrument to convince politicians of the rationality of the idea of one-stop shops, the ROSA model is probably effective. For managers who are responsible for reorganizing the administration of services it is a way of coordinating the development of technique, system, personnel and organization. But for the people in the front office and for the citizens coming for help, of what use is it in practice? Is it in fact an obstacle when it

comes to the degree of connectedness between the work in practice and the way managers understand it and therefore try to organize the supporting technology, the coordination of front and back office work etc? The models used may actually to some extent be blocking the managerial view of what the work activities and the knowing involved consists of.

It is not only the generalist's work that is affected by the traditional view of work division represented in the ROSA job-cruncher model. There is also an issue at stake here of the specialist's knowing. There has been a lot of resistance among specialists to the moving out of certain tasks from the back office to the front office. Often, this is referred to by consultants and managers condescendingly as the defending of organizational preserves, a kind of problematic conservative territorial behavior which should be discouraged and done away with, and without which everything would run smoothly⁴¹. However, though we are focusing the knowing in the front office, there is of course a very real similar issue of knowing among the specialists. Many of the activities they engage in on the job consist of a mixture of what, according to the ROSA model, would be called routine work and more expert work. To what extent the knowing involved in the activity is dependant on the separate tasks – or on the performing of them in a certain order or mix – is certainly not a very easy thing to discern, even for the specialists themselves. The fear they have of handing out 'routinizable' parts of activities to the front office may have a much more profound basis than labels like 'territorial protectiveness' and 'defending of organizational preserves' would seem to imply⁴².

It could be that routine tasks like handing over forms to be filled in often involve answering questions about the visitor's specific conditions for making the application (or whatever), which call for more specialized knowledge than might be assumed from a standard job description. And, conversely, it could be that the specialist who has hitherto handed over the forms herself has learned something, in the process of this routine interaction with her clients, which is necessary for developing an understanding of the nature of the area she works with.

1.3.5 Service-mindedness versus rule-following

In my initial interviews and discussions with managers and organizational consultants who were in some way involved with the implementation of one-stop shops, there were what appeared to be two key concepts that were often brought up concerning front office work. One was 'service-mindedness', and the other was 'rule-following'.

'Service-mindedness' is, as I have understood the use of the concept in this context, about personal qualifications for the job as well as about job quality

from the customer's point of view, i.e. how the generalists apply themselves to getting their work done. 'Rule-following', on the other hand, appears as used here to be primarily about the character of the work tasks which the generalists are allotted.

According to the ROSA model, the tasks which can be moved from the back office to the front office are those which concern mediation of information, assistance in filling in forms and routinized administrative work which does not involve qualified decision-making. Working with this last type of tasks is what is often referred to as 'rule-following' by managers and consultants I have talked to.

Service-mindedness and rule-following. The two concepts seem strangely miss-matched, as though coming from two different worlds. If they were both being used to signify something about the quality of the output, as in the (fictitious) statement: 'An ideal generalist is service-minded and always follows the rules', it might still be something of a challenge to common sense, but in a more manageable way. (I would be prone to exchange the 'and' for a 'but'). However, the concept of 'rule-following', as I've come across it in this context, has been used somewhat differently. It seems to have less to do with informed choice and use of good judgment than with machine-like automation, as in: 'An ideal generalist is service-minded, but basically what he or she does is follow rules.' (The implicit appendage being 'and nothing else'.)

Now part of what is strange to me about this is that most managers I've talked to would probably not readily accept the first statement made above. An ideal generalist should certainly be service-minded, but should he or she really always follow the rules? The answer that springs to mind is 'Yes, but...'. Service-mindedness in front office work implies the ability to handle situations smoothly and efficiently in ways which might at times call for 'bending the rules'. What is the big difference between 'following the rules' – which should, presumably, be done discriminately – and 'following rules' or 'rule-following', which seems to leave little if any room for personal judgment and qualified decision-making?

'Following the rules' seems, like 'service-mindedness', to apply to quality of output from the job, whereas 'rule-following' seems to be about quality of input, that is, what kind of tasks that are allotted to the front office. Stressing the importance of following the rules is a way of trying to guarantee and safeguard equality to all citizens who come to make use of public service. As such, it is what is expected of public service administration in a democracy. But what is 'rule-following', as used about front office work? And how does rule-following in this sense fit together with service-mindedness?

These two concepts – service-mindedness and rule-following – as they are often used in the discourse about the development of front office work, may

not be pulling in the same direction as far as the evolution and development of the generalist role is concerned. Service-mindedness obviously belongs to a cluster of concepts having to do with customer-orientation, whereas rule-following, as used here, seems to stem from older ideals based on scientific management. The tension I sensed between them was one of the things which caused me to take note of the mix of world views implicit in the language used by consultants and management. It awakened my interest in exploring in what ways management models and metaphors relate to work practice as observed from the shop floor. What gives what coherence? Who do the models help, and what is it they do – and don't – model?

As I read more of Wittgenstein and came across his conceptualization of rule-following, what had started as gentle tugging at what seemed to be a small loose thread developed into an unraveling of a whole taken-for-granted framework. I simply couldn't stop myself.

Looking back, I realize that my fundamental research question is as simple and pragmatic as they come, a question I've been asking for as long as I can remember; 'Yes, but – *why*?'⁴³

2. How did we go about it?

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2.1 To start with; a simple figure of thought

2.1.1 Using wild cards

When trying to understand a new concept and how it connects with what I already know, or when testing ideas about relationships between phenomena, I like to work with simple figures and images rather than with categories of words. I have found that metaphors, when used like this, stimulate associative thinking. At best, they support constructive dialogues, while steering free of the academic practice, especially problematic in interdisciplinary settings, of getting into lengthy and detailed discussions about definitions, distinctions and demarcations.

Because I use this strategy often, I've come to call such simple figures of thought 'wild cards'. A wild card is a specific playing card in certain card games, a card which has a denomination determined by the holder. It opens up the game in an exciting and unpredictable way.¹

Thus, when I began to get interested in the idea of one-stop shops, one of the first things I did was to develop a simple figure of thought for the phenomena and relationships I wanted to study. It was useful for presenting the focus of my research project, both to laymen and to fellow researchers. Later, I used it as a basis for discussions with the people I interviewed and whose work I studied. But I also used it as a way of structuring my own thinking around what I was studying. It helped me focus one-stop shops and front office work without getting locked into categories and interpretative grids at too early a stage in my work. In talking with people, it allowed for new or alternative associations – theirs as well as my own – in a more unrestricted manner than if I had developed and used a specific terminology for the field.

2.1.2 Stone houses and amoebas

The basic figure of thought which I have used throughout the research project *Working at the Front* has a history of its own. In 1992, the Ministry of Public Administration had appointed a working committee to follow the development of one-stop shops and similar initiatives to improve contacts and communication between citizens and public administration. One of the aims of this committee was to support active interdisciplinary cooperation among researchers interested in doing evaluative research on one-stop shops.

In the group of researchers that met in 1992 to discuss possible forms of cooperation, Bo Helgeson and I were the only ones who were primarily inte-

rested in work science and computer science aspects. Most of the other researchers were political scientists. One of them was professor Benny Hjern, who specializes in implementation processes. I had read some of his articles on the implementation of political decisions when I was studying Public Administration in the mid-eighties². Benny Hjern had some interesting ideas about implementation and about institutionalization processes in public administration, which he shared with us. In doing this, he used metaphors and simple illustrations. He spoke of bureaucratic institutions as stone houses, indicating permanency, but also inflexibility. These stone houses he drew on the whiteboard as equilateral triangles resting solidly on their bases. As processes become institutionalized, according to Benny Hjern's picture, they get specialized. They run smoothly internally, but it becomes harder and harder to improvise within the institutionalized structure. New types of cooperation between different well-established institutions, for instance, are often laborious to initiate and keep going. Because of this, spontaneous cooperation finds other forms.

Benny Hjern called these alternative forms amoebas, indicating primitive, unstructured and not very permanent entities of activity. These he drew as shapeless blobs which intersected the triangles and connected them to each other in various unpredictable ways. Such a blob might represent, for instance, the problem-oriented cooperation of specific individuals from the police force, school authorities and social authorities trying to support a family where the parents are having problems with alcohol and a young teenager runs the risk of becoming delinquent. Fortunately for society, there are a lot of amoebas living their own lives between and within the stone houses. Unfortunately for research, they tend to go unnoticed if you don't look for them, for the very reason that they haven't yet become institutionalized and thus visible in the formal structure.

2.1.3 Figuratively speaking; one-stop shops and the problem of accessing triangles within triangles

Benny Hjern's figure on the whiteboard worked like a wild card for me. I began constructing my own figure of thought to match the way I understood the concept of one-stop shops and some of the possibilities and problems connected with it. Let the participating organizations be represented as stone houses, i.e. triangles. In each organization, there are probably one or more computer-supported information systems³, the computer-based parts of which are presumably at least as specialized and institutionalized – and, yes, inflexible – as the rest. Let these be represented by a smaller triangle inside each organization/triangle. Now, the one-stop shop itself may be viewed as an institutionalization of a number of previously invisible amoebas. But it also opens up new possibilities for cooperation. I don't see it as a triangle in itself. Not

yet. It's too new and unsettled a phenomenon for that. However, it isn't an amoeba, either. After all, it's formally organized, acknowledged and established. I'm focusing on the work that's done at and behind the front desk – so I use a rectangle to symbolize the front desk. Two smiling figures behind the front desk symbolize the team of service-minded generalists in the one-stop shop. A citizen is portrayed as a figure coming up to the desk to ask for help, a question mark hanging over his or her head in a fuzzy-looking cloud symbolizing the kind of unstructured questions and problems people come in with.

The part I'm especially interested in, now at the outset of the research project, is how the generalists are going to be supported in finding the information, answers and solutions that people are looking for. They need access to information from those triangles within the triangles behind their backs. But these represent very diverse and specialized information systems, which have become institutionalized within the institutions they are a part of. Is it possible for a generalist to become proficient in the use of a number of different systems, each one basically designed to support specialists within one specific sector of public administration? Can the various forms of computer support, much of it consisting of old main-frame-based systems from the nineteen-seventies and early eighties, be integrated or at least superficially adapted to support integrated front office work? I have heard rumored, for instance, that the social insurance office will not allow anyone access to their computer support who is not employed by them, nor will they allow access to it from externally located workstations or workstations which are used for accessing other systems. Will the generalists end up being a team of specialists, each one employed by and offering services for one or two of the organizations which are involved in the one-stop shop? Each generalist working with one or two workstations on their desk, each computer used exclusively for communicating with one back-office organization? Or will the generalists truly become generalists but still have to use a different workstation for computer support from each back-office organization?

In the simple figure of thought I have constructed, it is easy to illustrate this problem by filling the front desk with small rectangles, each one connected electronically to one, and only one, triangle-within-a-triangle in the organizations behind the front office. The neat and logical solution, from the front desk perspective, would seem to be to pull all those connections together in one rectangle, to join them in a front-office application which would give effective computer support for cooperative and informative work.

In order to emphasize that I am focusing on work and computer support in the front office, and to symbolize that this perspective is very 'near-sighted' compared to, for instance, much of the research being done on one-stop shops by political scientists, I usually draw a large eye on one side of the picture, an

eye which is observing the figures at the front desk – and perhaps marveling at their cheerful smiles, in view of the complex mess of rectangles confronting them.

What I have described here is a figure of thought which I have used and worked with throughout the research project as a simple but useful tool for reflecting on front office work and how it is supported. It has worked surprisingly well to spark discussions and dialogues with people, no matter what organization, what level within that organization, or what scientific discipline, they came from. However, although this figure has been very useful for me in my work, I also experienced, as the research work progressed, a gradual shifting of my own position and perspective, which helped me to break away from and go beyond it⁴.

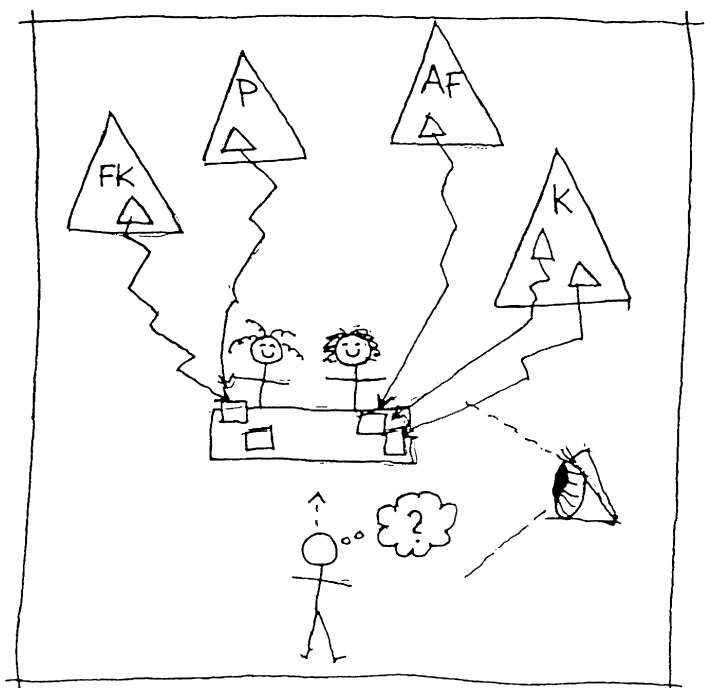


Figure 2.1 A simple figure for thinking and talking about work and computer-support in one-stop shops. The generalists at the front desk need access to information from many different specialized information systems in the organizations whose services they offer. These systems are represented here as triangles within triangles, where the triangular form in itself represents an institutionalized structure of activities/information. FK='Försäkringskassan', the social insurance office, P='Polisen', the Police office, AF='Arbetsförmedlingen', the employment office, K='Kommunen', the municipal administration.

2.2 Research approaches and methods

2.2.1 The nature of the investigation – a patchwork of sketches

In the project *Working at the front*, I have had the ambition to use ideas and methods from several different research approaches. These approaches have in common that they are mainly concerned with qualitative research and research methods, such as longitudinal case studies. They all take their starting point in a phenomenological⁵ view of the world and they are frequently applied in studies of work practice.

Though methods as well as theories partly overlap between approaches, the focal points and frameworks differ. As I have understood it, it is considered good practice in mainstream research work in the academic community to carry out a research project within the framework of one specific approach. This is supposed to promote a higher degree of consistency in the results⁶. In this project, I chose to work differently. I wanted to explore the field and sketch it from several different angles, so to speak, with the idea of juxtapositioning the sketches to see what possible new patterns a patchwork of them might bring to light. It wasn't primarily to compare approaches and methods that I chose to work this way⁷. I saw it, rather, as a way of deliberately delving in complexity and ambiguities. I wanted to court subjective, and if possible, inter-subjective, reflections, dialogue and induction, not struggle single-mindedly with deduction⁸.

My ambition was to find ways of bringing into focus, while retaining depth of field, the work and cooperation at the front desk of one-stop shops. From this desk-level focal point, with a mixed assortment of methods, I also wanted to study how modern technology is actually used, and to what extent it supports the work at hand and the developing cooperative practices of these workplaces. Like the generalists working at the front, I consciously cultivated a pragmatic approach. Basically, I wanted to use methods and models that were to some extent compatible between different approaches and could be used in juxtaposition or overlappingly. As mentioned above, I chose to forego comparisons on a deeper and more philosophical level between the different research approaches from which I borrowed my tools. I aimed for approximation in context rather than specialized precision from the start. In this way, I hoped to be able to see, describe and come to understand the everyday practice of the work I was studying, without reducing the complexity of it beyond recognition.

My academic point of departure has been interdisciplinary, combining perspectives from human work science and computer science. I have been

informed and inspired by above all the four following qualitative research approaches or evolving schools of thought: grounded theory, ethnomethodology and ideas about situated action, Developmental Work Research and Skill and Technology. On the following pages, these different research approaches are given a brief presentation, including examples of methods and ideas I have borrowed from each of them.

My main sources of information in the project have been longitudinal case studies. I did unstructured, in-depth interviews recurrently with front-office employees and other office-workers in the surrounding organizations in two of the case-studies. I did observations of front-office work and I also used video-recording in two of the case-studies. When I used video-recording, I combined this with follow-up-meetings with the people whose work I had recorded. These meetings usually involved showing selected parts of the recordings and discussing how I work and the loggings I do. I found that the follow-up meetings gave valuable opportunities to enrich my understanding of front office work through the discussions they tended to spark off, both about various details of everyday work and more reflectively about the work in general. I also held a two-day workshop for front office workers from five different one-stop shops in various parts of Sweden. This was another opportunity to both broaden and deepen my knowledge and understanding of front office work. At the same time, it gave people from different offices a chance to compare and exchange experiences.

The follow-up meetings as well as the workshop may be seen in the light of a tradition of participative research⁹ which has been strong in Scandinavia since the 1960:s. It is a tradition which is shared, also, by three of the research approaches presented in the following; Skill and Technology, Developmental Work Research and Participatory Design.

2.2.2 Grounded theory for getting off the ground

Grounded theory is a qualitative research approach which originated in sociological interaction research in the United States during the 1960:s¹⁰. Qualitative research does not primarily produce findings from statistical procedures or other means of quantification. Rather, the aim is to gain knowledge by using analytic or interpretive procedures with data which has been collected in a number of different ways, such as through interviews, observations, videotapes and from various types of documents. By working through the data carefully and sensitively, categories and relations between categories are developed from the material as it is collected and analyzed. Grounded theory offers a collection of procedures and techniques for coding data and inductively building theory from it. The theoretical reasoning developed in this bottom-up manner is grounded in an empirical reality in such a way that it

remains to a certain extent domain-specific. It gains its scientific validity and reliability, according to its founders and followers, above all through the careful application of structured coding and analyzing procedures.

The open and relatively unbiased approach offered by the methods used in grounded theory is considered of value especially when studying fields and phenomena which have not previously been subjected to extensive research and where the development of scientific knowledge has as yet not gotten very far. Just such a scientifically unplowed field is the area we focused on in the project *Working at the front*. As yet, very little research has been done on concrete, everyday, work-related cooperation, learning and the development of skills at work in public service administration, an area where on-going widespread restructuring is quite obviously reshaping both the work spaces and conditions and the work itself. Thus it seemed reasonable, when we set about collecting and analyzing data in our case studies, to apply methods and ideas from grounded theory.

As we got deeper into our case studies, we found that front-office work was so new, both to us and to the practitioners we were studying, that we needed to describe and try to understand it better before we set about constructing even very tentative, localized theories about it.

Although my attempts at applying open coding procedures to our interview material and the material from the workshop for generalists did not, as I had initially intended, result in a number of well-structured and consistent mappings of locally grounded categories, the ambition to use grounded theory research methods was a moral support in the first chaotic stages of the research project. The basic coding procedures of constantly comparing and asking questions about the collected data, of selecting categories from the data itself and of using what is learned in this process in the asking of new questions about what is being studied, became supportive guidelines in our research work. They were set largely through our starting point in grounded theory. In retrospect, my impression is that they helped legitimize an open-ended approach which would have been overwhelmingly intimidating, had I not believed that, like cooking soup from a nail, these procedures would ensure that relevant structures would emerge, slowly, from the data and the collection of it as we went along.

2.2.3 Using ethnographic methods and Interaction Analysis to study the situatedness of actions and learning

The field methods long used in anthropology have been normative for the development of qualitative research methods in other sciences. Of special interest for studies of work practice are the methods currently being refined within ethnographically informed and reflective field work. One such method which we have used in our research project is a video-based method

of analysis called Interaction Analysis¹¹. Interaction Analysis as a method belongs to an interdisciplinary domain by the same name, which focuses on the interaction between people and between people and objects in their environment¹². Video technology has been vital for the development of Interaction Analysis. It has made possible both the detailed documentation of on-going activities and, through its playback capacity, the close interrogation required for this type of analysis. At the same time, the use of audiovisual recording has led to the further refinement of live-note-writing and other logging procedures that are used interdependently with electronic recording. The tools and methods used and developed in these types of work practice studies for gathering and analyzing data – detailed observation, video-recording and analysis – have in turn been important for the development of new ideas and tentative theories about the situatedness of action¹³.

Jordan and Henderson make a point of delimiting the method of Interaction Analysis versus the larger domain of interaction analysis, and mark this by using capital initial letters. For stylistic reasons¹⁴, however, I have chosen to write Interaction Analysis without capital letters in the following.

An important source of inspiration and knowledge about using ethnographic methods and interaction analysis in work place studies has been the research staff group Work Practice and Technology at the Systems and Practices Laboratory at PARC (Xerox Palo Alto Research Center) in California. Lucy Suchman, who heads this research group, used the term 'situated actions' in her doctoral dissertation about human-machine communication. What she accentuated in her book, arguing against the prevailing model in cognitive science as it surfaced in the discourse around computers, human-computer inter-action and artificial intelligence, was the fundamental difference between plans and actions. Plans are always in some sense abstract and general. Actions, on the other hand, are taken in specific situations, in a context of particular circumstances into which they are inextricably interwoven. Since making and following plans is seen as an important part of purposeful action in European culture, accounts people give of how they work are often more descriptive of how their work is planned than of how it is actually accomplished. According to Suchman, many problems encountered in human-machine communication could be resolved or avoided if designers of technology re-examined interface design in the light of situated rather than planned action. Ethnographic principles which are helpful in this endeavor are the commitment to holism, to studying people's activities in their everyday settings rather than in laboratories, and to trying to understand what is being studied from the point-of-view of those being studied¹⁵.

Perhaps the most difficult shift of all, from a designer's point of view, is the striving in ethnographically informed field work for a descriptive under-

standing, and thus the use of descriptive rather than prescriptive characterizations of the activities being studied. This difficulty in rethinking basic frames of reference seems to be inherent in the very concept of design as it is generally understood today. Thus the current challenge for ethnographically informed work practice research is to work its way around this paradox and find relevant ways for studies of technology-in-use to inform the design of both work and information technology.

During recent years, interaction analysis as a distinct method has been developed mainly by a research group working as a joint venture between Xerox Palo Alto Research Center and the Institute for Research and Learning (IRL). The main focus has been on the study of human-machine interaction, collaborative design practice, and the situated nature of skill and knowledge acquisition¹⁶. In 1991, Jean Lave and Etienne Wenger, the latter a researcher at IRL, published a book about the situatedness of learning¹⁷. It was based on anthropological case studies of apprenticeship and learning in various non-industrial communities. Comparisons were made to traditional institutions of learning in western society. Lave and Wenger argued that learning is essentially a social process, a process of participation in communities of practice. This participation gradually increases in engagement and complexity as the newcomer becomes more initiated and moves towards increasing expertise.

The concept of legitimate peripheral participation in communities of practice has its foundation in the tradition of activity theory upon which also Developmental Work Research is based (see section 2.2.5 in the following). They share the view that agent/actor, activity and world are mutually constitutive, and thus that learning and knowing are not just a matter of individuals receiving and retaining factual knowledge and information. Information systems, from this point of view, don't reside in computers and electronic networks. Information systems live their real lives in the interactions between people and between people and objects in their environment (including computers and electronic networks), for that is where they are continually being reconstituted.

The situatedness of learning and knowing, the concept of legitimate peripheral participation and the activity-focusing concept of information systems have all been of interest to us in the research project *Working at the Front*. Learning on the job, how newcomers are introduced, how they move from peripheral towards more central participation while learning to handle the work in the front office, and to what extent technology can help or hinder in this process is of course important for the professionalization of the generalist role.

But there is more here that should be of interest for understanding front office work. The reformulation of the concept of learning involves shifting focus from individuals to communities of practice, from individual learning

to interactive sharing and expanding of knowing. In recent work practice studies done by researchers using interaction analysis, there has been an increasing awareness of the construction and use of shared workspaces¹⁸. According to the prevailing management and consultant views I've heard expressed during many interviews and discussions, office work is to a large extent a matter of accessing, handling, coordinating and passing on information from – and often back to – many different sources. My experience from observations, video-recording and interaction analysis, as well as from workshops, indicates that 'accessing, handling, coordinating and passing on information' should be problem-itized and described in less machine-metaphorical language, in order to understand more about how the work actually gets done¹⁹. However, by any name, since this work is usually performed by a team of generalists who are expected to be able to step in for each other when necessary, concepts such as shared workspaces and shared knowing and information ought to be important to keep in mind when studying this type of work place.

Within my research project, I used ethnographic principles for and methods of gathering and analyzing data. These methods included interaction analysis. Besides the interactive video-laboratory work I performed within the research team, I arranged sessions of re-plays of parts of the recordings combined with reflective discussions about the work with the people who have been studied. From these meetings for mutual feedback, I have gained much valuable information about concrete problems and situations, both ones that have been shown in the reviewed video-recording and others, brought up through associating something in the recording with other similar or opposite situations from front office work. The comments, story-telling, reasoning and reflection on work practice from the involved practitioners has helped me modify and gain confidence in the grounding of my interpretations and the development of my tentative theories about front office work. It has also, in a more general way, helped build good working relationships with the people I have been studying. Finally, in the tradition of what has often been called the Scandinavian approach to systems design²⁰, I have had the ambition to arrange this kind of continual two-way feedback-process during the research project in ways that would be useful for the generalists in their own definition and development of their work and work-roles.

2.2.4 Skill and Technology for getting the picture

During the past fifteen years a new research area has evolved in Sweden around questions concerning the long term aspects of technology on work and skill. It is one of several branches of work life research that have been subsidized by

the Swedish Center for Working Life and the Swedish Work Environment Fund²¹. The person most directly associated with this research area, which is called Skill and Technology, is professor Bo Göranson at the Royal Technical University in Stockholm. By following technical change in work places in long term case studies, and by focusing on people and technology 'doing their job', the effects of computerization on work practice and skill are described and analyzed. The main methods are long-term, in-depth case studies of various work professions, in which individual professionals become informants about their work over a long period of time, combined with workshops and seminars where professionals from several different areas of work meet and engage in reflective and comparative discussions about work practice and skill. The use of metaphors to describe work life experience is encouraged and art, drama and literature are often used as a starting-point for reflection about work.

Within the research approach Skill and Technology, the main focus is on the conceptual knowledge of the practitioner, i.e. how people reflect and talk about what they do. A metaphor which is frequently used in this context is 'the inner picture'²². This is a way of envisioning how people understand what they work with and how they make sense of or discard information they receive in relation to it, gradually – according to the metaphor – building up a more and more fine-grained and rich inner picture. Mastering a profession is seen as a life-long process – through practical work and reflection – of acquiring, revising and expanding a rich inner picture of the work one does.

This matches ideas about how professionals think in action, as described by Donald A. Schön in his books about the reflective practitioner²³. Schön, however, has examined the reflection-in-action of professionals such as engineers, architects, lawyers and doctors, and signals his issue about the limits of current theoretical professional education by using the term reflective practitioner. Researchers in the field of Skill and Technology, on the other hand, have mainly concentrated on skilled workers in occupations not traditionally looked upon as professions, with less or no formal, theory-based education for their work – carpenters, white-collar workers, mid-wives and process operators, for example. Here, the challenge to main-stream assumptions lies in illuminating the professionalism of the skilled worker. The issue is to bring the concept of the skilled worker as a reflective professional to bear on the development of work and technology.

The restructuring of labor processes and the development on the labor market during the past decade²⁴ have to some extent brought Schön's perspective and that of researchers within Skill and Technology closer to one another. Organizational hierarchies and the division of labor are changing shape. Borders between different professions and between traditional professions and other types of work have begun to blur²⁵. More and more,

professionals and managers find themselves performing word processing and other formerly clerical functions as part of their everyday work. Both white- and blue-collar workers are taking on tasks which used to be considered too qualified or too specialized for them to handle, while many of their former routine tasks have been automated. Jobs are being combined and redesigned and now tend to span over a larger variety of tasks than previously. The relevance of learning by doing, of reflection-in-action, of professionalism-in-practice, has, if anything, been emphasized by this development, while the gap between traditional professions and other skilled work has become something of a side-issue.

Where the ethnographic approach is mainly concerned with describing what people actually do, rather than what they say they do, the approach within Skill and Technology is to some extent closer to ethnomethodology, the sociological study of how members of a society come to know and make sense of the everyday world of talk and action²⁶. The research approach Skill and Technology focuses on the epistemology of professional knowledge, i.e. the development and maintenance of professional knowledge at the level of the individual, the work group, and the community, and how it is affected by technological change and development²⁷. As with current concerns in ethnographically informed work practice studies using interaction analysis, a main theme in Skill and Technology is how this research area can inform the design of computer systems.

I have borrowed ideas and methods from Skill and Technology both for my field work and for the workshop for generalists which I arranged²⁸. In my case studies, I used front office personnel as 'informants', that is, I repeatedly went back to the same individuals and asked them to tell about their work and how it was developing. The working concept of following technological change and work development through the perspective of an evolving profession over a long period of time was partly inspired by previous and on-going research within the field of Skill and Technology. Results of previous research projects in this field have also provided a valuable historical context for many of the observations I made in my case studies and helped me interpret and understand phenomena which I might otherwise have left unheeded as having no relevance for the project. The attentiveness to the historical dimension, the openly explorative approach, and the use of dialogue to bring out ambiguity in the open and handle conflicting perspectives, are themes that I have picked up here, and which I have tried to keep in mind in my research work.

Within the research area Skill and Technology, there has been a striving to link empirical results to the development of a body of theory of practical knowledge. One of the philosophers who is often referred to in this field is Michael Polanyi. In his book *The Tacit Dimension*²⁹ he has written about the tacit dimension of human knowledge, taking his starting point in the fact that

we can know more than we can tell. Tacit knowledge has since become a much-used and not entirely unproblematic concept. An interesting point, however, is that what Polanyi actually wrote about was tacit *knowing*³⁰. Thomas S. Kuhn, in his well-known book *The Structure of Scientific Revolutions*, changed this in a footnote to *tacit knowledge*, thereby transforming a basically active dimension of the everyday world to a static object, something to be discussed in terms of 'having' rather than 'doing' or 'being'³¹. Looking upon knowledge as knowing means seeing it as constitutive activity, not as an object. This has far-reaching consequences for how we think about knowledge, information and communication. It also ties in with ideas about peripheral participatory learning (see section 2.2.3) and with the activity theory upon which Developmental Work Research is based.

Discovering Polanyi's concept of knowing, and the idea of knowing being dynamically linked to social activity, was for me like finding an elegantly simple and suddenly quite obvious translation of a foreign expression which had been baffling and bothering me for a long time. This foreign expression was not the traditional concept of knowledge in itself, for where used it is often embedded in a context which would also need to be revised to fit a constitutive view of society. What Polanyi's idea of knowing seemed to match so well was what I had begun to catch sight of in my observation and analysis of front office work practice, and the kind of reflective, situated understanding I recognized from my own life experience.

2.2.5 Developmental Work Research for catching sight of dynamic inter dependencies and change

One of the research approaches which has been a source of inspiration for the MDA group at the university of Karlskrona/Ronneby is Developmental Work Research³². Based on cultural-historical activity theory as it was developed by Vygotsky, Luria, Leont'ev and others, and evolving through experience gained in a series of case studies by Yrjö Engeström and his followers, this approach is context-sensitive by definition. Not only is the framework broad, but the basic unit of analysis is expanded from the individual to the socially distributed activity system. This means that in studying work, what is focused is a 'unified dynamic whole' consisting of the individual practitioner, the colleagues and co-workers of the workplace community, the conceptual and practical tools and the shared objects. The activity system is often modeled as a triangle, see figure 2.2.

The conceptual shift of focus from the individual practitioner to a unified activity system paradoxically brings into our field of vision a multi-dimensional diversity which was previously nearly invisible: the variety of different view-points within the system, and the many layers of historically

accumulated artifacts, rules and patterns in use in the workplace. The triangle model in figure 2.2 looks deceptively static and stable. In fact, an activity system is by definition never static. On the contrary, it is seen as continuously transforming and re-constructing itself, working through tensions and contradictions within and between its elements. Influences from other activity systems are internalized through similar processes of transformation. This dynamic quality, which over time results in evolution and change of the system, is depicted in the model of the expansive cycle of reorganizing shown in figure 2.3.

The developmental framework of developmental work research is based on the concept of the expansive cycle. It is envisioned as being above all a process of learning. Doing developmental work research involves actively connecting the ethnographic fieldwork of longitudinal case studies to phases of the expansive cycle. It means deliberately intervening and experimenting in the field in ways intended to push the learning process forward. Learning becomes a joint venture, in which the triangular model of the activity system (figure 2.2) is used as a reflective tool for analysis of the present situation as well as for design and implementation of the next developmental stage of the activity system itself. With these interventionist tools and methods for doing fieldwork, Developmental Work Research is clearly to be understood as action research³³.

How, then, have I used the developmental work research approach within the research project *Working at the Front?*. I have been inspired by it from the start, recognizing in it an analytical tool for catching sight of interdependencies in the work place which might easily be over-looked by focusing work near-sightedly through a video-camera lens. Although I haven't used either the triangle model of the socially distributed activity system or the metaphor of the expansive cycle explicitly as a means of structuring or communicating in my fieldwork, it has affected the way I have set the framework for my project.

My original intention was to use action research in the longitudinal case studies. I realized I would be studying an evolving form of work organization during a period of profound change in public service administration. Previous personal experience from participatory design projects³⁴ as well as current trends in Scandinavian human work science research made it seem natural to plan the fieldwork in terms of mutual learning processes. I nourished ideas of participating in quality circles at the workplaces being studied, circles aimed at discussing and helping to develop work, cooperation and computer support in the front office as well as cooperation between the front and the back offices.

After the initial rounds of interviewing in the two case studies in northern Sweden, it became clear that the combination of long distance traveling and the early stages of development at which I had gained access to these two cases would make it difficult for me to do intervention research with any

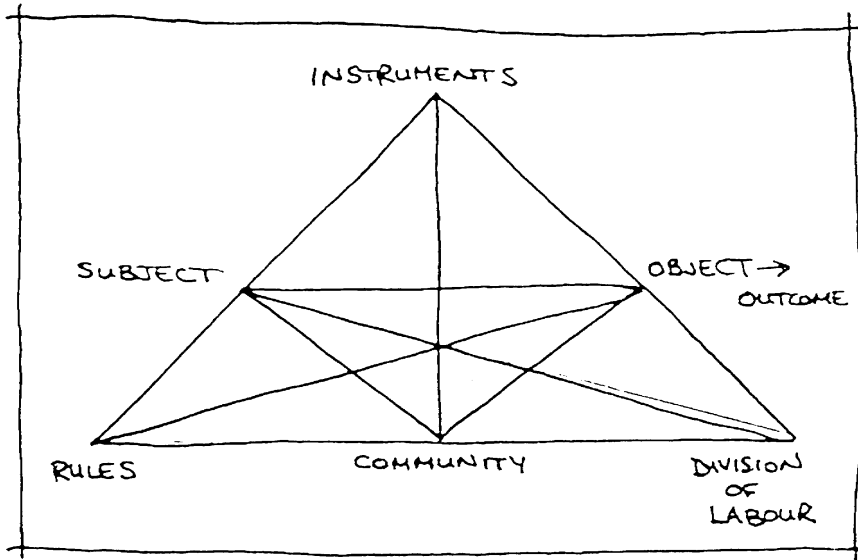


Figure 2.2. In Developmental Work Research, triangles within triangles are used to model the socially distributed activity system (freehand from Engeström 1991).

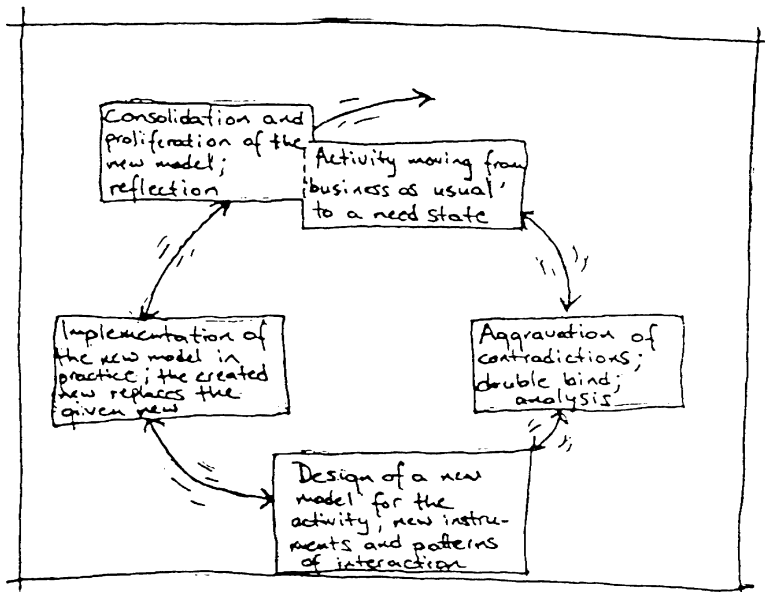


Figure 2.3 The expansive cycle – above all a process of learning (freehand from Engeström 1991).

continuity to speak of. I decided, instead, to follow the development through ethno-graphically informed fieldwork but to strive for using participatory methods and intervention whenever and wherever I found the opportunity to do so in consistent, though less structured, ways.

One important insight gained from this approach has been the legitimacy of not reducing ambiguities and contradictions in the gathered material. On the contrary, developmental work research looks to the multi-voicedness³⁵ and historicity of the studied unit of activity as a resource. The inner contradictions, once identified, become a resource in understanding the work and developing it, both for the researcher and for the people directly involved in the work activity.

2.2.6 People, Computers and Work – developing an MDA work practice

People, Computers and Work, or the MDA program³⁶, as it is called here, is a four year educational program at the university of Karlskrona/Ronneby. It is a new, interdisciplinary program, at a new university³⁷. The most distinguishing characteristic of the program is the focus on how people actually *use* information technology in everyday work-life. The aim is to teach the students how to understand work practice, and how to bring this understanding to bear on the design and development of applications so that these support real needs – of the individual in getting his or her work done, within the work group and on the organizational level.

The MDA program combines aspects of Human Work Science and Computer Science. It is organized as problem-based learning, which means involving the students in hands-on, real-life projects from the first year onwards. Research is tied in closely with education, and mutual learning with teaching, right from the start. This means the teachers connect their teaching to their own learning and research in the MDA field. A large part of the course literature, for instance, consists of research reports and articles. Thus the students – as well as the teachers – expand their knowing through a process we call explorative learning³⁸. This creates a vital environment, always changing, open for new angles and new problems. We have come to talk about intensive and extensive research in this context. Researchers do intensive research, based on elaborate methods and theories. The students don't have the most effective tools and methods at their disposal yet, but they can do a kind of extensive research. Through teamwork and feedback from teachers, they can produce valuable results³⁹.

Getting involved in building up the MDA program has been a challenging and exciting experience. Talk about knowing-in-action! I have brought it up here, under research approaches and methods, because I am convinced that it has been one of the main constitutive influences on my research work and

results. Within the MDA teaching and research team, we have developed a community of practice which also includes the students.

Especially in the studies of work practice at the one-stop shop in Sölvesborg, during the spring of 1996, the students in the class of MDA95 took on a participatory and constructive role in the research work. While their participation was a vital part of their training and education in ethnographic field work, it also broadened the scope of my study and gave me a richer picture of front office work. It would simply not have been possible for me on my own, or with the aid of one or two assistants, to carry out the type of continuous video-taping and observation of front office work during six consecutive work days which we actually succeeded in doing. The varied experiences, reflections and material which could thus be shared and discussed during the ensuing period of video-analysis and the writing of student project reports was of great help to me in my own work. I hope my own enthusiasm in working together with the students in this way was, in turn, helpful and useful for them. See appendix for a list of names of participating students and a list of the reports they wrote about the case study in Sölvesborg.

2.2.7 'That's fine – but what is your basic unit of analysis?'

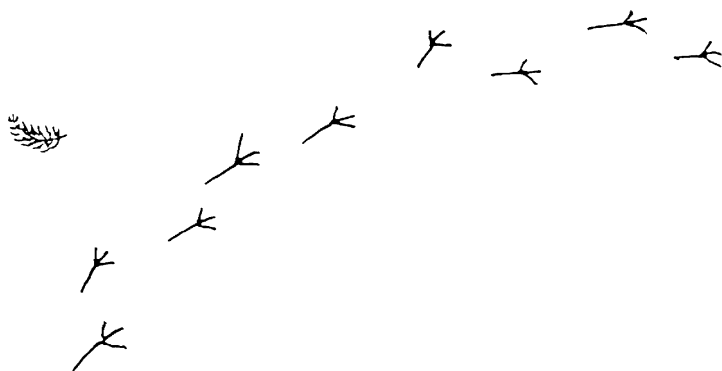
My ambition from the start was to gather impressions, without sorting or ordering them too much. For me, it was a question of acquiring a feeling for the field I was interested in studying. As a practitioner, I found it natural to develop that feeling above all by becoming actively and personally involved in field studies. Diversity and ambiguity – the messiness of everyday life – were an important part of the premises for this process.

There is a deliberate vagueness to this way of approaching an area, a vagueness which can be provocative for those who feel that a perspective should be chosen, methods decided upon and concepts and research questions clearly and unambiguously defined from the outset, in order to legitimize a research project. But though still considered unorthodox, this way of approaching what you have set out to gain a better understanding of is not new. Erik Stolterman has found a quotation in a book called *Intuition* from 1892, by a philosopher named Hans Larsson, which captures the essence of this meandering method (for it is indeed a method, although it may appear, to some, extremely unmethodical):

Don't be too masterful with your definitions. You wish to hold truth in the palm of your hand: that's well and fine – if you can! The secret of life is like a bird in the forest. Do not be like those who would rush in clumsily, wishing to catch him, alive or dead. You should approach carefully and remain quiet – then you will hear him sing!¹⁴⁰

Still, in academic surroundings I have sometimes experienced difficulties in defending the lack of rigor and principle in my approach. ‘What is the basic unit of your analysis?’, was a question which stopped me short, the first time I presented my research project to a group of Scandinavian researchers who were mainly active in the field of Computer Science. I hadn’t been thinking in those terms at all – it was like being thrown a square ball when you were expecting a round one. There was simply no way I could play that ball. I answered, finally, that I was studying the work, the activities, the people, the work team, the cooperation, the computer support and – last, but not least – what gives coherence to all this in the front office. Try as I might, I couldn’t distinguish any absolute basic unit in what I was studying. To do so would have been to catch the bird by killing it.

In retrospect, it seems to me the question, although addressing the issue of a basic unit of analysis, was ultimately about choice of research perspective.



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3.1 Implementing one-stop shops

3.1.1 Background

In 1992, we initiated our first longitudinal case studies. In two inland municipalities in northern Sweden, we were offered the opportunity to study the development of coordinated local service offices over several years, from the initial planning of the projects through various stages of implementation. The general background of these two cases – the MISO project in Pajala, and Tingsbacka in Arjeplog¹ – is presented in brief below.

For our part, the case studies in Pajala and Arjeplog started as an assignment from the county administration. The assignment was to document how the work was affected and how computer support was actually put to use in the new front office functions that were being established in the two municipalities. In 1994, the original assignment resulted in two reports (Eriksén, 1994a, 1994c). The longitudinal case study in Arjeplog continued, however, and, together with the experience gained from the case study in Pajala, it has formed the basis for our larger research project, *Working at the Front*.

In both Pajala and Arjeplog, the one-stop shop projects have involved cooperation between municipal administration and several different organizations run by the Swedish central government. This is more unusual in the rest of Sweden, where most of the one-stop shops offer municipally administered public service only.

In Sweden, the role of the county administration is to represent the state in the county and to function as the county's link to the national government. The county administration is responsible for promoting the development of the county, performing various administrative tasks and implementing the policies of the Swedish parliament and government. In Norrbotten, the northern-most of Sweden's twenty-four counties, this involves the following areas of activity: the development of trade and industry, education, communications, environmental protection, nature conservation, agriculture, reindeer herding, fisheries, preservation of the cultural environment, physical planning and housing, civil defense and rescue service, social services and veterinary affairs.

For the past decade, the county administration of Norrbotten has been striving to coordinate and collocate the various local national authority offices in each municipality. As a rational part and extension of this endeavor, the county administration has been one of the driving forces in the establishing of joint-venture service offices in cooperation with the local authorities. This has been seen as a crucial strategy for strengthening and improving the local infrastruc-

ture and guaranteeing a future for the population, especially in the vast western inland parts of the county.

We were given an initial presentation of the one-stop shop projects in Pajala and Arjeplog by representatives of the county administration of Norrbotten. Subsequent interviews with members of the Arjeplog group², and with the manager of the local public employment office in Arjeplog, give much the same general picture of the on-going discourse within regional and local government and public service about conditions facing the population in northernmost Sweden. Geographically large, sparsely populated municipalities³ and heavy dependency on the public sector, ore-mining, forestry, tourism, fishing and reindeer herding for a livelihood are characteristic features of this region. The main problems are the lack of jobs, lack of local entrepreneurs and few educational opportunities to study locally, a situation which causes continual draining toward the south of young people. Much of the national funding for promoting the development of the county is distributed through the county administration. Long-term regional strategies for improving the local infrastructure and attracting new businesses to the area include deliberate and extensive investment in modern information and communication technology⁴.

3.1.2 The MISO project in Pajala

The MISO project

MISO is the acronym for 'Medborgare, Information, Service inom Offentlig förvaltning', which translates into 'Citizens, Information, Service within Public Administration'. The municipality of Pajala initiated their so-called MISO project in the autumn of 1991. As one of six different municipalities – the others were Botkyrka, Karlskrona, Storuman, Surahammar and Örebro – Pajala was to take part in the larger MISO project which was at this time being funded by NUTEK, the Swedish National Board for Industrial and Technical Development, through the ITYP program. The ITYP program, which aimed at improving skill and productivity in the service sector with the aid of modern information technology, was being implemented through NUTEK's department for information technology during the five year period of 1992-96.

The main MISO project was administrated by MISO OMNIA, which in the beginning of 1992 was part of a state-owned group of companies sorting under the Ministry of Finance⁵. The aim of the overall project was to develop and implement a computer-based system called MISO, using hypermedia to improve and simplify access to public services. In Pajala, the local MISO project was set up as a project primarily concerned with coordinated and cooperative reorganization and development of local public service functions. However, as the aim of the overall project implies, there was an

emphasis from the start on modern information technology, involving plans of Pajala municipality taking part in what was intended to be a participatory process of design, development and implementation of a hypermedia application to support front office functions.

The county administration, who partook in the project, saw it as a natural sequel to the coordinating and collocating of the local national authorities' offices which they had accomplished in Pajala during the previous years. The municipal administration saw the project as an opportunity to develop a public service office equipped for the future, with modern technology, a good work environment and legitimate cooperation across organizational boundaries, offering more qualified work tasks for the office personnel. Among the stated goals at the outset of the project was to increase and enhance local cooperation for the good of the development of the whole community⁶.

Initially, the plan was that six different organizations would participate in the project. These were the municipal administration, the customs office, the local county administration, the police authorities, the public insurance office and the public employment office. Later, the crown forest service, which was at this time undergoing a process of reorganization, and in effect centralizing its administration from five different districts within the community to one central office, was offered office-space by the municipality in the coordinated services building in central Pajala, accepted the offer and thus became one of the participants.

Two front offices

The front-office function which the MISO project planned to develop and support with modern technology was intended to have two separate locations within the community. One front office, with two people working at the front desk, was to be located in the building for coordinated services in central Pajala town, together with the municipal office for trade and industry, the crown forest service and the local county administration. The other front office, manned by one person, was planned as a one-stop shop, 110 kilometers to the north-west, in the small village of Muodoslompola, near the border on Finland. Here, approximately 500 inhabitants live in an area which has very little to offer in the way of public services.

The one-stop shop in Muodoslompola would offer services locally for the police authorities, the municipality, the public insurance office and the public employment office. According to the original plans, the local postal service would be handled through the one-stop shop as well. By the time the project got under way, however, the post office in Muodoslompola had been closed down, and the postal service had been contracted to the local grocery store. This was a solution to the problem of servicing unprofitable areas which the Post Office Administration had started applying successfully at this time in many

parts of the country. So had other state-owned enterprises; thus, pharmaceuticals and alcohol, which in Sweden are sold exclusively through the state, are ordered and delivered through the grocery store in Muodoslompolo. The agendas of the central organizations in these cases include trying out various forms of local cooperation with other service organizations, but do not in any way limit such cooperation to public institutions. For the planned one-stop shop in Muodoslompolo, the contracting of the postal service to the grocery store meant the loss of a substantial part of the financing.

In Pajala town, the public insurance office and the police authorities had recently moved into new localities in the center of town. Most of the municipal administration was also located centrally in modern and functional offices. There was little motivation within these organizations for establishing new front office functions in a renovated office-building a few blocks away. The planned front office function in central Pajala was therefore limited from the start to a cooperation between the three organizational units that had decided to collocate their offices to the renovated office-building 'Söderbergskans'. These were the municipal office for trade and industry, the local county administration and the crown forest service. Around the time of the move, the municipal office for trade and industry became a municipally owned company, Pajala Partner AB. These three units, with at this time a total of nineteen employees⁷, were the back offices which the front office was to cooperate with and provide service to the public from.

The generalists

According to the plans, three people were to be directly involved with the front office functions in Pajala. They were to receive special training as generalists. One of the three, a woman who lived in Muodoslompolo and had worked at the post office there before it closed down, was to take care of the one-stop shop there. In the front office in central Pajala, the temporarily employed clerk at the county administration office was to become the main front office generalist, and the part-time clerk at the crown forest service was to function as part-time generalist when necessary.

These particulars are deliberately mentioned here, in an attempt to convey a sense of the situatedness of planning, and plans, in actual cases. Although this seemed especially apparent in Pajala, where unemployment is high and every job opportunity is so to speak wrestled out of nowhere, in practice this matching and fitting in of what is already there, and what is needed, to the plans being made, is surely universal. This is, after all, what planning *is*⁸.

The three women were sent to Stockholm for a three-day course for generalists, which was arranged by MISO OMNIA in the autumn of 1992. During the course, they saw and tested a prototype of the MISO system, the computer support which was to be installed in Pajala. They were expecting to

participate in developing this system during implementation to suit the local needs.

What we thought we were watching

We made our first visit to Pajala in the spring of 1992. 'Söderbergskans', the office building in central Pajala, was being renovated, and we made our interviews with the people who would be moving into it in their old offices. From our point of view, at this time, the MISO project looked interesting. The evolving generalist function could be studied in two different locations, including the communication and cooperation which was being planned between these two. The one-stop shop in Muodoslompolo could be expected to be an extreme example in several ways, which could in itself be an interesting factor as a comparison to our other case studies.

The plans to have the generalists participate in the local development and tailoring of computer support with hypermedia was naturally of interest to us, also. Although there would only be three organizations cooperating behind the front office in central Pajala, all three of these had certain public services which might gain in both efficiency and quality by being coordinated. They also all three had different forms of computer support which might in some ways be of use to the others. Besides this, the county administration office in Pajala was responsible for the regional archives of reindeer ownership earmarkings, which up until now had been stored on paper forms in loose-leaf binders, but which were being computerized in a new system with graphic representation. This seemed, in itself, an interesting development, with possibilities of enhanced public accessibility, including a broader range of search and retrieval options, to a type of information which is of much use in these parts of the country.

What we saw; things that didn't happen

However, actions did not follow the plans in Pajala. The financial problems proved hard to solve. In 1993, the overall MISO project came to a halt. MISO OMNIA disappeared from the scene. In the spring of 1993, when we interviewed twelve of the nineteen people stationed in the renovated office building in central Pajala, visitors were met by an elegant front office reception desk in the entrance hall, but there was still no generalist employed to work there. Nor had the one-stop shop in Muodoslompolo yet been opened. In January 1994, when the report about the project in Pajala was written (Eriksén, 1994a), the situation was much the same. The report was titled, provocatively, *What's happening in Pajala?* The answer, as far as it concerns the generalist role and how it is supported in public service one-stop shops, seems to be: 'Nothing much'. But things did actually happen in Pajala because of the MISO project, and the fact

that so much was planned and didn't happen, was more significant to the overall picture we slowly came to piece together over the years in our research project than it first seemed.

We gained valuable experience from our case study in Pajala. This was where we first began to realize that focusing on certain aspects of a process without knowing quite what you're looking for allows for glimpsing patterns out of the corner of your eye, so to speak. The first time you catch a glimpse of something, you don't recognize the pattern of it. Yet there is *something* there, and the next time you come across something similar, you begin to look more directly at it, asking yourself what it is that reminds you of – in this case – what you saw in Pajala.

What we saw; cooperation at the back

The cooperation, skill and computer support we were focusing on in our research project was that which was – and is – developing with, through and around the generalists in the front office. In Pajala, as it turned out, there were no generalists to study. However, we didn't know this would be the outcome from the start. In our interviews before and after the move to 'Söderbergskans', we asked most of the people involved about their computer support and about their cooperation with the other involved organizations. It seems that the collocation, with shared spaces such as the lunch and coffee-break room, entrance halls, toilets and conference room, and certain shared equipment and technology such as the copying machine and the telephone exchange, have brought about an increase in informal everyday cooperation and exchange of information. This in turn has led to the coordinating of certain activities, for instance the arranging of joint information meetings for forest owners. There also seems to be an evolving interorganizational cooperation around the computer support made available through the collocation.

Basically, each of the organizations in 'Söderbergskans' has the computer support they would have had even if they hadn't been collocated. The crown forest service has cut its communication costs by reducing the number of modems used, but this is an effect of the centralization of the internal administration from five district offices to one central one rather than of the collocation with the other organizations. But there have been certain synergy effects for computer support, here also mainly on an informal level. Seeing what other groups of people have access to and work with can raise the awareness of alternative, and perhaps better, solutions than the ones you are used to working with.

A concrete example from Pajala is that the crown forest service has discovered that the county administration office has on-line access to the central register of landed property at the national surveying agency. This database is both more extensive, and more up-to-date on a day-by-day basis, than the

information the crown forest service has access to through the central database in their own organization. The realization of this has had several effects. The people working on the crown forest service can go in to the county administration office and ask for more detailed information, if they suspect their own data is incomplete or outdated. Services they have been able to offer in return have included access to detailed maps of the area and the services of qualified forest wardens for evaluations of estates, resources which the county administration office previously lacked or had to consult externally. Another effect, on a more long-term basis, is that with the knowledge and first-hand experience of what is accessible on-line to the county administration, the people working for the crown forest service can request similar possibilities through their own central administration – which may, in the long run, contribute to increasing central coordination and cooperation around state-owned databases.

3.1.3 Tingsbacka in Arjeplog

Tingsbacka; the building

Tingsbacka lies on the highest spot in central Arjeplog. With its three stories and central skylight, it is the highest building in Arjeplog, and the only one in town with an elevator. Finished in 1993, it has a modern design, with a stark, yellow brick facade. It is built adjacent to the old municipal offices of red brick, in such a way that the two buildings now function as one, sharing a spacious main entrance, with glass walls toward the court yard and polished granite floors. In the center of the new building is an indoor courtyard with a skylight high above it, which together with the white walls and light wood furnishings lend the entrance hall a light and airy feeling.

The visitor entering Tingsbacka comes into a reception area where a long, curved wooden counter divides the office work space behind it from the entrance hall with its sofas and chairs, green plants, art exhibit and bulletin boards. To the right, a stairway leads upward to the upper floors. On the left-hand side is a separate reception desk for the police authorities. Two or three women usually sit working behind the counters. They have a view out over the court yard and can see people coming and going. As the visitor steps in, one or several of them will look up to see if the person entering needs help with anything. This is the public service one-stop shop in Arjeplog. The women who work here are the generalists who supply the front-office functions for the organizations in the rest of the building.

We drive up and park the car next to the two-story red log cabin in front of Tingsbacka. This old-fashioned-looking house used to be the town baking cabin, but has been renovated and now contains the municipal videocon-

ference room, used for distance conferences as well as for distance tuition. The booking of the video-conference room is one of the tasks which is handled in the front office in Tingsbacka.

Unloading our equipment from the car, we put a new video-cassette in one of the cameras and start filming as we walk in through the entrance, just to get a general over-view on tape of the work-place we're studying. We're going to spend the morning video-recording work at the front desk. Once we're inside, we'll set up both cameras at angles so that they cover, partly overlapping, two of the four work places behind the reception counters. Then we'll sit quietly, one of us by each camera, taking notes of what is happening for about an hour while the cameras are on. Later, we'll spend the afternoon and evening watching and writing logs from the video-recordings, using the notes we've taken on site to supply contextual information which might not be apparent in the recordings. The next step involves analyzing the recordings in detail and choosing some sequences which we think are relevant to show and discuss with the people we have filmed. We've booked a room and a time tomorrow afternoon for that showing and discussion.

I let the camera swoop in slow-motion from the sky-light three stories above, along the balconied halls and staircases that make up the walls of the indoor courtyard, back to the reception counters. The architecture is alluring, but it's the work, cooperation and computer support at the front that we want to focus on. It's time to rig up the cameras on their tripods and get started. The last thing we do before we start recording is to check the cameras so the dates and times correspond with each other and with our watches; 08:20 January 30th 1995.

Tingsbacka; the concept

The first time I was up here, in the spring of 1992, the top of the building crane standing next to the municipal offices was the highest point in central Arjeplog. The new building at that time consisted of a few rows of bricks on a cement foundation and a roll of architect's drawings. Tingsbacka was an idea that had begun to materialize, and we were researchers from the south who had seized the opportunity to start a case study on the development in Arjeplog around a new concept of cooperation in public service administration.

The people who would be moving into Tingsbacka when it was finished at the end of the year were still working in their old offices in various buildings in the center of town. We went from office to office interviewing people about their work, the move and what they thought of the idea of sharing a building and a front office with several other organizations. These interviews were very loosely structured, although we did steer the conversation in such a way that we could discuss certain topics that were of special interest to us; what different computer systems and other forms of technology people worked with, to what extent they cooperated in their daily work with other local organizations and

what types of services they thought could be handled in the front office in Tingsbacka. Each interview took somewhere between an hour and an hour and a half. In this way we talked to about thirty different people during two visits that spring. Gradually we began to get to know a bit about the public service administration in Arjeplog, and about the background of and ideas around the building of Tingsbacka.

The idea of joining forces and building a 'State House' in central Arjeplog was initially presented by the head of the public employment office in the autumn of 1989. Unemployment was, and is, a big problem in the region. The public employment office handles contacts with employers and potential employers as well as educational programs, 'start-your-own-firm' programs and benefits for the unemployed. Thus, when unemployment increases, the office has a larger work-load to cope with. In 1989, they needed more office space, and saw the advantage of sharing the investment costs for a new, larger office-building with other local state authorities, such as the public insurance office and the local county authorities, who were also looking for new offices at that time.

By the following spring, the municipality board and the county administration board had held a joint information meeting in Arjeplog about projecting for a central public service building. The idea was no longer confined to a cooperative project between state authorities on the local level. The concept of a 'State House' had grown and changed into a project concerning nearly all public service administration in Arjeplog.

By midsummer 1991, the main financial framework for the project had been established. The municipality of Arjeplog would take on the proprietorship of the planned new office building, which would be built adjacent to the existing central municipal administration offices. The municipality needed more office space, too, so part of the municipal administration would move into the new building. The rest of the new office space would be rented to the police authorities, the public insurance office, the local county authority office, the public employment office and the national crown forest company office.

A possible, though not definite, future tenant at this time was the administrative office of the so-called Arjeplog group. The Arjeplog group is a committee which was appointed by the government in 1991 when it became clear that Boliden Mineral Limited, the company excavating the lead mine in Laisvall and the largest single source of employment in Arjeplog, would not be given permission by the government to expand the mine further. The decision was a heavy blow for Arjeplog, as it meant that the mine would probably be closed down within the next ten-year period, leaving nearly 300 employees without jobs and most likely affecting many other jobs in the area. In this situation, the government took the decision to set aside 100 million Swedish crowns to be used for special developmental projects aimed at building up and strengthening trade, industry and employment opportunities in Arjeplog. The Arje-

plog group was commissioned to coordinate state and municipal endeavors to this end during the five-year period of 1991-1996. Four reference groups were appointed in the spheres of activity which were deemed most important to invest in; trade and industry, tourism, fishing and education. An administrative office was opened in central Arjeplog and a secretary and four project administrators were employed. It is this administrative office and its personnel which are referred to in the following text as the Arjeplog group.

To make room for the new office building, the old district court-house was torn down. A name contest was held, and the winning suggestion was based on the history of the site; Tingsbacka means 'Hill of the District Court'. Tingsbacka became the name of the new building – but also the name of the entire cooperative project, which encompassed more than the building itself. Ambitions were set high. The vision presented of Tingsbacka year 2000 was that it would by then have contributed to making Arjeplog the leading municipality on public service in Sweden. Arjeplog would become known as an innovative municipality, with a supportive infrastructure offering top quality service, and as such an attractive location for new industries and businesses.

Tingsbacka; the project

Much of the initial information we got about the Tingsbacka project consisted of formal project documentation. We were invited to information meetings, and we received a copy of the minutes after each project meeting. The project leader explained the background and the structure of the project, and kept us informed of the formal project progress in Arjeplog between visits. In August 1992, we took part in a trip to Denmark, which was made by some of the per-sonnel from the organizations moving in to Tingsbacka, along with some of the project members, in order to visit one-stop shops there and study how they were organized and functioned.

The Tingsbacka project was led by a local project committee. Besides this, there were three working committees, responsible for the areas information technology, organizational issues and development of personnel. In each of these groups there was a representative from each organization that was involved in the move to Tingsbacka. In the project committee there was also a representative from the county administration board, which, along with the municipal administration, was seen as the main coordinator of the project. The project leader, in the initial stages, was from the county administration. Finally, there was also a reference group with representatives from the involved unions.

In the early documentation from the Tingsbacka project, there is mention of two parallel courses of action, a 'hard line' and a 'soft line'. The hard line represented the building project, shared information technology solutions in the new building, certain basic furnishings, joint postal service etc. The soft line represented corresponding developmental investments in the personnel

working in the different organizations moving into Tingsbacka. In order to achieve a good base for cooperation and coordination of public services across organizational boundaries in the new building, the plan was to educate and prepare the involved employees. The aim was to change what might be basically negative or indifferent attitudes to optimism and openness towards new perspectives and new ways of working.

A three-phase development program was set up, containing information meetings, courses and joint developmental activities for the personnel. In phase one, general information and courses about the Tingsbacka project would be offered to everyone in Arjeplog who worked with public service administration. In phase two, everyone involved in the front office project in Tingsbacka would be given a more specialized and tailored education concerning office work processes, the generalist role, cooperation, change and development. The third phase would affect the same group of people as the second phase and was mainly concerned with follow-up activities and evaluation.

A general information campaign was also initiated early on in the project, with the aim of informing the citizens of Arjeplog about the coming collocation of public services. A monthly newsletter, *Tingsbladet*, describing the project as it progressed, was distributed to all the households in the municipality.

Tingsbacka; the goals

The goals for Tingsbacka as a public service center were listed in a 'steering document', an agreement between the interested parties which was formalized in the spring of 1992. Among the subgoals listed, the following were of particular interest for the future front office work we wanted to focus on in our research project.

Concerning the services offered:

- visitors to Tingsbacka should only have to turn to one person to get the help they needed
- citizens/customers should be informed directly, if their case is going to take time to handle, how long it is likely to take and if possible what the probable outcome may be
- more public service will be offered in Tingsbacka than previously
- by 1995, the activities in Tingsbacka should be so integrated that they can no longer be separated from each other⁹
- more than half of all the visitors should get their problems solved directly during their visit
- productivity should have increased with 15% by 1995

- in 1995, 90% of all citizens/customers should experience the personnel in Tingsbacka as service-minded, competent and friendly

Concerning the personnel:

- Low amount of absence and low turn-over of personnel
- highly competent and motivated personnel, willing to take change and development as a natural part of their work
- 95% of the personnel feel their work is stimulating

Concerning the organization:

- a flat organization, with far-reaching delegation
- high degree of accessibility for citizens/customers
- a very flexible organization
- an advisory committee for Tingsbacka should be appointed

The aim was that the front office should be a step on the way towards achieving, throughout Tingsbacka, less hierarchical organizations with delegated decision-making and cross-functional responsibility.

Tingsbacka's Core; the workplace

As with Tingsbacka, the name given to the front office and the people working there is the result of a name contest. 'Kärnan', the Core, was chosen to signify how central this function should be for both visitors and people working in the building. Walking in through the front entrance of Tingsbacka should mean coming straight to the core product of the whole public establishment – efficient and effective public service offered directly at the front desk.

The reception counters in the entrance hall skirt the left side of the central courtyard, which is furnished in such a way that visitors can sit down and wait for their turn if necessary. The counters are chest high, but there are desk-level openings at each of the workplaces so that forms etc. can be passed back and forth between the generalist and the visitor without having to be lifted over the high counter. The police authority's counter on the left consists of one single workplace. Behind the other, longer reception counter, each generalist has her own desk and workspace, separated from the others by shelves and screens which are the same height as the counter. There are signs on the counter telling who each generalist is and which authority she works for. The woman sitting furthest away from the entrance is not a generalist. She works for the public insurance office, which is situated directly beyond and behind her workspace, with office rooms opening out onto the hallway behind the central courtyard. (See figure 3.1).

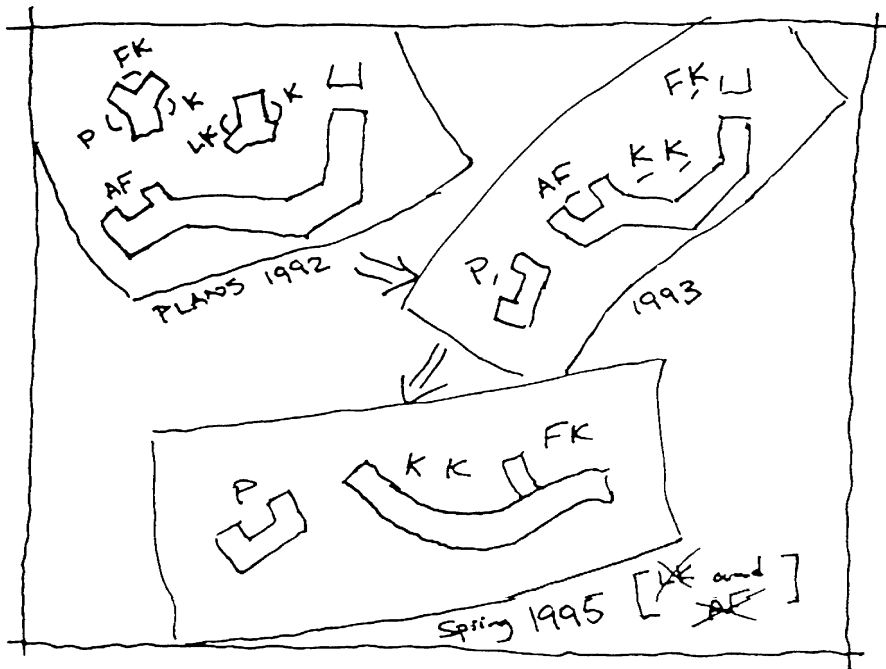


Figure 3.1 Floor plans of the front office – the Core – in Tingsbacka. The changes over time reflect something of the organizational issues which surfaced during the implementation process. The initials indicate the employer of the person whose workplace is marked, P= the police, AF= the employment office, K= the municipal administration, LK= the local county administration.

When we first saw the plans for Tingsbacka, the front office area looked quite different. The reception counter – there was only one planned – swept across the whole central courtyard, from the stairs on the right to the glass door entrance to the police authority's office on the left. Behind this counter, five desks stood in two groups, placed in such a way that the people sitting there would be facing each other as they worked. A sixth desk was located at the left end of the counter, with a visitor's chair facing it. Basically, this floor plan was meant to support informal communication and cooperation within the team of generalists working in the front office. The plans were slightly revised when the police authority decided, contrary to the original intentions, that they had to have a separate reception counter for security reasons. In retrospect, this may be seen as one of the first more spatially visible steps away from the totally integrated front office which was originally planned for Tingsbacka (see fig.3.1, floor plans 1992 and 1993).

Successively over the next two years, the main reception counter was shifted back from the center courtyard, which, though airy and light, proved

too noisy and drafty for everyday work. Three of the individual workplaces were moved forward to the counter so that the people sitting there would work facing the visitors as they came in, rather than each other. Each time the position of the counter was shifted, the workplaces behind it became more built-in by shelves and screens, and more visibly separated from each other.

Tingsbacka's Core; the work team

The team working in the front office started out as a heterogeneous group of six people from five different organizations. There was the administrative assistant from the police authorities. There were two people from the municipal administration; one from the economy function and one from the former switchboard and reception office. There was a secretary from the local county authority office who worked part-time in the front office. There was an administrator from the public insurance office. And there were three administrators from the employment office who took turns working at the front, at the desk with a visitor's chair which was located apart from the rest at the left-hand end of the reception counter.

The head of the employment office had made clear from the start that his personnel would handle their own tasks in the front, and that they needed a workplace with a certain amount of seclusion from the others in order to consult with their clients without disturbing, or being disturbed by, the other activities going on simultaneously. There were no tasks that were so simple and autonomous that they could be handled by a generalist who was not employed by the employment office – or if there were, it was not deemed rational to separate them from the rest of the work done internally within the organization. The administrators rotating on the front office position would share the responsibility of manning the switchboard with the other front office personnel, but in all other respects they would be representatives for the employment office, not for any of the other organizations in the back offices of Tingsbacka.

Within a year after the move to Tingsbacka, the team working in the front had been reduced from six to four people (see fig.3.1, floor plan 1995).

The employment office was the first organization to pull back its front office personnel. This was done six months after the move, in connection with a shift of location within the new building. The move of the employment back offices to the second floor was motivated by the need for more office space as well as more privacy. The original location behind the reception area on the ground floor had proven to be too small, too conspicuous for certain types of consultation, and too easily accessible for unplanned visits and interruptions. The loss of physical proximity between front and back office personnel, combined with the fact that only certain types of visits could be handled at the front, which meant uneven demand of the front desk services and extra admini-

stration, lead the head of the employment office to the decision to withdraw from cooperation at the front.

Shortly after this, the local county administration office withdrew their part-time position in the front office. The motivation given for this was that the secretary didn't have time to work as a generalist at the front. She was needed in the back office, where she was the key administrative contact person. The local county administration office chose to pay for their share of the switchboard services offered by the front office, like several other organizations in the building that were not participating with personnel at the front.

The insurance office, with back offices located directly behind the reception counter on the ground floor of Tingsbacka, decided to continue manning a desk in the front office. The manager was initially involved in planning and scheduling the front office work, on delegation from the Tingsbacka project group. He was enthusiastic about the front office function but felt that the idea was being forfeited because of lack of involvement from upper management. After the employment office and the local county administration withdrew from the front, the insurance office shelved their participation in manning the switchboard and sharing in giving general service. An administrator still sits in the front office, sharing the front office work space, but she only handles internal work and visitors to the insurance office.

The team of generalists at the front, whose work we had come up to study more closely in January 1995, thus by this time consisted of three people. Only one of these, an employee of the municipal administration, worked full time. She was also the team leader in the Core. The other municipal employee in the front office mainly handled the switchboard. The third person was employed by, and worked mainly for, the police authorities. In the following, I have used the aliases Anna, Britta and Cecilia, respectively, for the three generalists working in the Core¹⁰.

The generalist's role; knowing who might know

Cecilia, standing behind the police authority's reception counter, is talking on the phone as we start the cameras. She waves at us and goes on talking. The call seems to be about a missing dog, a small puppy that's been gone all night. No, she hasn't gotten any call from anyone who has found a dog. Yes, it's been awfully cold out during the night. How old is the puppy? About a month old ... hmmm ... poor little thing ... Yes, she's making a note of it and she'll call back as soon as she hears anything. Cecilia hangs up. She turns towards Anna and Britta, who are working behind the other reception counter, and tells them about the missing puppy. I'll call the insurance office, she says, then, noting our consternation, explains the connection. One of the women who works at the insurance office has a dog kennel. If anyone has found the puppy, they may have turned it in there. As she lifts the receiver to call, a visitor comes in the door and

heads for the stairs on the right. She calls out his name, asking him if he has heard anything about a lost puppy. He hasn't, and she puts the receiver back without making the phone call, explaining again to us outsiders: that is the husband of the woman who has the kennel. He just happened to come by, he doesn't work here. But if he hasn't heard anything, then the puppy probably hasn't been turned in at the kennel.

Later we share in the relief felt when we hear that the puppy has been found, alive and well, by a man who met it on the trail as he was driving his snow scooter a few kilometers outside of town.

Many of the contacts taken and the connections made in everyday work in the front office are based on familiarity with informal local networks. Skill in this case has to do with being able to quickly sum up a situation and know who would be likely to know most about the problem at hand and be able to help solve it directly, here and now. This is something of the core of working in the Core, the very 'here and now' of it, being able to handle the situatedness in time and space of a broad range of work activities, many of them involving various forms of net-working. Both broad and fine-grained local knowledge is essential for getting the work done.

In one of his essays about local knowledge and interpretative anthropology, Clifford Geertz writes the following opening lines:

Like sailing, gardening, politics and poetry, law and ethnography are crafts of place: they work by the light of local knowledge¹¹.

Basically, I believe that this applies to every kind of organizing and problem-solving activity, no matter how scientific, or how mundane, it may profess itself, or be proclaimed, to be. Geertz goes on to argue that the imaginative, or constructive, or interpretative power of this local knowledge should not be obscured by attempts to systematize and structure what is being observed to fit general sociological theories, and make general comparisons. It is, in his interpretation, a power rooted in the collective resources of culture. It not only regulates behavior, it construes it¹².

Preparing for the new role

An extensive educational program was set up for the five generalists-to-be during the fall of 1992, before the move to Tingsbacka. The group met for half a day once a week during the fall of 1992. The meetings were usually led by an external consultant who had been engaged in the Tingsbacka project to assist in the process of organizational change and work development.

The educational program included visiting each others' work places, setting up a schedule for rotating the responsibility for manning the switchboard and for one-day-a-week evening duty in the front office, learning to manage the

new computer support for handling inquiries via the switchboard when people in the back offices were unobtainable, and going through new work tasks that would be laid out on the front office. Wages and conditions of tenure varied within the group, and this was discussed and adjusted where possible in order to obtain job equality in the team. An educational visit was made to the county administration as well as to the central insurance office in the county capital of Luleå. Uniform work clothes in matching colors were chosen by the group, in consultation with the three administrators from the public employment office who would be rotating on duty in the front office. The educational program included training in presentation techniques, as each of the generalists was expected to be able to guide special visitors around the new building and tell about the history and concept of the Tingsbacka project.

Anna, from the municipal administration, was chosen as group leader for the generalists and became the representative for the Core at the Tingsbacka project meetings.

By the time Tingsbacka was finished and ready to be moved into, in December 1992, the front office team knew each other well. In our interviews with members of the group at this stage we encountered mainly optimism and high expectations. 'It feels great – I'm so glad I've been given this chance', as one of the generalists-to-be expressed her feelings concerning the new work role she was about to step into.

There were, of course, doubts and worries about the planned integration of public services in the front office at this point, but they were voiced by management in the back offices, not by the front office work team.

The work

In December 1992 Tingsbacka opened its doors to the citizens of Arjeplog and other visitors. Each of the generalists at the front had brought some of her old work tasks with her. Besides these, they shared the responsibility of welcoming and helping visitors to Tingsbacka, with the aim of taking care of as many inquiries as possible directly at the front desk. They shared the task of manning the new digital switchboard with its computer support for handling inquiries when people in the back offices were unobtainable. And they were given the new tasks of booking conference rooms, including the video conference room, and handing out and receiving keys, monitoring the opening and locking of the entrance doors, and other administrative tasks which concerned the entire building.

The back land organizations that were cooperating in the front office had taken inventory of their work and listed tasks that could feasibly be handled at the front. The plan was, that certain types of tasks would be moved out successively during the coming months, and integrated in the front office work as the personnel in the Core became accustomed to their new situation with

front desk service and the management of the new switchboard with its computer support.

The first months after the move were hectic in the Core. There were many more special visitors coming to see the phenomenon Tingsbacka than had been anticipated. Coordination and communication between the different organizations in the building and between the back land and the front office did not begin to function automatically – on the contrary, unforeseen problems surfaced daily during those first months after the move to the new building. Information concerning later-than-usual opening hours around holidays for one or other of the offices, for instance, was sometimes picked up by chance in the coffee room a day in advance, necessitating last-minute rescheduling of work in the front office. The switchboard and computer support did not work smoothly from the start. The new electronic network, both hardware and software, needed tuning in and getting used to. The people in the back offices had to learn to use their telephones, and make use of the front office personnel, in new ways in order to utilize the switchboard services as planned.

After a few months, things began to run more smoothly in the front office. According to the Tingsbacka project plan, this was when new tasks were supposed to be moved out from the back offices to the front. However, very few concrete tasks materialized. For one thing, severe economic cut-backs in public administration in general were being felt as much in Arjeplog as in the rest of the country at this time. The municipal administration was reorganizing, rationalizing work and cutting down on personnel. There were similar developments going on in most of the other organizations involved in the move to Tingsbacka. The very evident risk of loosing one's job in the near future was not promotive to passing over parts of one's work to someone else. The trade-off of getting rid of routine work and being able to do more qualified work instead was uncertain, as the people doing more qualified work were just as reluctant as everyone else to pass on any of their present work tasks. No one wanted to let any of their work be taken from them and moved to the front office.

In some cases, legislation and organizational policy concerning data security and citizens' integrity were given as reasons for not being able to let generalists at the front do more of the internal routine work. Denied access to both the work procedures and the various data bases because they were not employed by the respective organizations, the generalists' possibilities of handling many of the everyday inquiries at the front were in reality very limited. Despite repeated attempts by the project group to get the participating back land organizations to move certain routine work and information services to the Core, the locked positions in this respect between front and back offices, which became apparent in the months after the move, has, to a large extent, persisted over the following years.

Of all the involved organizations in Tingsbacka, it is only the police authorities who have managed to move work tasks to the front to somewhat the extent they had planned when they joined the project. Although they insisted on a reception desk of their own, which at the time was interpreted by the others in the Tingsbacka project as subversive to the integrative efforts at the front, they were in fact the organization that in the long run went on to try to fulfill the original intentions. Successively, they have been moving routine tasks to the front office and teaching the generalists how to do them.

One of the reasons why the police authorities have accomplished their set goals where the others have failed, may be that the police authorities in Arjeplog are such a small unit. They only have one person employed part-time to do administrative work. She spends much of her time in the front office as one of the generalists. It has been easy and close at hand for her to show the others how to handle routine tasks for the police authorities. When she is away on sick-leave or vacation, they can, to some extent, substitute for her, solving what used to be a recurring problem for her employer. Another contributory reason may be, that the general agenda of organizational change and development on a national level within the police, with strong tendencies toward decentralization, a flat organization and broad competence at grass-root level, seems to fit in well with the ideas about decentralization and integration of work tasks in the front office. Intermediate results from an extensive on-going evaluation of one-stop shops throughout Sweden indicate that, where the police authorities are involved in the projects, they have been more successful than most at moving out tasks to the front (Bostedt and Rutquist 1995).

The main shared work task in the front from the start was the manning of the switchboard with its computer support. After the initial 'learning-to-use-and-getting-accustomed-to' period, the generalists all agreed that the computer support was very good and fun to work with. However, the switchboard service caused a lot of friction in the Core. Most of the incoming calls are for the municipal administration. Working at the switchboard demands concentration and is often stressful, especially at certain times of the day. It can be difficult to combine with servicing visitors at the front desk, especially if you are expected to handle inquiries which involve filling in forms, asking for more detailed information, explaining and helping the visitor along – at the same time as you are supposed to answer all the incoming calls. After trying for two years to make the combination work in the Core, the municipal administration took over the manning of the switchboard and employed another person specifically for this job. The main switchboard, and the computer support for it, were moved back into an office directly behind the front office, and though manning the backup switchboards is still part of front office work, it is managed by the generalists who are employed by the municipality, and is no longer an inflamed issue.

Each generalist brought with her some of her own work tasks to the front

from her old job. Some of these tasks are services offered to visitors, some are simply back office work relocated to the front because that is where the person who knows how to do the job happens to work.

The public services which were offered in the front office in Tingsbacka the last time we did interviews and observations there, in March 1995, were the following; local housing inquiries, problems concerning Arjeplog Housing (the municipally run housing foundation), information about the district court, income-tax return forms, booking of the video conference studio and of other conference and group rooms, and general reception tasks. Notices for and minutes from the municipal board meetings are kept available for the public in the front office. If Karin, the woman working for the insurance office, is there, she can handle insurance applications, tax adjustment, paying of pension into an account, sick benefits, parent's allowance and housing allowance. Sick-leave and recovery can be reported to any of the generalists at the front, who will then make a note of it and pass it on to Karin or one of the other employees at the insurance office, so they can register it in their data base. If Cecilia, who works for the police authority, is there, she can take care of applications for temporary permissions (for use of explosives, parking, arranging public dances etc.), issuing passports, filling in applications for weapon permits etc. Reports of lost or found property can be made to any of the generalists, who make a note of it and pass it on to Cecilia so she can register it.

Cooperation, skill and computer support

We're sitting in front of the television set, making logs of the video-recording we took in Tingsbacka earlier in the day. Each of us has constructed our own version of a log form with different column headings, which we're filling in as we watch the taped sequence of work at the front. Kajsa is concentrating on the three people and what each of them is doing, minute by minute. I'm concentrating on activities – visitors, phone calls, computer work and coming-and-going. Before we started looking at the tape, we discussed some of our impressions from the observations and the live notes we made during the video-recording. We decided that we would both look for various forms of visible cooperation and sharing of information.

Towards the end of the film, Kajsa voices the questions we've both been silently formulating and struggling with while watching and writing our logs. What's going on here? Where is the generalist work?¹³

What we're seeing is one person (Britta) taking care of in-coming phone calls and two people (Anna and Cecilia) sitting at their desks doing office work. One of these others takes in-coming phone calls when Britta has an overload. But basically they are each keeping busy with their own separate work activities. There doesn't seem to be any observable cooperation going on around the work they're doing. Informal communication and sharing of

information, yes, but hardly any overlapping or sharing of the actual work tasks, or of information pertaining directly to these. In fact, the way they work matches the way their desks are walled in by bookshelves and screens. Their individual work places are located close enough to each other for eye contact and exchanging verbal information, yet their physical work spaces are effectively separated from each other. Despite the long reception counter which encloses most of the front office work area, there is very little shared work space behind it.

Visitors coming to the reception counter for help get full attention from one of them, while the others, though seemingly busy with their own tasks, appear to keep a background awareness of what's being said and tune in on the dialogue and offer support or additional information when they deem it necessary or useful. 'You hear what concerns you – well, and a bit more (laughter) – we're all the same in that case.'

There are definitely signs of what could be called team spirit among the three of them. But where is the team work?¹⁴

The next afternoon we show selected parts of the recording to Anna, Cecilia and Britta, partly to let them see how we work when we analyze how they work, partly to have unclear situations explained to us, spark discussions and listen to their reflections about their work. One of the questions we ask is, how much of their work they estimate consists of over-lapping work tasks, i.e. tasks that all and any one of them can do, and which they can share and divide amongst themselves according to who has time for what. What they tell us confirms our impressions from the video-logging session. They say that the lack of this kind of work tasks is part of the main problem for the Core at present. Although lists of tasks suitable to be performed in the front office have been compiled time and time again by the back office organizations, and although the team in the Core have repeatedly made suggestions and offered their services, very few tasks have actually been moved to the front. The work they do, when they aren't answering in-coming phone calls or talking to visitors, consists mainly of their own individual, specialized work tasks, tasks which they have brought with them from their old jobs, and which are still so linked to internal procedures within their respective organizations that the others can not do them for them.

We did video-recording of front office work in Tingsbacka during two two-day visits, one in January and one in March 1995, covering in all about six hours of work. Parts of these recordings were used for interactive video analysis laborations with the MDA research team in Ronneby. Besides the video recordings, we repeatedly made observations and interviews on site with the front office personnel.

The cooperation we could observe in everyday work in the Core in Tingsbacka was, as I have tried to illustrate, mainly informal communication and

sharing of information in connection with helping visitors and answering phone calls. There was also a smoothly functioning routine of covering for each other on the switchboard service during individual breaks. Signaling for this was so off-handed that we as outside observers usually couldn't catch it. It looked telepathic to us, but we were assured it was a question of exchanging glances or mentioning, almost under one's breath, that you were going to go have a cup of coffee (or whatever). This kind of communication reinforced the impression we got, as observers, of their being a front office team, even though the work they were doing most of the time was their own personalized office work.

During our observations in, and work with video-analysis from, the front office in Tingsbacka, we paid special attention to different situations involving person-to-person interaction; between the generalists, between generalists and visitors and between generalists and people calling on the telephone. We noted, above all, the ability the generalists had developed to quickly sum up situations, and the constant and extensive use of and reliance on the team's local knowledge and networking. The way the front office personnel overheard and intervened in each others' work during telephone calls and in discussions with visitors, whenever they felt they could help out with additional information, was a kind of interaction we focused on in this context. Another thing we took note of was the way they could keep contact with visitors while finishing a telephone call or helping the first visitor in line. By quickly establishing eye contact, smiling and/or saying a few words to the person or people who were going to have to wait for their continued attention, the front office staff could keep several different conversations going at the same time, seemingly convincing everyone involved that they were getting the best possible service for the moment.

Skillful managing of multiple on-going exchanges of information with visitors and within the team were thus clearly observable when watching the front office staff at work. What we could also observe, and which for some reason we didn't really notice until we started analyzing the video-recordings we had made, was how much informal person-to-person communication was going on between the front office staff and different people who worked in the back offices, and who passed in and out of the building or back and forth to the cafeteria through the entrance hall during the day. Gradually, as we reviewed the video-tapes closely, we saw more and more informal, everyday networking, information-exchange, and in-house cooperation in action.

During the workshop we later arranged for generalists (see further on, section 3.2), this informal organizational networking and cooperation was brought up. The ensuing discussion seemed to confirm what we thought we had begun to see and understand in Tingsbacka; that many of the questions and issues surfacing during the day's activities in one-stop shops located in

the same building as the organization or organizations they represented could be, and were, solved through spontaneous communication as back office personnel passed in and out by the front desk. Certainly this kind of 'invisible', yet very real, human communication must be an important part to consider in any kind of information system, and therefore to keep in mind when developing new work roles and supportive information technology.

So what kind of computer support was being developed and could be studied in the front office in Tingsbacka? As it turned out, the computer support for the telephone exchange was extremely modern and was much appreciated by the generalists. However, as the telephone exchange proved to be too big of a work load for the front office, this function was moved to a back office. There were, at the time of our study, no other special applications installed specifically to support front office work. The generalists used the standard computer support for office work which was available on the net, and which the other employees within the municipality could access, too¹⁵. The police were expecting to have an application for handling forms installed, but this didn't happen while we were still involved in Arjeplog.

Instead of being able to study, and get actively involved in, the development of computer support for front office work, we found ourselves studying how different applications which had been promised from the outset didn't materialize, how printers didn't work or were borrowed by other departments, how no attempts were made to integrate different specialized systems for front office work. In short, what we saw was how IT management – in the main-stream sense of strategical planning, purchasing and installing of modern information technology – was constantly on-going according to minutes from meetings, formalized plans and visible hardware, but how the actual *use* of existing computer support in the building was like unmapped territory, or just plain invisible, in most of these discussions.

What I realized, seeing this, was that this was in no way unique for Arjeplog. On the contrary, because of the new building and the on-going one-stop shop project, in Arjeplog they were really trying very hard to get everyone involved in the organizational development. It was not for want of good will, in this case, that things weren't working out as planned. There was just a *very large gap* between formal plans and situated action. With all the planning and organizing going on, and different work groups where employees from the front office were represented, education on the job and job rotation provided for, sympathetic and involved management, and all of it going on in the context of the Scandinavian tradition of work place democracy¹⁶, you would think that ... yet ... Very strange. There was something wrong with the prevailing concept of design and management of IT. There *had to be*.

3.2 Talking about work

3.2.1 Workshops as a method for reflecting on practice

In the spring of 1995, when we had been following the development of one-stop shops over a period of three years, I arranged a two-day workshop for generalists. For our research project, the aim of the workshop was to learn more about practical experience of generalist work. Besides the interviews and observations we were doing in connection with our field work, we hoped to gain knowledge from a slightly different angle through taking part in the sharing of experiences between generalists from the offices where we were doing case studies and several other one-stop shops.

The idea of a workshop was inspired from two directions. I had held future workshops with students as part of their training in methods and organizational frameworks for participatory design¹⁷. Workshops used for participatory design are usually structured and goal-oriented, the basic idea being to envision various features of the future system and test them with the prospective users. Often a metaphor will be used for the target area of the planned system, such as using the concept of a supermarket as a metaphor for a public library¹⁸. The point of using metaphors in this way is to encourage fantasy and associative thinking, as well as to give the participants more freedom from their ordinary roles in the work place, the ambition being to make room for a more unrestricted discussion, where people dare be both critical and creative with less risk of reprisal. The power of metaphorical and visionary exercises in small groups to get people actively involved, which the future workshops I've taken part in have demonstrated, and the combined width and depth of the results, have inspired me to take workshops and the idea of metaphorical *figures of thought* for effective communication and cooperation seriously (see also section 2.1).

The other source of inspiration was one of my colleagues, Maja-Lisa Perby, who has worked for many years within the research area Skill and Technology. In accordance with this approach, Maja-Lisa uses workshops as a way of continuing and developing further the reflective dialogue she has with the people she follows in her case studies – the so-called informants. These workshops are less structured than future workshops. Yet they are at least as carefully planned and organized, so as to encourage reflective discussions and work-related story-telling among the participants. The discussions are usually tape-recorded, the tapes being used as the most efficient way of documenting what is said. The knowledge gained through this type of workshop is mainly

a deepening understanding of the work being studied, as experienced and conceived by the people involved¹⁹.

As the aim of the generalist workshop was to gain knowledge about work in the front office from and together with the people who do it, rather than to design computer support to suit their needs, we chose to organize it like the workshops used in the Skill and Technology approach. Inspired by my earlier experiences with future workshops, however, I wished to actively encourage envisioning and the sharing of figures of thought during the workshop. So we decided to offer the use of large sheets of paper and colored markers for the participants' presentations of their work places and any other narrating that might benefit from sketches and illustrations that could successively be taped up on the wall and referred to during later discussions.²⁰

Invitations went to the one-stop shops that had been in function for the longest period of time, with the upper limit being that we wanted a group of no more than twelve people in order to keep an informal atmosphere. It was my ambition to have two people attend the workshop from each participating front office. There were several reasons for this. Two people from the same work place would, I hoped, be able to encourage and reinforce each other in the recounting of different episodes from everyday work life. Together they could describe and reflect on different ways in which they cooperated and coordinated their work. Also, from my own experience of participating in different types of short courses while employed as an office worker, I knew that it could be helpful for them when they got back from the workshop to have a colleague who had shared the experience to discuss alternative possibilities and develop ideas about their work role with. It would, hopefully, in some way contribute to strengthening their professional identity as generalists in their own work place.

3.2.2 The workshop for generalists; sharing experiences

Nine people from six different one-stop shops in five municipalities participated in the workshop. Eight of them were women²¹. The municipalities they represented ranged, in size of population, from one of the largest to one of the smallest in Sweden, and geographically from one of the northernmost to one of the southernmost. The different types of services offered by their one-stop shops, and the different organizations they were front offices for, also varied from place to place, and in some instances had changed over time.

We deliberately chose to give the workshop an open and informal structure. The point of this was to have the participating generalists bring up issues about their work that they themselves found relevant. As it turned out, much of what they brought up spontaneously, and illustrated with story-telling and briefer examples, cast light on what we had perceived in our observations and from

interviews as potential problem areas, and so might have steered them into discussing from the start, had we wished to. But by primarily listening as the generalists shared experiences from their different workplaces, we were given the opportunity to share their perspectives on their work in a way which a more formally structured workshop might have hampered.

The only part of the two days that we actually asked the participants to prepare for ahead of time, was the round-the-table presentation of who they were and the one-stop shop they came from. Although we hadn't suggested explicitly what kind of presentation to make, each of them started by drawing an organizational structure chart, showing what 'box' they belonged in, and roughly how it was related to the boxes in the rest of the municipal organization. This proved informative and helpful for comparing structural organizational contexts, but did not lead to much latching on – i.e. spontaneous commenting, interested questioning and initiating of further discussion of certain issues – from the people listening.

After discussing what their organizational location might say about their position in the formal organization, we asked the generalists from each office to draw a floor plan of their actual work place and tell the rest of us where they sat, what the front office looked like and what work areas they shared. By the time the first floor plan had been sketched and presented, including many informative details and some anecdotes about differences between the original plans and the way things had turned out in reality, the atmosphere had become relaxed and informal and people had begun making connections to and sharing their experiences and war stories. Whether this was mainly an effect of everyone gradually getting to know each other better through presentations and spatial proximity, or if the floor plans were, as we had hoped, a real help to move conceptually from formal organizational work structure to everyday work practice, is hard to know for sure. However, it did seem as though the drawing of and talking about floor plans and work spaces paved the way for a rich discussion of everyday work practice²².

A general impression from the two-day workshop is that all the participants were eager to share their experiences and discuss their jobs with each other. There was never any problem of getting the discussion going. The generalist role is new in Swedish public service administration, and the people who have volunteered for the job are presumably outgoing and talkative. But there was also a feeling, in much of the discussions, of frustrated expectations, of needing to talk about all the unexpected problems and obstacles on a new job that all of them had expected to offer, in one way or another, an advancement or broadening of their previous job and skills.

We were grateful for the informal, unprompted and sharing character of the story telling (although it made the tape-recordings hard to decipher at times, with several voices latching on to each other). Everyone took active part.

They gave each other generous affirmative response to stories told, contributing and sharing experiences with a lot of humor and laughter. Certain themes kept re-curring, such as the sense of not being given the resources necessary for the job they are expected to do. To us listening outsiders, the generalists seemed to suffer from insufficient backing from within the organization, or organizations, whose services they offer. Their role outward toward the public appears to be more explicit than their role inward toward the back lands they represent and are expected to cooperate with. Examples given might have seemed insignificant on their own, but taken together, and coming as they did from almost all the one-stop shops represented at the workshop, they gave the definite impression of the generalists' role as exposed and lacking authoritative support in the administrative organization they are supposed to represent towards the public. Most of the examples pointed toward the tapping by other, presumably more organizationally powerful, administrative units of resources which had been promised to the front office. Thus computers, printers and even personnel were 'borrowed' temporarily and then never returned or compensated for. Technical service and support was slow and tended to give other units higher priority etc. Repeated complaints about these problems gave no results. The generalists, so communicative here at the workshop, appeared to lack an audible voice in their own work organization.

The evening was devoted to continued discussions and comparisons. Before ending the first day, the generalists suggested, and decided in unison, that the next day's session should start an hour earlier than planned, so as to make the most of the workshop. We took this, along with the general enthusiasm shown, as a token of how much they appreciated the chance to compare and share experiences from front-office work with each other and with us.

What did we learn about front-office work from the workshop?

The discussions and story-telling reinforced much of what we had already learned about generalist work through interviews and observations. But it also brought to our attention aspects of the work which we might otherwise have missed. Much of the knowledge gained from the workshop has been woven into the next chapter, under the title of 'What's so special about front office work practice?' (chapter 4). However, in order to give an idea of what kind of information the workshop offered us, 'general impression'-notes made while transcribing the tape-recordings are listed below:

- the work calls for and generates detailed knowledge of the district, geographically and populationwise as well as concerning basic civic administration, where the most useful of all seems to be knowing on an informal as well as formal level 'who-does-what' and 'who-knows-what'.

- the story-telling reinforced the importance of such characteristics as civic-mindedness, caring, understanding, and being able to apply a broad knowledge about the district, the citizens and the bureaucracy to specific problem-solving situations. An example given was the elderly woman who came to the desk in tears with a multi-page questionnaire she didn't know how to fill in or for what purpose it had been sent to her. The questionnaire had nothing to do with the one-stop shop. However the generalist soothed the woman, helped her fill it in, explained what it was for and sent it off to the right place for her. Helping citizens who are confused by bureaucracy, or in need of assistance for other reasons, is seen as a natural part of the generalist's role.
- although there is great local variety between the different one-stop shops when it comes to organizational structure and what services are offered, the stories told from different places about the work brought smiles of recognition, affirmative nods and reinforcement through similar examples from most of the representatives. Thus, there seem to be some basic characteristics of front-office work that are similar despite local variety in work organization and work content.
- In general, the front office personnel is expected to keep statistics of number of visits and phone calls, a chore which all the workshop participants found tedious and difficult to remember. The normal procedure is to make a line for each case handled, but during busy periods of the day this is often forgotten or deliberately put aside. Reconstructing of statistics after the event, sometimes at the end of a week, is normal and admittedly based on very rough estimate. There was a great deal of irritation ventilated about the discrepancy between the time-consuming demand of keeping meticulous statistics and the ineptitude of the statistics to mirror the work itself in any significant way. An example given was that a line in the statistics represented an event but also an unspecified amount of time. It could as well be a case that took ten seconds as one that took twenty minutes or more to handle. Nor was there any good measure for the relative complexity of specific cases (which was not always the same thing as the length of time a case might take to complete).
- Municipal notices and records are usually kept accessible for the public in loose-leaf binders in the front office, and read, or at least glanced through, by the generalists as part of their job. However, the general opinion among the workshop participants seemed to be that the most useful information was gained through informal contacts at a much earlier phase during the municipal administrative process than the actual board meetings where the formal decisions are made. As one of them said: 'By the time it reaches us in the written records, it's not news any more.' If you needed to know what was going on in a specific area, you simply put questions to the right people within the municipal

organization as they walked by the reception desk during the day²³.

In summing up the two-day workshop for generalists, it seems appropriate to underscore how much these two days of story-telling and sharing of experiences enriched the knowledge we had previously gained by interviewing front-office personnel, observing on the spot and analyzing video-recordings of front-office work. Most of what we had attained before the workshop could perhaps best be classified as a descriptive understanding²⁴ of the work we were studying. Although the workshop itself was held outside of the usual front-office work context and geographically closer to home for us researchers than for the generalists, it actually gave us an enhanced feeling of sharing of the generalists' own point-of-view and their work context – a deepening sense of holism²⁵ –, compared to much of the fieldwork we had done previously. On the other hand, had we not had the basic descriptive understanding we had acquired by these other methods, we would probably not have been able to understand and relate to as much of what was said at the workshop as we did. The interweaving of different methods of inquiry and observation seem to compliment each other in ways well worth looking deeper into. This discussion of the intrinsic value of interwoven methods and approaches is continued in the final two chapters of this thesis (chapters 6 and 7).

3.2.3 Talking at work; making sense of action

For the participating generalists, the workshop consisted, in effect, of two full days of talking, and listening to each other talk, about work. But hearing generalists talk about their work has been an important part of our fieldwork, too. Maja-Lisa Perby writes about how an outside observer with the ambition of studying skill, like an anthropologist studying a foreign culture, needs to gain insight into the conceptual and associative world, the sense-making at work, of those who practice the trade, craft or profession being studied. As an outsider, you don't know what the gist of the work is – how could you? As a researcher, you need to enter into a dialogue with the people whose work you are studying. You need to return, again and again, over a long period of time, to your informants. What you find out one time, and have had time to consider and incorporate with your understanding of the work you are studying, becomes part of the basis for what to bring up the next time²⁶.

Given the focus of our research project, most of the interviews we have made with people working in the front office, quite naturally, contain a good deal of talk about work. When we've shown parts of the video-recordings we've worked with to the generalists whose work we've recorded, this, too, has sparked reflective talk about front office work.

Jeanette Blomberg writes of four guiding principles of ethnographic work²⁷:

1. the studying of activities of people in their everyday settings
2. the concern with how particular behaviors fit into a larger whole (often referred to as holism)
3. the striving for a descriptive understanding of how people *actually* behave, rather than how they *ought* to behave
4. the attempt to understand the world from the point-of-view of those studied

Although arranging a workshop away from the natural work setting might be seen as at cross purposes with at least the first, and perhaps the third, of these principles, our impression was that the workshop for generalists worked in a complementary and reinforcing way to our ethnographic fieldwork, especially concerning the second and fourth principles. The story-telling and exchanging of experiences helped us get a richer picture of front office work, and how those doing it make sense of it. In his ethnography of the work practice of technicians who maintain photocopiers, Julian Orr expresses, by his very choice of book title – *Talking about Machines* – how important talking and story-telling about work is to the technicians for making sense of, understanding, and communicating what they have learned through experience, about machine maintenance work²⁸.

In our fieldwork, during the different case studies, we have tried to keep all four of the guiding principles of ethnographic work in mind. When it comes to the generalists' talk about their work, we found that, besides the reflective dialogues which developed during interviews and workshops, it was interesting to listen to the talking-as-one-gets-things-done that goes on in the front office. This is usually more spontaneous, and seems to be part of a continual, shared sense-making of on-going activities²⁹. The on-going talking at work is difficult to catch in live-notes during observations in the work place, since it usually involves dialogues which move rapidly and are interlaced with action, which the observer is also trying to take notes on. Here it is the technique of video-recording which makes it possible to go back to, and study in detail, the intermingled flow of talk and action.

In *The Reflective Practitioner*, Donald Schön writes about how reflective practice takes the form of a reflective conversation with the situation³⁰. In the front office, this seemed to be what we were hearing, through talk at work; snatches of an on-going reflective, and communally shared, conversation with the situation. Communal, in this case, refers primarily to the community of generalists in the front office, although there seems to be a feeling of community within the municipal organization, too, and, beyond that, with

citizens of the municipality and visitors from out of town, which manifests itself in the way conversations often tend to develop as a kind of give-and-take procedure aimed at problem-solving through mutual understanding.

'Problem-solving through mutual understanding', viewed as an activity with an objective different in character than the objective of strict problem-solving, is a distinction I found in a foot-note in Lucy Suchman, *Plans and Situated Action*³¹. She, in turn, refers to a study, discussed in Coombs and Alty 1984, about the failings of interactions between human advisors and new computer users. The more satisfactory sessions were seemingly characterized by less structure and less economy, but proved to be carried out with the objective of problem-solving through mutual understanding. This actually required of the advisor a sensitivity to different structural factors, which strict problem-solving 'according to the rules', and providing only the recommended solutions to re-reported problems, did not.

During recent years, much has been written and said about organizational learning, learning at work, learning within work teams etc. Peter Senge³², author of the book *The Fifth Discipline The Art and Practice of The Learning Organization*, writes that a learning organization is built on team learning³³. In well functioning work teams, there is an open climate, which facilitates moving back and forth between discussion and dialogue.

Discussion is, according to Senge's definition, characterized by a successive convergence of differing opinions, leading to a compromise between the views which have been voiced and defended. The outcome is, that a decision can be made, and an appropriate course of action can be decided upon, in the situation at hand. Ideally, the making of a decision should be accomplished, not through the succumbing of individuals to group pressures for the sake of conformity, but because an agreement has been reached through reasoning within the group about the best course of action.

Dialogue, in contrast, is a mind-broadening activity, characterized by a suspending of one's own views and a willingness to listen to one another. In dialogue, complex and subtle issues can be freely and creatively explored. By comparing different perspectives without having to compromise or choose between them, a richer and more complex picture of the world can develop and be shared within the team.

In this kind of open climate, conflicts can become productive by contributing to an increase in creativity and the discovery of new solutions that no single individual would have arrived at on their own. According to this view, team learning, as compared to purely individual learning, leads both to deeper and broader, shared knowledge, and to more of a potential for continued learning at work. Yet, basically, just as the individual vision is fundamental to the creation of a joint vision, so the ability of the individual to question and reflect upon the world one is part of, is fundamental for both dialogue and discussion.

My interpretation of the everyday talking at work which we have listened to and observed in the front office is, that it is part of an on-going process of team learning and sharing of knowing in action, and that it is at once, and inseparably, communicative and instrumental in the daily endeavor of structuring chaos, making sense of action and getting the work done.

3.3 Work practice in the front office

3.3.1 Taking a closer look

The methods used in the case studies in northern Sweden mainly involved a large number of unstructured interviews spaced over several years. We also recurrently did observations of work on the spot, partook in informal discussions around coffee-tables, sat in on a number of the formal project meetings and read a great deal of project documentation.

On two of our visits in 1995 we video-taped front office work in Arjeplog and content-logged the tapes. During one of these visits, we went through some of the taped situations with the generalists who had been filmed, in order to show them how we worked with the material and discuss with them our impressions and interpretations of what we were seeing. However, we didn't return to the video-tapes from Arjeplog in earnest until we began working with the video-tapes from our third case study, in Sölvesborg. It was during this detailed work with analysis of video-taped sequences that I became aware of the shift taking place in my own way of thinking about front office work, from primarily what I have called here an information flow perspective to a work practice perspective.

The examples used in this thesis are taken from work place observations which were video-taped and subjected to interaction analysis. Whether from Arjeplog or from Sölvesborg, they were analyzed in detail during the later part of our research project. This was how it happened that the real shift in perspective, the turning upside down, or inside out, of understanding the construction of meaning in everyday life, and in work practice, came towards the very end of a research project which had by then been going on for nearly six years.

There were indications of an on-going shift long before that, though. There was the time, for instance, when Randy Trigg, who was visiting the MDA program in Ronneby as a guest lecturer, talked to me about fractals, about seeing contours of the whole in the parts. I liked the idea then; I think, now, that it fits in quite naturally with the metaphorical concept of inverted indexicality³⁴ and how it works; the piecing together of bits and pieces of a reality so complex we could never comprehend it if we tried to subsume it under universal laws, but which we can weight against an 'inner picture', which, as it grows richer, gives more and more of a background against which to see meaning in individual cases. More of this discussion, however, in chapters 4 and 5.

3.3.2 The one-stop shop in Sölvesborg

In our third case study, we moved in behind the front desk to take a closer look at the well-established work practice in a one-stop shop which has been operating since May 1992, and thus is one of the oldest ones in the country. The one-stop shop in Sölvesborg is located directly inside the entrance of the town hall, in the center of town in an average-sized community on the south-eastern coast of Sweden³⁵. Here, the front office functions both as a one-stop shop and as a reception for the municipal administration, which has its offices in the same building.

Approximately 90% of the work in the one-stop shop concerns external service to municipal citizens and tourists. The remaining 10% concerns internal service, i.e. servicing people who work within the rest of the municipal administration. There are a lot of tourists, many of them German-speaking, from June through August every year; Sölvesorg lies by the Baltic and has long stretches of sandy beaches with summer cottages nearby which can be rented for shorter or longer periods of time. The one-stop shop functions as the town tourist office, and is in charge of the booking of summer cottages. In summer there are two reception desks open, one on each side of the inner entrance to the municipal administration offices. One of the reception desks is specifically for offering service to tourists. During the rest of the year, only one of the receptions is kept open to the public, although the office space in the closed reception is still used by the generalists, mainly for doing administrative work.

Two-thirds of all contacts are handled via the telephone, one-third via visitors who come in person to the front desk.

The external service includes reception work, tourist information and certain types of administrative management and counseling, above all concerning housing, booking of municipally managed sport and conference facilities, child care, consumer's counseling, queuing for buying a building-lot, questions concerning permission to build, parking permits etc. The internal service includes the administration of municipal lunch and coffee coupons, keys to the archives and the booking of tickets for travels on official business, municipal rental cars, video equipment, conference rooms etc. During certain times of the day, above all during the early hours of the morning, the generalists in the front office are responsible for managing the municipal telephone exchange as well.

The office space behind the reception desk in the front office is small and relatively crowded with office furniture. There are two work places, both of them located directly behind the reception counter, which is fairly high. Each work place has a personal computer on the desk beside it. The computers are connected to the municipal network, which gives access to most of the applications needed for front office work³⁶.

By one of the work places, there is another computer, which is connected to the municipal telephone exchange. Next to the other work place is a printer.

There are a number of different telephones on the desks. On a shelf between the two work places, and apparently shared by them, is a row of binders and books.

In March 1996 there were, all together, seven different people who worked part-time as generalists in the front office. They all had their own work places in other parts of the building, where they could sit and work with those kinds of things which were difficult to do in the front office, when you were constantly being interrupted by visitors and phone calls. Usually, there were two people working in the front office at all times of the open hours of the day. Front office work is scheduled so that each person only works there half of a day at a time. Shifts take place at lunch-breaks.

In Sölvesborg, we did not study the implementation and development over time of the one-stop shop, but rather stepped directly in behind the front desk to observe on-going work. In the fall of 1995, we visited the one-stop shop several times, interviewing some, but not all, of the generalists, and video-taping some shorter sequences of work. We were also given 'walk-throughs' of the applications in use in the front office.

During six consecutive work days in March 1996, the first-year students on the MDA program took turns, in groups of four, doing observations and video-taping front office work. In this way, we were able to study the work in detail as it progressed through six days, certain topics and problems surfacing several times, and certain organizational patterns emerging thanks to the period of time covered.

The generalists who had been filmed in the front office were invited to the university about a month later, after the students had done their interaction analysis of parts of the recordings. We held a morning workshop, during which the generalists got to see parts of the recordings, and the students told about how they had worked with the material, what they thought they had seen, and what they would like to ask about, and find out if they had understood, about the work they had been observing. This workshop was set up so that each student group had a session in a small video-studio, where only the generalists who had been filmed by that student group were shown parts of the recording and discussed what it was they were seeing together.

The students were pleased with the workshop, saying it had given them many new insights. The generalists appreciated it, too, judging by the comments and the discussions that got going about front office work and computer support. My impression was that there was a good relationship between the generalists and the students already, when we had the workshop, and that it was one of mutual respect and interest. After all, you don't sit observing someone's work for four hours, at very close quarters, and then do hours and hours of interaction analysis with the recordings from the same visit, without beginning

to get a feeling for it, and an understanding for the complexities of everyday work practice.

The students later wrote reports about the work observations, choosing different aspects of front office work which they had noticed seemed problematic, or interesting in other ways, to focus on and write about³⁷. This helped me, too, in that it broadened my view of what actually goes on in the front office, and helped me see many things which I would probably not have reflected upon without having them pointed out by inquisitive students. For that is how it is, working with interaction analysis – you tend to pick out certain situations you are interested in, and get more and more deeply involved in these, leaving all that other footage, all those innumerable aspects which you might have seen meaning in, but didn't, aside.

I visited Sölvesborg in the autumn of 1997, to give feedback on the student reports and the analysis work I was then involved in myself. This proved a bit of a dilemma, because the student reports were good student work, but not very easy reading for the generalists, my own thesis was of course still being written at this time, and the generalists really would have liked to have a summary report of some kind. In future I will be bringing up this aspect with the students, and have them write a summary of their reports especially for the people whose work they have been allowed to study at such close range. It bothered me that I hadn't thought of that from the start.

During my visit in the fall of 1997, I was given a 'walk-through' of the existing computer support, which I video-recorded. By this time, there had been quite a bit of local development of the computer support, and the generalists themselves were pleased with the new groupware they were learning to use. It seemed as though the idea of using computers for supporting informal communication was beginning to take hold, and being tested and elaborated on by the generalists.

3.3.3 The everyday managing of front office work tasks

In the following, I have chosen to present two examples of 'slices of observed reality' from front office work. This, together with the video-recordings themselves – which prove incredibly rich in detail, once you start trying to transcribe from them, rather than just content-logging – is the type of material with which we have worked during the latter part of our research project. We wanted to focus on what might best be described as 'the work done to get the work done'³⁸, i.e. the everyday managing of front office work tasks. So we moved our chairs and camera-on-a-tripod up close, and started recording 'everything' we saw. The closer we seemed to be getting to everyday life, the messier it got. We found we had to try to trust the people we were watching to show us how to organize what we were seeing.

As with the case study in Arjeplog, I have chosen to use aliases rather than the actual names of the people involved.

Example 1. Excerpt from student's log, Sölvesborg:

1. The telephone rings, someone wants to book a classroom and needs
2. a video put into it. Stina checks the telephone exchange computer
3. to see if the janitor is in. She makes a phone-call to him at the same
4. time as she brings up the application called BOOKING on the
5. computer and enters the name of the person who has booked the
6. classroom into it.
7. The telephone rings and someone wants to know how to fill in a
8. form (for child care, I think).
9. Stina explains, in a friendly manner.
10. Now she continues entering information on the computer.
11. She makes a phone-call again but gets no answer, calls again, gets
12. an answer and asks for Lasse, she asks Lasse to place a video in the
13. school classroom.
14. The lady who borrowed Stina's keys comes by and gives them back.
15. Stina calls up the janitor and asks him to unlock doors in the
16. school.
17. Two municipal employees come in and start fiddling around with
18. Erika's computer.
19. The telephone rings, Stina answers, says hello and hangs up.
20. Now the phone rings in the municipal telephone exchange, Stina
21. answers and switches the call through. This is followed by three
22. incoming phone calls/brief conversations, one directly after the next.
23. Erika walks over and begins to work on Stina's computer, there's
24. some kind of problem with the child care queue, the family has
25. moved and the child has been placed in the wrong play-school.
26. Now the phone rings in the municipal telephone exchange again,
27. three quick phone calls after one another.
28. Erika and Stina work together on the computer.
29. Incoming calls on the telephone exchange again, four calls/brief
30. conversations in a row.
31. Now there are incoming calls on the telephone exchange the whole
32. time, and Stina answers them.
33. When the man who wanted to book a classroom calls, she
34. recognizes him by his voice and tells him right away that
35. everything has been arranged.

This excerpt is from a log written by Maria Karlsson on Thursday afternoon, March 14th 1996. She chose to include it in the group's student project report as

an example of how she did her logging. As you can tell, she has chosen a 'logical' episode, with a beginning and an end – she starts with an incoming phone call with a request for service, and ends with the same person calling again and finding out that 'everything has been arranged'.

Yet, reading the excerpt, my first impression is one of coming in right in the middle of a number of ongoing activities, the details, interrelationships and logics of which I am largely, and irritatingly, ignorant. Who is the 'lady who borrowed Stina's keys' (row 14), and when and for what reason did she borrow them? Why does Stina have to call the janitor twice – did she forget about unlocking the doors the first time, and remember when she got her own keys back, or is it a different janitor, one at the school, rather than the one who is in charge of the videos? (rows 15-16, 12-13). What's wrong with Erika's computer, and how long hasn't it been working? (rows 17-18). My interest for computer support causes me to put the follow-up questions: Who called for help? How did they know whom to call? How long did it take for help to get there? (Presumably the two employees mentioned on row 17 have been summoned there by Erika or Stina and have some kind of official or informal status as specialists when it comes to troublesome computers). Is it a problem they recognize, that they've had before? (What I'm trying to get at, here, is not only What is the problem? but Why is it a problem?)

There are a number of other things which could be pointed to in this excerpt. In fact, the more you dig into it, the more questions seem to unfold. I will only mention, here, the many alternative activities in which Stina is involved during the period of time in which she manages to accomplish the necessary subtasks, so she can say 'everything is arranged' with seemingly unruffled confidence, when the person who booked the classroom calls back. The way I interpret the log, Stina can say this truthfully, because she has made four phone calls (of which two were interrupted or unsuccessful, so that she had to try again, rows 3 and 11) and registered the booking of the classroom in the computer system (row 5 – interrupted by incoming phone call – and row 10). But during this time, she has also answered and taken care of at least 15 other incoming phone calls (rows 7, 19, 20, 21, 22, 26, 27, 29, 30, 31, 32) and helped Erika with a problem which needed to be solved, and data altered, via the computer (row 28). Not to mention the lady with the keys (row 14).

In the next chapter, I will take a closer look at what I call 'constant interruptions' as a characteristic part of front office work. As such, it does not seem to have been given much consideration when it comes to design of computer support.

Example 2. Excerpt from video log, Sölvesborg:

1. The telephone rings. Olle answers, holds the receiver squeezed
2. between his shoulder and his ear, looks up something on the
3. computer, says: ‘...you mean like today, then?’
4. Petra gets up and comes over, stands behind Olle, shows him
5. how she usually does it, points and shows how the system works.
6. She moves back to her place and continues doing her own work.
7. Olle, still on the phone, is still having problems with the computer.
8. The screen is full of squares, he’s not getting anywhere.
9. Petra tells him, without getting up again, to call back later,
10. and she can help him in a bit. Says they can get back to the person
11. by phone once they’ve solved the problem with the computer.

This is an excerpt from my own video-log, from a recording made in Sölvesborg on the morning of Friday the 15th of March 1996. As I went through both my own tapes and the tapes which the students had worked with, I was looking for special situations, and already filtering and organizing what I saw and logged through this focus. The students’ logs were, generally speaking, richer, messier and less filtered, which was a useful reminder to me that there was more going on out there than met the narrowly focused eye.

From the outset, my ambition was to study many different concrete examples of how the most common types of tasks are taken care of. Somehow, at the back of my mind, was the idea that I would put the ROSA model to test and try to prove that it was vastly over-simplified. Actually, as I see it in retrospect, the problem was that I was trying to do interaction analysis and come up with some creative ideas about how to support front office work, but I still had my starting-point in basically the same assumptions and world-view as the ROSA model is born out of.

Gradually, I began to notice, and shift my attention to, how *complex situations* are managed. Much of this managing activity goes on so smoothly that, if it weren’t for beginners, you wouldn’t even catch sight of it.

In example 2, Olle is a newcomer, who has very little experience of front office work. Although he doesn’t ask for help, Petra hears, or notices, from the way he is talking on the phone (rows 2 and 3), that he is having problems with the computer support. She gets up and goes over to help him, showing him what to do (rows 4 and 5). When he gets stuck again, she is busy with something else, so this time she tells him to round off the phone call in a smooth way and they can solve it together without such a time-pressure (rows 9-11).

As it turns out, there is something amiss with the access rights Olle has been granted for the system he is trying to enter information into, so they can’t solve the problem on their own, and end up calling in a systems expert. Petra’s

decision to go on with her own work the second time (row 9) may be based on previous experience: if the system keeps giving you trouble, there's probably a reason for it which the generalists can't do much about without assistance from systems experts. In any case, it seems clear that she is managing – and showing Olle how to manage – a situation, not just a number of different, individual work tasks.

Working with many different student logs, besides my own, has brought home to me how interpretative an act it is to write a log. On top of the uniqueness of the observed situation, comes the uniqueness of the interpretation, which, after all, must always build on choices of what is important, in the eyes of the beholder, and what is not. How doubly simplified a view of human behavior, and of representation and understanding, therefore, it is that is voiced in the quotation of a quotation from Hubert Dreyfus' *What Computers Still Can't Do* (he quotes it with distaste, it's not a view he shares):

*Any complete description of behavior should be adequate to serve as a set of instructions, that is, it should have the characteristics of a plan that could guide the action described*³⁹.

To me, what Petra is doing for Olle (example 2 above) is showing him, through her choices of action in specific situations – the judgments she makes and acts by – her plan-in-action. This should help him, as he learns from her very examples, to guide his future action. According to this perspective, the tables are reversed. It's not the external representation that needs to be complete – as if such a thing were possible – but the 'inner picture' which needs to be enriched through examples, and one's own experience.

How can we share an inner picture?

Let me give you an alternative quotation. In 1851, the French critic Francis Wey wrote the first attempt at an aesthetics of photographic portraiture. In his essay 'The Theory of the Portrait', Wey writes:

resemblance is not a mechanical reproduction
but an interpretation
that translates for the eyes
the image of an object
so that the spirit
imagines it with the aid of the memory.⁴⁰

What he is saying is, that it is the strength of the picture's interpretation that makes the image a likeness. You could argue that this must lie, above all, in the eyes of the beholder. But certainly Wey is writing, here, about the interpretation made by the photographer, and the importance of the photographer's interpretation for what the beholder will see.

Are we perhaps too prone, these days, to either ignore this aspect totally, or to hand over all responsibility for interpretation to the person at the end of the line?

What about the aesthetics of intentional action? And is that not, ultimately, what we are concerned with, when we talk of design?

4. What's so special about front office work practice?

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4.1 Characteristics of front office work

4.1.1 The complexity of the seemingly simple

Getting up close to see what people actually do to get their work done, means stepping out of the neat chronology and stream-lined logic of written job descriptions and in to the messy chaos of other people's everyday life in their everyday work place. This is especially apparent in the study of work where taking care of other people's messy everyday problems is a large part of the job. Reception desk work in hotels and conference centers has this character, as does the front office work in one-stop shops. So, for that matter, does the help desk function of IT management¹.

In preparing for the fieldwork in the more extensive case studies, we turned to reception desk work in Ronneby Soft Center, where my colleague Kajsa Cadwell Brimdyr carried out a series of observations including video-recording, interaction analysis and interviews². We also had MDA students do studies of work practice at the reception desk of the nearby conference hotel Ronneby Brunn. Together with the students, as part of their training as well as preparation for our own research project, we used their experiences and insights to discuss how to catch sight of special characteristics of this type of work which might be relevant to focus on in the case studies of one-stop shops.

Perhaps the most immediate reaction for most students upon entering the field was that of shock at how complex the work seemed to be when you tried to observe and describe it in detail. A common complaint at this stage was: *'But we don't know what we're supposed to be looking for! What do you want us to focus on?'*. At this point we started comparing observation logs and discussing differences in approaches and how they affected what was caught sight of. The relativity of the observed to the observer was brought home through these exercises not only to the students but to us as well. Laying the different observation logs out next to each other, we could begin to discuss the possibility that coherence and structure in work practice aren't something just naturally *out there* to be observed and described, but rather might be seen as continually constituted and reaffirmed in action by the participants themselves. It appeared that these people behind the reception desk were constantly making split-second decisions about how to proceed. And the action following upon a decision made in one situation might look very different from the action following upon a decision made in another situation, even though the intention behind the decision, and the final outcome, would appear to be similar in the different cases. Intention, purpose, situational awareness, judgment based on previous experience – these were aspects of human action which needed to be

taken into account in order to understand how the complexity of everyday life was being managed, and how this in truth managerial work, which was being conducted on both an individual and a cooperative level, might be supported by information technology.

Later, as we moved on to our own field work in the case studies in one-stop shops, we again experienced discrepancies between the accounts given of what front office work is about and the actual work being done, as we observed it from our vantage point directly behind the front desk. The concept of one-stop shops was repeatedly presented to us as being based on the idea of having simple tasks taken care of by generalists in the front office, and letting the specialists in the back offices concentrate on complicated tasks calling for their specialist competence. Yet the work at the front desk, as we saw it, did not appear to consist of a number of different routine³ tasks being repeated according to the rules throughout the day. Rather, it seemed to be centered around individually or collectively managing new situations and intersubjectively defining and solving problems as they evolved in the dialogs with visitors or telephone callers. The complexity of the work lay above all in this social interaction with the visitor/caller, during which the nature of the problem or question was explored and the best choice of action decided upon. This was interpretative work which included attentiveness to the visitor/caller and his or her situation, and a good deal of rapid organizing, structuring and categorizing, in order to rephrase the problem in bureaucratic terms and decide on suitable courses of action.

The work was not made less complex by the fact that the generalists could not plan their reception work ahead of time but were expected to take care of visitors and phone calls directly as they came in, and thus often had to handle several dialogs in parallel.

Finally, we also observed a varying degree of complexity in the work involved in taking care of the problems, once they were defined. In the course of this work, problems sometimes had to be redefined, or new solutions worked out, because of obstacles encountered along the way. A single question or problem might develop into a whole series of actions which were necessary in order to find a good answer or solution. Although the aim was always to take care of questions and problems on the spot, sometimes this was not possible. Some problems required more time. While going through the video-recordings from the one-stop shop in Sölvesborg, I saw several instances of problems which took hours or days to solve. It wasn't that it actually took hours or days of concentrated work with that specific problem, it was usually a matter of keeping it at the fore – thank God for Post-its! – while trying to get hold of someone who, for one reason or another, needed to be consulted in order to solve the problem. In most of these cases, the visitor or caller who needed help was not aware of the actual time delay. The generalists were professional about

giving good service, and would usually close a dialog about an unsolved problem with a reassuring '*We'll take care of it for you*', or, if necessary, '*We'll get back to you within the next few days with an answer*'. But the work involved afterwards might well be spread out over several days and involve many unsuccessful phone calls before the problem was fully solved (and the Post-it note could be crumpled up and thrown away).

As may be seen from these examples, what I'm referring to as complexity here, i.e. the complexity of front office work, is about the need for using good judgment in ordering chaos. It's about the work of communicating, understanding, organizing, structuring, keeping track of and following up. It's about making situated decisions, taking many different aspects and details into consideration, under almost constant time-pressure. And, as if that weren't complex enough in itself, because it's service work, you are expected to do it with grace and a smile.

As I see it, this is real-life, qualified managerial work⁴.

So, our experience from observations in the field told us that reception work and generalist work was complex. Why, we asked ourselves, was this complexity all but invisible in the descriptions we had been given of front office work?

In her book *The Everyday World as Problematic*, the sociologist Dorothy E. Smith borrows a parable from Hegel⁵ to show how actual practices can be invisible from the very vantage point which they help to sustain. Perhaps the mystical disappearance of complexity, which we repeatedly experienced in the transition between field observations and prevailing discourse and accounts about front office work, might be somewhat better understood with the help of this parable and Smith's reasoning in connection with it.

Using the relationship between master and servant as a metaphor, Hegel analyzes, among other aspects, the relation between the master's consciousness and the work done by the servant. The servant's work is, in a sense, the master's consciousness realized, for if the master wants something (within reasonable limits), it is the servant's job to get it for him. From the point of view of the master, his relationship to what he wants is a simple and direct one; there is himself and an object he wants. The servant is a means of getting it. This appearance of simplicity and directness is, however, the result of the actual practice of the servant. From the servant's point of view, the set of relations is more complex; there is the master, the servant's own work producing the object, and there is the simplicity of the relation between the master and the object. The invisibility, from the master's line of vision, of the relation between the servant's work and the production of the object, is a product of the organization of the relation between master and servant. That organization itself is not visible from the standpoint of the master.⁶

Marx used Hegel's master-servant parable as a model for analysis of the rela-

tion between a ruling class and the working class, showing how the actual practices which make ruling possible are not visible from the ideological consciousness of the ruling class, while a science of political economy proceeding from and grounded in the standpoint of the working class renders the totality of the set of relations visible.

Marx [...] is drawing attention [...] to an idealism that views the transformation of social forms as taking place in and through conceptual transformations (and therefore as simple) and to how these very idealizations are organized, provided for and produced by the productive relations and the productive activities, the labor of a working class standing in determinate relation to a ruling class, producing not only the subsistence of a ruling class, but also the basic organization that the social forms of consciousness of the ruling class take for granted. The standpoint of labor thus establishes a site for the knower from which these relations and organization can be made visible as they actually arise in the actual activities of individuals.⁷

Smith, in turn, uses Marx's view of the different bases of ideology and knowledge to show how women's work can be invisible in the abstract mode of conceptualization which still prevails in main-stream sociology. From here she goes on, using Marxism, phenomenology and feminist theory, to develop an alternative to traditional modes of thinking about and understanding social relations and knowledge. She shows how main-stream methods of conceptualizing social processes strive to externalize these from individual people, concretely located in local and particular worlds, and instead to fit them into forms of thought which organize them in terms of systems, in an abstracted conceptual mode of 'ruling'. This out-of-time and out-of-space realm of reasoning developed and spread with the emergence of forms of corporate capitalism during the twentieth century. In the abstracted conceptual mode of organization which thus emerged, organizing functions became differentiated as a distinct system of functions (administration, management etc.). These functions became primarily communicative and informational, and at the same time increasingly dependent on a secondhand knowledge organized conceptually as 'facts', 'information', and so on. And they became more and more dependent on generalized systems of planning – usually under the name of rational administrative practices – in the same mode. Parallel to this development, and interdependently with it, an institutionalized form of knowledge and practice of social control developed, based on an extralocal viewpoint – something like a bird's eye view – of society and social relations.

But isn't Marx hopelessly outdated? Without having actually read any of his

original work, I find Smith's interpretation and use of his ideas as stepping-stones in her own theory-building stimulating and illuminating. If some of the numerous interpretations and attempts at practical application of Marx's theories have fallen out of grace, in view of recent political developments in Europe, for instance, it may not necessarily mean that his way of thinking and reasoning is to blame and therefore useless⁸. However, I have no real grounding in his theories, and will go no deeper into them here. I found Smith's interpretation useful in trying to understand how the complexity of front office work could become invisible in the current discourse and descriptions of it. I haven't yet found a better way of understanding the phenomenon.

In presenting some of the findings of my research work to colleagues in the MDA research group recently, I took the opportunity to test the structure and chapter headings I had set up for my doctoral thesis. In particular, I wanted feedback on this chapter, in which I attempt to answer the deliberately provocative, chapter heading question *What's so special about front office work practice?* In the midst of a vivid and appropriately messy description of the complexity of front office work – with all those constant interruptions, the extensive use of local knowledge and people-based information systems – I was interrupted by Kjell, one of my colleagues. 'I recognize all these things from my *own work*', he said. 'What makes you say they are so special for *front office work*?' Well, the question was excellently put. It stopped me in my tracks. The answer was all too obvious – by phrasing the question so pointedly, I was trying to high-light aspects of front office work which seemed to be very little talked about and which we had discovered mainly through observation and interaction analysis. But, as my colleague quite rightly pointed out, these aspects were in no way unique for front office work, although some of them were more pronounced here than in many other types of work. The true uniqueness, which had hitherto escaped me, lay not in the specific type of work but rather in the perspective – in studying *work practice*. By moving up so close to the specific and particular – by stepping out of that deceptively simple conceptual mode that Marx and Smith have been pointing out to us – we were catching sight of the work that goes in to constructing and organizing the world we live in like masters.

Yet Kjell's question also indicated something else. We live in this world as both masters and servants, perhaps more so today than we did a few decades ago. Few of us have personal servants or secretaries. Many of us have our own computers⁹. We are being forced to do more and more of the organizing work of producing the objects we desire ourselves. All that messy everyday stuff that used to be invisible is beginning to surface. Else why would Kjell, a reasonably well-paid and well-educated male, belonging, presumably, to the ruling class, recognize in his own work practice so much of what we caught sight of in front office work practice?

The next question, quite naturally, is this; Why is the computer such a poor servant that we are being bothered with so much of the basic organization of everyday life? For, besides the implications of Kjell's comment, and our own experience, to that effect, we also observed, in our studies of work practice, that the work at the front desk was, in many cases, made more complex, rather than less, by the computer support in use. Metaphorically speaking, one could almost suspect that this modern-day, machine-based servant had been apprenticed to a master, rather than to a skillful, experienced servant, and thus had been given an extremely over-simplified view of the world... Remaining for just a moment longer in this metaphorical mode of interpretation, we begin to sense the meaning of that often proclaimed threat by anti-technocrats to the effect that poorly designed artifacts are becoming our new masters and we their faithful slaves. Time, perhaps, for former masters and slaves to join forces in teaching machines how to serve us in more purposeful ways?

But enough of Hegel's metaphor for now. What I've written here about the complexity of the seemingly simple is but a rough sketch of a motive I am still trying to grasp. It concerns the complexity of organizing the chaos of everyday life, and how such constantly on-going practices – I think they are more challenging and exciting to work with when conceptualized as practices, opening up towards an intersubjective life world, than as processes – may be more efficiently supported by modern technology. The issues I have attempted to point to above, whether metaphorically or directly, are ones I will be returning to further on and in the next chapter.

4.1.2 All those constant interruptions

Concerning work and interruptions, I would like to start by telling one of my own war stories¹⁰. During the years when I worked as an office clerk, there was a period when I was active in the local trade union and functioned as the office workers' work environment representative. The Swedish Work Environment Fund regularly sent out information about on-going research projects, which I would read through to see what might be of interest for the workers and work place I was representing. I remember one project in particular – it was a study in which stress-levels in clerical office work were being measured, and it was occasioned by the many diagnosed cases of chronic shoulder and back pains in this occupational group. It was an area of evident relevance for my colleagues and me. But as I read through the brief summary about the still on-going project, I became more and more incredulous. The office clerks who were participating in the research project had originally been wired up to the instruments for measuring the chosen stress-indicators while sitting at work in their own everyday work environment. However, this phase of the project had been discontinued shortly after it started, and the clerks had been moved to a

laboratory environment. The reason? The clerks kept being interrupted in their work by their superiors, who would come by with alternative tasks which needed to be attended to, usually immediately, and which, according to the researchers, totally disrupted their measured results.

I remember sitting at the coffee table at work telling about it, and how we all doubled up laughing about *constant interruptions by superiors* being considered as something alien to and separable from the clerical work which was being tested for stress-factors. For us it was quite obviously *the* main stress-factor on this type of job. Our superiors presumably – like the researchers – had no idea of how much organizing went in to taking care of both our basic work tasks and these constant interruptions – every single day. (You see, Hegel really was on to something there, concerning the invisibility of the servant's work practice to the master.)

Looking back on this episode, I realize that I have since stepped into the academic world myself – that distancing world of observation, description, measuring and analysis – and that I now see the story in a somewhat different light than I used to. Our laughing together might be interpreted as a reasserting of ourselves as knowing subjects, humor taking away the biting edge of having the conditions of our everyday worklife being measured by 'experts' without an inside understanding of the work practice they were studying¹¹. But I also see how the researchers involved were most likely constructing scientific facts in what was then the only conceivable and legitimate way in the rather technically dominated field of work environment science – this was something like fifteen years ago¹². They were doing serious research in an area which had long been neglected and which was of very real relevance for us as office workers. It was, in a wider perspective, as important for us as for them that their results be taken seriously by the scientific community to which they belonged. They were, after all, taking us seriously – if we laughed at one aspect of their work which looked ridiculous from our point of view, we were still better off with that research being done and published than without it.

The social construction of scientific facts is an on-going process which is subject to evolution, or at least to change, like all social construction work. In recent years, the factuality of recurring interruptions of on-going work has begun to materialize, much like the Cheshire cat, in some of the CSCW¹³ literature. This, in turn, makes it easier to focus in field studies and in interaction analysis of video-recorded work practice.

Work at the reception desk, as we have observed it, is riddled with interruptions. It is impossible to anticipate when visitors are going to come in with problems or questions, or when the phone is going to ring the next time. It is impossible to anticipate the exact nature of the problems visitors and callers want help with, or how long it will take to solve or answer each one. The visitor who just came in the door must be acknowledged and given service as quickly

as possible, but the phone can't be left ringing without being answered, either. Yet the skilled receptionist or generalist will usually handle interruptions so smoothly that they become part of the normal flow of work.

Metaphors and concepts which conjure up images of managing parallel paths of activity, of nourishing an open line of communication with a smile, a glance or a few words of explanation, even as you turn to take care of something else, are perhaps a more appropriate way of understanding how constant interruptions affect work practice in the receptions and front offices we have studied. This also opens up for catching sight of deliberate, self-inflicted interruptions, that is, intentional breaks in the continuity of one's work in order to take care of something else – not necessarily a telephone call or a visitor, but a task which one is aware of needs to be done and which has been kept on hold for awhile. This is a kind of organization of work which goes on almost all the time in the front office.

When my colleague Kajsa Cadwell Brimdyr first started her observations of work in the reception area of Ronneby Soft Center, she didn't know more than a few words of Swedish. It was not possible for her to understand what the receptionists were saying to each other, to visitors and in telephone conversations. So she concentrated on observing how they moved around, shooting their chairs (which were on wheels) back and forth to reach various artifacts, and how they interacted with and signaled to each other. She noted shifts in attention that she could follow because of glances being shot back and forth, or gazes shifting from one pile of papers to another, from a computer screen to greeting a new visitor coming in, etc. And what she saw was, that they were extremely well coordinated as a team¹⁴. They were constantly aware of where the others were located in the limited space they shared, and what they were busy doing. Through interviews with the receptionists (which she was able to do in English), she confirmed what she thought she had understood about how they organized their work within the team to manage constant interruptions. They had certain work tasks which were more interruptable than others. These could be managed at any time during the day, between phone calls and visitors. Usually these tasks didn't call for longer periods of concentrated effort and were easy both to lay aside and to get back to when things calmed down. An example was the sorting of mail. But there were other tasks which were less interruptable. This might be because they involved the need for concentrated, continuous effort from start to finish in order to get done at all – like doing calculations, planning and scheduling, or the formulation of informative texts. It might be because of time limits; things which had to get done before a certain time of day, for instance. Or it might have to do with limitations in the computer support, which meant that if you were interrupted in the middle of registering something, you risked losing information and losing sight of how

far you had come in the task. An example of this was the routine and computer support for the checking and registering of invoices.

The receptionists had developed a work practice within the team where they took turns doing concentrated office work at the rear desk in the reception area, and doing interruptable work, receiving visitors and answering phone calls at the front. We saw this type of division and rotation within the team of more or less interruptable work in the case studies in one-stop shops, too. And we noted that none of the computer applications in use appeared to have been designed to support interruptable work in any way. Some of them, especially older main-frame based systems, were real nightmares in this aspect, as they were text-based and had to be entered completed screen by completed screen. Repeated interruptions in working with this kind of updating would almost inevitably lead to loss of information and the need for time-consuming checking of what had actually been updated and what needed to be redone. Yet some of these older systems offered a broader and more coherent over-view of the work at hand than the modern graphic interfaces. These tended to say much less in a louder voice on each screen, so to speak, and thus caused problems because it was so easy to loose the red thread of what you were doing in them if you got interrupted in the middle of your work.

I will be returning to design issues in the next chapter, and in chapter 7. For now, however, we will leave the design of computer support and look again at some of the characteristics of front office work practice.

4.1.3 Catching sight of skill

Already in the initial observations and analysis of reception work at Ronneby Soft Center and Ronneby Brunn, we could appreciate the skill with which the receptionists handled multiple, and often seemingly simultaneous, paths of action in their work. But it was in the observations and video-tapes from the one-stop shop in Sölvesborg that we were really able to catch sight of the skill with which the generalists were managing their everyday organizing of chaos.

Because the students on the first year of the MDA educational program agreed to do their ethnographic field work in Sölvesborg, it was possible to carry through a coverage of the front office work during six consecutive work-days. By recording and analyzing the work being done during more than a week, and by doing parts of the initial interaction analysis work together with all the students at once, we could begin to see not only what happened minute by minute, or throughout the day, but also less frequent, but equally regular, fluctuations in the working conditions.

One of these regularly recurring deviations from everyday conditions was the weekly front office personnel meeting on Thursday mornings. The ambition was that all the generalists should have the opportunity to sit down

together for a few hours each week, without being interrupted by phone calls and visitors, to discuss and plan their work together, share important information about the rest of the municipal organization and so on. The reasoning behind this arrangement, as presented by the manager in charge, was that the generalists, as a group, were seen as fairly autonomous, and were encouraged to take care of their own planning and scheduling of work in a structured and institutionalized way, in order to help build up their identity as a new professional group within the municipal organization. They had been given resources for this in the form of two substitutes from the back offices, who would step in on Thursday mornings and take care of the front office work for four hours.

None of the generalists worked full-time in the front office, but all of them, except the two substitutes, worked there part-time several days a week. They each had access to a secluded office space of their own in a building nearby, where they could sit and do 'uninterruptable' work when they weren't on duty at the front desk. The changing of work shifts usually occurred at lunch break every day. This was, at least to the observers, a fairly smooth and seamless procedure. One person would glance at her watch and begin to slacken her work pace, log out of the computer, get up from her chair, gather up her purse and any papers which were part of her own personal work tasks, and move towards the door, while another person stepped in with her papers and purse and settled down in the other person's place. There would be a brief exchange of information between them about on-going work and other current matters, unfinished front office tasks, still on hold for one reason or another, would be handed over, and then the first person would leave, the second person would spread out her papers, log in to the computer – and work would continue in much the same rhythm as before. Monday, Tuesday, Wednesday ... – we saw the same procedure repeated each day.

On Thursday morning, the work rhythm looked different. The substitutes on duty this morning didn't have the experience of front office work that the ordinary generalists had. And, because of the ambition to get all the ordinary generalists together once a week, the substitutes never had the opportunity to work together with any of them. They were thus deprived of the possibility to learn more about the work through watching and being shown examples and instructed in practice by those who had learned to master the field, i.e. the type of apprenticeship which Lave and Wenger call legitimate peripheral participation¹⁵. Instead, they supported each other as best they could in muddling through the four hours of constant interruptions and new demands from visiting or calling citizens. This is how we really caught sight of the skill required for accomplishing qualified front office work; by studying the breaks between different work shifts and how well they were normally spliced in to each other. And by noticing, and inquiring into, the difference between how smoothly the

ordinary generalists managed their work and how difficult it was for the substitutes to manage the same type and amounts of work.

It might be easy to blame the substitutes for the difference in how the work was performed. There is a tendency, among personnel managers and consultants working with the development of one-stop shops, to speak of 'social competence' and 'you-have-to-like-working-with-people', as though these were basic human properties which you either have or have not – by providence, as it were – and which, if you have them, make you a 'natural' when it comes to generalist work. It does seem likely that you might not enjoy working in a one-stop shop if you hate talking to people. But this does not mean that skill in front office work springs naturally out of being a friendly sort of person. Social competence is a skill in itself, and surely a useful one in front office work, but the skill we are studying is the skill which comes with practice and experience of the work involved. To label the experienced generalists' skills as 'social competence', without any further analyzing of the knowing-in-action involved in the work they do, is to me – and let me use Hegel's parable again – yet another instance of how the master's perspective renders the servant's work practice invisible.

The group of students who did the observation study and video-recording on Thursday morning were intrigued by the problem, and decided to focus the working conditions of the substitutes in their project report. They interviewed both substitutes, went through and discussed some of the recorded situations together with them, and found out more about how they experienced, and managed to cope with, their work. In their report¹⁶, the students showed how the substitutes had put more work into structuring the artifacts they used for front office work than had the ordinary generalists. The substitutes had discovered that stepping in to work for four hours a week on a hectic job, with no one more experienced around to ask for help, was a suicide mission, unless you tried to gain some sort of control over the situation. After repeatedly having searched for manuals and other written work instructions, which seemed to have been moved from the shelf where they had found them the week before, the substitutes resolutely put together their own work instructions and manuals and put them in a place where they could be sure to find them the next time. From then on, they took care of updating these instructions and manuals themselves. In this way, they felt that they had gained at least a small amount of ground in foreign territory.

Visible and stringent structuring of the work, and having easy access to written rules and instructions – retaining the scaffoldings, as it were – were more vital for the substitutes than for the ordinary generalists. They stepped in so seldom and for such short periods of time that they would forget, between occasions, how certain computer applications worked, for instance, or how certain types of tasks were usually taken care of. Nor could they keep track of all

the local information and networking which were part of the ordinary generalists' knowing-in-action, their shared frame of reference.

In the interaction analysis of the recordings from Thursday morning, we could see the gap between the skilled teamwork of the more experienced generalists, which we had been observing in the earlier recordings, and the way the two substitutes did their best to offer good service to visitors and callers.

It was visible in how many times the telephones rang before they were answered, when things were hectic. The substitutes were not as skilled as the ordinary generalists at keeping several paths of action going at the same time. Because they often tried to finish helping one person before taking on the next challenge, they sometimes got entangled in stressful situations, as visitors gathered in line and phones rang on, unanswered.

It showed in how long it took for them to find relevant information for answering detailed or out-of-the-ordinary questions. Always intent on giving the best possible service, they would never give up easily, but usually continue looking for sources of information so they could provide the help or answers people needed.

It could be traced, also, in the sporadic communication between the two substitutes, which was supportive, but lacked the continuous, easy-flowing, often rather cryptic (for the observers) character of the communication between the ordinary generalists.

Yet, for all this, the students' investigation into the work practice of the substitutes showed that they had found their own methods of coping in a tough situation. They had, you could say, developed special substitutes' skills, which we would not have detected if the students hadn't interviewed them and discussed some of the video-recorded sequences with them.

It seemed obvious to us observers, after the field studies and the following analysis, that the substitutes were suffering a severe lack of nourishment for developing skills in front office work. They were barely articulate, where the ordinary generalists were fluent. And how could it be otherwise, when they normally, because of the way their work was scheduled, lacked the opportunity to participate in the articulation work – including the continual constituting and maintaining through practice of an understanding of what needs to be done under what circumstances – of the more experienced front office team?¹⁷

After our field studies, I attended one of the weekly generalists' meetings and presented some of our results and reflections about what we had observed during the six days behind the front desk. In the discussions in connection with this, the plight of the substitutes and their need for support from, and overlapping of work practice with, the ordinary generalists was brought up. Their working hours have, I believe, since been re-scheduled to meet these needs.

4.1.4 The information system in use

If you are focusing on information, and how information is handled in an organization, as I was, to some extent, at the outset of the research project, you may view front office work as being about information management. The generalists need to have easy access to information from a number of different sources. They need to be able to find, interpret, piece together, and pass on, relevant information to visitors, callers, to each other and to the people in the back offices, whom they represent and with whom they cooperate. They need to keep in touch with what's going on in the municipal organization, where people are, whom to ask about what.

An important ambition in our research project was to study how modern technology was put to use in front office work to support communication and cooperation, easy access to various sources of information, and the development of skill and learning on the job. We started out with a broad, inclusive interpretation of what an information system is. We didn't feel that it necessarily had to have very much to do with the modern technology at hand. We saw the information system in use as *people-based* and *activity-centered*, rather than *computer-based* and *work-flow-centered*. So in the field work, we didn't primarily focus the use of the existing computer applications. Instead, we watched how the generalists went about doing their work, of which a large part involved searching for information.

The way we defined what an information system is, influenced what we saw, of course. What we saw was, that much of the information was searched for and found via other sources than the computers. The telephones, for example, were an excellent example of functional modern technology which was constantly used for information retrieval and communication.

The trick is to keep in mind that people can be marvelously versatile and communicative nodes in information networks. It's not so hard, really, once you begin to focus on work practice. Consider the view from the observer's seat, in a corner behind the reception desk. The computer screens sit there on the desk beside each work space, unresponsive unless directly addressed, and even then they can be tough to get a straight answer out of. But look again – the computers are surrounded by binders, books, time-tables, piles of paper, telephones, Post-its and other notes taped on the wall, personal calendars, note-books, catalogues, manuals, brochures, maps. And besides all the different artifacts, there are the almost constantly on-going activities and dialogs, and the people passing by the front desk on their way in to or out from the back offices. The front office has a fairly good overview of what's going on in the building every day, thanks to its location in the entrance hall, and to the fact that many people, in passing, tend to exchange greetings and information with the generalists as a matter of course.

From working with the video-recordings, and from observations during field studies, I have the impression that the ordinary generalists are able to answer many of the questions they get without having to (visibly) search for the information. They know the answer either because it is a frequently asked question, or because it has to do with municipal matters that the generalists are well acquainted with. In other cases, they have found ways to keep frequently asked-for information easily accessible. Time-tables for busses and ferries, certain telephone numbers and similar types of information have been copied and taped up on the wall in front of each work space. Post-its are used to keep track of tasks on hold, people who want to be contacted or are trying to get hold of someone else, etc. To the observer, it seems as though the generalists often help each other out with answers without being asked for them, when they notice that the other person doesn't have the answer at hand and they do. The information system thus appears to be kept alive and updated as, metaphorically speaking, part of a shared inner picture of work practice.

I would like to borrow D.N. Perkins' expression '*people-plus*'¹⁸ for this view of a people-based information system, supported by people in collaboration, and by a number of different artifacts and structuring practices, whereof computers are one. Perkins, in his article, is deep into the machine metaphor of human cognition, which I don't subscribe to, but as he goes on, his vision of learning and knowledge-processing systems grows so vivid it paradoxically takes on something of an anthropomorphic quality. As I find it easier to view a machine as an ornery kind of person than vice versa, I found his figure of thought inspiring, even though I didn't agree with his footwork.¹⁹

Perkins makes several interesting points about the '*people-plus*' view. In most everyday activities, he claims, there are immense physical support systems for cognition. They provide support for the making of things and the structuring of ideas, or for the four facets of the access framework, as he calls it (there's his machine metaphor, shining through); (1) needed knowledge, (2) accessible representations, (3) efficient retrieval paths and (4) constructive arenas (writing pads, work benches etc.). But he also points out that the best use of these physical support systems is an art. Unfortunately, there is a widespread belief in 'the fingertip effect', i.e. that all you have to do is make a support system available and people will more or less automatically take advantage of the opportunities that it affords. Perkins suggests instead that the learner needs to be scaffolded and supported in decision-making by more experienced people in the surrounding, and then gradually given more executive function as he or she learns to use the artifacts and mechanisms of good task management²⁰. By being aware of the *people-plus* view, it should be possible to develop educational processes oriented towards empowering learners to construct around themselves their personal '*plus*', their own surround for an agenda that will evolve with that surround, according to Perkins.

The most interesting point Perkins makes, in my opinion, is about higher-order knowledge. Higher-order knowledge in a domain includes heuristics of problem-solving and patterns of explanation, justification and inquiry. It is the higher-order aspects of a domain that infuse domain-related activities with significance. In the people-plus system, the higher-order knowledge should be, as Perkins puts it, 'distributed among the minds of participating persons'. Yet in traditional education, in text-books and manuals, it is seldom even referred to.

It seems to me that higher-order knowledge might be about ethics and aesthetics, about the values behind the judgments we are called upon to make in a domain, although I'm not sure this is what Perkins meant by it. And it seems to me that it is important that this kind of knowledge – or *knowing*, as I prefer to think of it, indicating knowing-in-action – is distributed among, or preferably shared by, all the participants in an activity system. As, for instance, in an organization. This touches on what Zuboff calls the *informing* possibilities of modern technology, which she points to as its true potential (rather than just *automating*)²¹. To sum it up: applying a 'people-plus' view, striving for informing rather than automating with the aid of modern technology, studying *people-based*, *activity-centered* information systems – it is all basically about using existing resources in more powerful, reflective ways, to support knowing-in-action.

Does this sound utopian to your ears? Naive? Let me tell you one of my war stories, just to give you an idea of, in what ways my view of information systems in use as *people-based* and *activity-centered* is grounded in my own worklife experience, where it comes from.

Back in those days when I was working on the help desk function of a service firm, there was an IT-manager there, who, wanting to rationalize, looked at his machine-configuration and information flow charts and decided to put the two main administrative data bases in separate machines. That would have been fine, in a well-functioning net-work. The problem was, the two operating systems he proposed were not very compatible. Thus the information could not be brought up on one and the same screen layout at the same time without considerable time-delays and intricate programming. In practice, these two databases were worked with daily in an integrated fashion in the organization. It didn't matter where they were stored, physically, as long as they could be integrated in a seemingly seamless way in use. But this practice of integration in use was invisible in the IT-manager's models. He saw the system as computer-based, and the boundaries between subsystems as identical with the boundaries between the physical databases. He didn't understand the information system *in use*. I don't think he had ever *seen* it. When he saw a person working in front of a screen, he saw the interface, not the interaction. The information system was activity-based. It existed in the way it was used, and it was reshaped daily by the users.

I was responsible for coordinating the computer support for the administrative department where I worked at this time. In attempting to defend the integrity of the living information system, I found I could no longer capture and describe it in information flow-charts. Feeling helpless against the rationalist arguments from upper management for relocating the data-bases, and stressed by the realization of what it would mean for the people working with production if the decision was taken to do so, I finally used foul play, using the worst epitaph you can possibly come up with against IT-management, 'out-dated'. I called the models they were using of the information system relicts of the early 70's, when inter-action with the databases was strictly batch-oriented. (This incident took place in the late eighties.) The foul play argument may have helped, for although the databases were eventually relocated, the planned change was altered, and accomplished in such a way as to allow transparency in the handling of data from them. But I'm not sure that the models of the system used on management level really changed very much.

The moral of the story is, if you want to understand the information system *in use*, look at *what people are doing*. These systems, if they're in use at all, are people-based and activity-centered.

There's another moral, too. Most people have a mind and a heart. Don't ask me how the mind works, or in what ways it is connected to the workings of the heart – I can't explain it. The computer is certainly not what I would spontaneously pick as a metaphor for human capacities of the mind and the heart, in any case. What I believe is, that most people have, by nature, fabulous capacities to think, to feel, to act, to reflect on their actions and to communicate with their surroundings – including other people. And that we should expect and encourage each other, in our everyday practices, to use these capacities in creative and good ways. (Good? Yes, good – but I'll return to a discussion of the relationship between aesthetics and ethics, and the relevance of this for design, in chapter 7).

From the servant's perspective, it might be assumed that the master knows about high-level knowledge and the executive function (to use Perkins' language), whether he acts on this knowledge or not. But from the master's perspective, strangely enough, it appears they're nearly invisible, too. Could it be that we need to move away from these old standpoints all together, in order to make use of the informing potential of modern technology?

4.1.5 Local knowing in action

The one-stop shops in our case-studies, as well as many of the ones I have visited, are strategically located at the entrance to the municipal administration offices. This means that the generalists working at the front desk have a good view of everyone who enters and leaves the building by the main en-

trance. Many of those passing by stop for a few moments to ask about something, or exchange a few words with the generalists, before they go on. In this way, it's a location which offers a rich view, not only of people passing by, but of life in the building in general, of who is in and who isn't, and often why and for how long they'll be gone. The generalists know 'what's going on'. They piece together what they see and hear, making sense of it and using it in the work they do, finding many of their most meaningful and to-the-point answers with the help of this local knowing.

The spider in the middle of the web is a metaphor which I have heard both consultants, managers and generalist themselves use to express something about the generalist's position and role in the social network of the organization. Our observations seem to support this view. The generalists do not only answer questions and solve problems for visitors and callers from the outside world, they also do a great deal of informative and supportive work for the people working within the municipal organization. In this way, they participate in a central but rather unobtrusive way in the on-going social construction of reality and conveyance of meaning in the organization.

In his collection of essays, *Local Knowledge*, which is, in his own words, about the art of interpretive anthropology and the beauty of the diversity of things, Clifford Geertz writes:

The move of social theory toward seeing social action as configuring meaning and conveying it, a move that begins in earnest with Weber and Freud (or, in some readings, Durkheim, Saussure, and G.H. Mead) and that now has become massive, opens up a range of possibilities for explaining why we do the things we do in the way that we do them far wider than that offered by the pulls and pushes imagery of more standard views.²²

It is from this relatively new perspective in social theory, then, that the metaphor of the spider in the middle of the social network may be applied to front office work and seen to fit it quite well. The generalists configure meaning and convey it, they nourish and share local knowing in action. Yet there are, as Geertz himself points out, a number of different perspectives to consider. Some of them are firmly based in pull and push imagery. Many of these are in use within organizations, which have traditionally been defined largely in terms of control, prediction and steering. According to the constitutive view, these more standard views must be acknowledged as part of what constitutes and conveys social reality and meaning. What does all the pulling and pushing of traditional organizing mean for the everyday construction of social reality? Is it possible to build up a strong new net-working organization with all this pulling and pushing still going on?

Sometimes, when I study a painting, in order to get a rough overview without getting stuck in the details, I step back and squint. In a way, it's a bit like using metaphors to grasp certain aspects of the phenomenon you are studying. At best, the blurred vision – or just acknowledging the difference – can help you see relationships between parts which you haven't noticed before. Squinting, now, at the metaphor of the generalist as the spider in the middle of the web, I see very few relationships between this metaphor and the existing computer applications, or this metaphor and the basic organizational support for front office work (this does vary between the different case studies, however).

4.2 Support for front office work

4.2.1 Computer support

When we started studying one-stop shops, we were looking forward to following a rapid and exciting development of computer support for front office work. There were several on-going research and development projects in Sweden at this time, which concerned computer support for public service client encounters and public information systems.

One of these was the MISO project²³, which was being funded by NUTEK, the Swedish National Board for Industrial and Technical Development, through the ITYP program. The MISO project in Pajala, which was one of our first two case studies, was intended to be a part of the national project, in which the aim was to develop and implement a computer-based system, using hypermedia to improve and simplify access to public services. In Pajala, there were also ambitions to design and implement an application for keeping track of, and offering public access to, the files of reindeer ownership earmarkings.

In Arjeplog, there was much talk of the electronic networking in the new building, and an initial local discussion about possibilities of electronic communication and conferencing between the different local and government organizations which would be moving in there. The telephone exchange which was going to be installed was computer-based and offered a number of different interesting functions.

In Sölvesborg, our third case study, a special application was being developed by a consultancy firm²⁴ to support front office work. The same firm was also looking at possibilities of front end integration of the various specialized applications which the generalists needed to use in their daily work.

As we got deeper into our research work, and got involved in field work in the two first case studies, our focus shifted from the computer support, which at this time was practically non-existent there, to the implementation of one-stop shops, and, later, to the study of front office work practice. And when we shifted our gaze to the computer screens again, years later, not very much had happened.

In Pajala, the project didn't get the financing they had hoped for. In the end, or at least when we left the scene, they had nothing but an empty desk in the reception area where we had hoped to study the generalist's work. Although there was said to be a prototype of the MISO system in Stockholm, we never saw it in use. Still, we were able to follow the development of informal practices of sharing access to various data-bases between the organizations in the collocation in Pajala. This was not the focus of our research work, but we

noted that the organizations in this way did actually gain better computer support from moving in to the same building together.

In Arjeplog the new, computer-based telephone exchange, when it was implemented, was considered a success by the generalists. They wanted to try more of the special functions they had been told about, but these were sold as separate modules, and were never ordered and installed. As it turned out, the generalist found it almost impossible to take care of the telephone exchange for all the organizations in the building and do their regular work at the same time. After a great deal of discussion, they were relieved of the responsibility for the main telephone exchange, which was moved from the front office to a room further back.

There were many plans for different applications to support front office work in Arjeplog. Most of them did not materialized while we were engaged in this case study. This was partly due to the fact that it took awhile for the front office work to stabilize and take shape. Tasks which, according to the plans, should have been moved to the front desk, were not moved there. During this time, the front office team was diminished, and there were some bad feelings between different organizations, and between the back offices and the front office. In our interviews with the people involved, we found that computer support, or the lack of it, was, at this point, the least of their problems.

The implementation of computer support went very much slower than we had anticipated and hoped for. For various reasons, there was no integration whatsoever between the different organizations in Tingsbacka of the electronic networks. Some of these reasons apparently had to do with central policies within the government organizations involved. There were no applications in use specifically to support front office work. The police force was expecting a new application for handing forms, but we didn't stay long enough to get to see it. What we observed in use, besides the computer support for the telephone exchange, was the traditional kind of office work support, which was made available to everyone in the municipal organization via their local network.

What we saw, besides the obvious discrepancies between plans and actual developments concerning IT, was something else, which we found rather alarming, namely, how the plans were becoming more and more global in character, and how they were affecting the development of the electronic network and, to some extent, the choice of computer applications. This was alarming for the very reason that the plans were so loosely connected to the work being done with the help of the existing computer support. There appeared to be a lack of coordination between the strategic planning activities and the local knowing-in-action.

The municipality had at one point hired an external IT consultant whom I had the opportunity to interview. He was very enthusiastic about Internet and HTML. He said he had recommended the municipality to throw out MSWord,

since it wasn't globally compatible. I, in turn, told him MSWord was one of the few applications in the local network which seemed to be used daily and with ease by many people in the municipal organization. Note that this is another war story of mine. It's true, but I didn't follow it up, i.e. I don't know how much influence this particular IT consultant really had on the strategic planning in Arjeplog. As far as I know, they are still using MSWord, and, to a lesser extent, Internet. I'm using the example here primarily to point to an impression I got – from this and other experiences – that there was a certain lack of coordination, at least between the way IT development and management were *discussed* in the organization, and the way work was actually getting done with the help of IT. This was not unique for Arjeplog, and was, of course, especially obvious in the Pajala case study.

The one-stop shop in Sölvesborg was one of the first of its kind in the country when it opened in May 1992. The computer consultancy firm Kommundata²⁵ used Sölvesborg as a pilot case and developed a special application for front office work for them. It was oriented towards tourism, which is important for Sölvesborg, especially in the summer, and contained maps of the town and the surrounding area, photographs of places worth visiting in the region, information about open hours for the bathing house, the public library etc. The design of the system was ambitious, and it was apparently used for a while, but by the time we did our field studies in Sölvesborg, the application was no longer in use. There had been certain compatibility problems with other programs on the municipal network, which was at this time under-dimensioned for the load it carried, but the main problem seemed to be keeping the information updated. Perhaps it was the combination of these problems which finally caused the application to fall out of favor²⁶.

The front end integration of specialized applications, which Kommundata also developed, was not really an integration of the interface of the systems, at least when we saw it, but rather an extended security system for logging in to the network which gave the user access to a set profile of the specialized systems without having to log in to each system separately. It made the computer support easier to use, but it wasn't exactly the integrated front office support system we had hoped to be able to study in use.

Most of the systems in use in the one-stop shop in Sölvesborg, when we did our field studies there, were specialized systems which were available via the municipal network and which were also used by people in the back offices. A system for booking summer cabins, a system for booking municipal sporthalls and the like, a system for administrating places in municipal child care, the central register of people living in the municipality – these were the most frequently used applications in the front office. The generalists also used MSWord and had access to e-mail and Internet, although they seldom used these.²⁷

The computer support in Sölvesborg was extensive compared to in Arjeplog. Had we decided to move up close to the screen and study the human-computer interaction in the different applications which were in use, we could have gone in to design-issues in depth at this level. Instead, we had decided to study the information system in use, which meant focusing on work practice and letting the computers be just one part of that system. Still, we did take note of some things about the individual applications. What we saw was not at all unusual²⁸. Most of these applications were old systems, some of them were text-based. They hadn't been developed for being used together, and varied considerably in logic and style. This was confusing especially for the substitutes, who had a hard time remembering from time to time how the different systems worked. The applications weren't very impressive on the surface, but they seemed to work most of the time. Some of them were more trust-worthy than others, some were truly problematic. The cabin-booking system, for instance, had quit working so often in the middle of use that the generalists had made a habit of always writing down the name and telephone number of the person calling, so they could get back to them if they needed to collect all the relevant information for renewing a lost booking. We were unable to determine – as were the generalists – if this was because of network problems or because of design-issues in the application. It may have been a combination of both.

There were problems with the municipal network while we were in Sölvesborg. The irritation and problems this caused in front office work we interpreted as an indirect indication of how integrated the computer support actually was in the daily work practice.

We had, as I've said, decided to focus on work practice. As we began to catch sight of the complexity of the constantly on-going organizing of interruptions and parallel paths of action, we came to notice the lack of support for this on-going construction work in the existing computer applications. If you are interrupted in the midst of updating a screen in an old text-based system, and you have to enter a different application to find information, you lose the information you had started writing on the screen before the interruption. If you jump back and forth between applications to find information you want to bring from one system to the other, you often have to write the information down on a piece of paper and type it in, because there aren't any good copy-functions that can be used together with some of the old systems. Visual hints like shifts in color (often used on the WorldWideWeb) to let you know where you were before you were interrupted, or what the last move you made was – there are all kinds of small but supportive aids which would make a big difference for the users who have to cope with constant interruptions in their work.

These were relevant design issues, we felt. But as we took note of them, and

of the mix of different applications in use, we began to question the framework of our intentions. Each one of these applications now in use in the front office was originally designed for a stream-lined, uninterrupted, sequential performance of a certain type of well-specified task, probably according to a model of the task which was now long obsolete. Wouldn't every attempt to bring a list of specified design issues to the designers finally end up in this trap? Already in the listing of the issues, we could sense that we were losing track of relations between them that might be relevant or even crucial in the use situation. We began to wonder if the problems in the work place could ever be solved by de-signing applications in great detail in some other, far-off and totally un-connected work place.

What if the design were made rich in possibilities but basically vague and open – generic – and the details could be tailored locally, over time, in the use situation? It's not a new thought in any way²⁹. What it means is, there would have to be good local support for continued design in use.

Once again, we were catching sight of something obvious which we simply hadn't seen, because it was something that was lacking, and we hadn't learned to expect it to be there. Where were the local designers? All three municipalities where we did our case studies were building up electronic networks. The hardware solutions were being designed, fit together, tried out. But who was designing the local software solutions? And who would be there, once they were implemented, to trim them to the different use situations?

4.2.2 Organizational support

That brings us, finally, to organizational support. Originally, we understood the main issues of organizational support as concerning to what extent the municipal organization as a whole, and the back office employees in particular, would be supportive of the generalists in the front office. One of the first, experimental, one-stop shops in Sweden had closed down within a year of its opening. The failure was blamed mainly on the strong tendency within public administration to protect one's own organizational preserve at all costs. This had finally, in the Härnösand case, made cooperation and coordination of work in the front office impossible³⁰.

Not only sectorial and departmental boundaries were being challenged by the concept of one-stop shops. There were issues concerning professional boundaries at stake, too³¹. The specialists in the back offices were afraid of losing too much of their work, and thereby risking their jobs, by letting the generalists take over a number of their routine work tasks. There were discussions about how qualified you ought to be, in order to be allowed to perform certain tasks. Security, equity, quality of service rendered, and citizens' integrity were the main issues put forth as reasons for not letting 'unpro-

fessional' groups of employees take over qualified work from specialists. The ROSA model, with its task cruncher, was being used to try to bring these problems, and fears and feelings about them, to the surface in a structured and uninfected way, analyze them and make them manageable in the process of reorganizing service administration in the public sector.

There was another kind of organizational – or perhaps, in this case, it should be called organized – support we were interested in, too, namely the support offered by local trade unions. During the nineteen-seventies and eighties, issues of employee representation and participation in connection with the introduction and continued design and development of modern technology, has been an important issue for the local trade unions in Scandinavia. They have, in many cases, been actively involved in large combined research and development projects, which have been funded in part by the Swedish Work Environment Fund³². When we started our case studies, I was naturally interested in finding out how the local trade unions were being involved in the organizational and technological developments around one-stop shops. I was surprised to find that they were not really actively involved at all. I interviewed several of the local trade union representatives in the first two case studies. Basically, they were being kept informed, and they were participating in the formal decision processes. But the climate for local trade union work had changed. The unions now had less power and influence, and because of the on-going rationalization and cut-back process in the public sector, the union representatives were busy fighting to save people's jobs.

In the first two case studies, where we followed the implementation process of the one-stop shops over several years, we could trace, in the interviews with people in the back offices, a certain reluctance to the idea of handing over work to the generalists. In Pajala, the issue was never put to test. In Arjeplog, it was apparent, when we studied front office work practice, that there were problems getting the tasks which had been promised to the generalists moved out from the back offices to the front.

Lack of organizational support was signaled in other ways, as well. We noticed, for instance, that minor technical problems causing major irritation in the front office were left unsolved for months. Another example was the fact that the work team was diminished time and again, while the work load increased. Computer applications which had been promised the front office work team never materialized. Complaints were left unattended to and reported problems unresolved. The generalists seemed to lack a voice of their own, a solid position and status, in the organization.

In our third case study, we did only a few interviews before we stepped in behind the front desk and started observing and video-recording front office work practice. Six days of work, close up. Hours and hours of filmed work to go through, picking out certain sequences for interaction analysis. Then deeper

into detail; 'What's he doing now?', 'What did she say, just there?', 'What's going on here? Why did she put that over there? Wait – go back – look! Did you see that? That's where she lays it aside..' Suddenly, we were back where we had started, when we did the initial observation studies in the receptions of Ronneby Soft Center and Ronneby Brunn. What we were seeing was the on-going organizing of the complexity of everyday life. These were the spiders in the web of social construction of meaning. This was the work of organizing, which made the organization work. This *was* the organizational support, the work which supported the organization. It wasn't unique for front office work practice, of course – as Kjell so correctly pointed out – it was the kind of organizing that was going on all over, at every desk. But the complexity of what was being organized on this level was greater, more intersubjective, and more apparent to the close-up observer at the front desk.

Somehow, the concept of organizing had gotten turned on its head. Had we gotten too close, beyond the focal point? Looking back, everything looked upside down. Why was the strategic planning going on way far away from the most intersubjective social construction of meaning? Why had we been looking for organizational support in one direction only, without seeing the organizational support work being done by the front office? Why was the organizational support work being done here invisible, not only to us, but to the rest of the organization? And why was the entire organization mindlessly, but methodically, sabotaging the front office organizational support work? How could the generalists be spiders in a web with nothing to hook it to? Where *was* the mind in it all?

To use Geertz's imagery, the organizational activity seemed to be structured and tuned to the scheme: *Pull. Push. Pull. Push. (Shuffle. Shuffle.) Pull. Push.*

If we are all servants – then who is the master?

Echoing at the back of my mind, I hear Shoshana Zuboff's words, ringing in the air above a large, professional, international and rather startled audience at the CSCW'96 conference in Cambridge, USA: 'Mummy? Daddy? Where are you? But Mummy and Daddy aren't home. We have to fend for ourselves.'

5. What does all this have
to do with design?

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5.1 Thinking about work practice

5.1.1 Seeing rule-following as practice

Concepts gain their meaning through use, according to Wittgenstein¹. What is harder to fathom, but part of the same view, is that this also means that the way we commonly use a concept tends to influence what we see. This mutually constitutive relationship, while being the base for all our understanding of the world, can be limiting – and very pervasive – when we are trying to ‘see things in a new light’.

It is more difficult than we usually imagine to break free of the traditional use – and thus the world view – of the concepts whose meaning we are studying. That’s where anthropologists studying foreign cultures and languages have seemed to have such an advantage – although basically the problem is still there, only once removed. Part of the paradox is, that if we *do* manage to break away from the traditional use of a concept, we have actually already changed the object of study, the inner connection between the concept in question and our view of reality.

In this paradox lies the power of metaphors, analogies and other seemingly simple figures of speech and mind: catching sight of what is similar – yet different. And it is the difference we catch sight of in the original concept – being able to shift perspective from a position comfortably outside the ‘real thing’, so to speak – that opens up for new understanding.

In his later philosophical work, Wittgenstein kneaded the concept of rule-following, reshaping it in this way:

To obey a rule, to make a report, to give an order, to play a game of chess, are *customs (uses, institutions)*.²

From such a perspective, a rule expressed in words, i.e. a rule in the traditional, most common sense of the word, is not part of the solid, precisely defined foundation upon which a practice rests but, instead, an interpretation of a practice³:

[...] there is an inclination to say: every action according to a rule is an interpretation. But we ought to restrict the term “interpretation” to the substitution of one expression of the rule for another.
And hence also ‘obeying a rule’ is a practice.⁴

Seen like this, the rule is built into the action. It is our usage or practice which illustrates our understanding of it, an understanding which we can never fully express in words. This way of viewing rules and rule-following as both constitutional of, and continually reconstituted by, practice, also means that special emphasis is placed on learning from practice.⁵

Yet it is all too easy to loose sight of this internal relationship of rules to action, and to fall back on the main-stream view⁶ of practice as rule-following, and rule-following as a synonym for routine or 'mindless' work, 'just plain following instructions'⁷. From this point of view, it is questionable why researchers interested in design issues should spend time studying work practice at all. As N F Simpson reputedly said about footb... all this absurd, wasteful squabbling as to which side shall put the ball through which goal – and when and how often – as if this weren't a matter that could be settled in an adult and sensible manner round a table beforehand...⁸

Now, I don't know who N F Simpson is – or was –, or in what context the statement was made. It's easy to imagine him being British, upper-class and among football fans, and thus keeping a straight face while being wickedly ironic. However, the point I wish to make here is, that I recognize in the quotation, if taken as a seriously expressed opinion, the attitude and exasperation of a rational and objective outsider/observer. And I recognize that I have even voiced something akin to it myself at times, in situations where the methodical sense-making of design has come up against the seeming chaos of use, and where I have been one of the people on the design-team, working under the pressure of a tight time-schedule and a clear-cut plan for in what order the new or enhanced technical support should be developed and implemented.

Let us, therefore, make use of the analogy. Let us take the quoted statement seriously for a moment and study the implications of it. Why *do* people pay money to sit and watch ball games? After all, what they are watching is in effect two teams playing a game according to a set of rules which both teams, as well as, presumably, most of the spectators, are familiar with from the outset. There are even special referees appointed to ensure that the players *follow* the rules of the game. What is so exciting about rule-following that loads of people are willing to pay loads of money to sit for several hours on hard seats and watch it being carried out on, for instance, a football field?

It's the element of competition, the assumed uncertainty of which team is going to win, that attracts people, you may say. They make bets. They identify with one or the other of the teams and hope 'their' team will win. They want to see good teamwork, rough-housing, sweat and blood, split-second decisions skillfully put into effect, cooperation, muscles, speed. They didn't come to study rule-following, they want to see *action*.

Well, that's the point. Once we start seeing work as action, we can begin to catch sight of rule-following as *practice*. This is something entirely different

than seeing practice as rule-following, in the traditional sense of rule-following as following instructions. Unless, that is, you have already thoroughly reconsidered what you mean by rule-following, and begun to see it as not only constitutional of, but also constituted and defined by, use.

In discussions with colleagues, I have found myself getting angry and frustrated by my own inability to adequately express what I experience as the revolutionary force of Wittgenstein's approach. Even in extremely inspiring discussions with the philosophy professor and Wittgenstein expert Kjell S. Johannessen, during the course in Skill and Technology which he, Maria Hammarén and Bo Göranson gave in Stockholm 1995-96, the concept of rule-following became a stumbling-stone. By the very way the word is put together – rule-following – the cart seemed constantly to be getting in the way of the horse.

Finally, it was Kjell S. Johannessen who offered an alternative way of expressing the inner, mutually constitutive relationship of practice to rules, and of understanding and knowing to practice, which Wittgenstein seemed to be highlighting. He suggested replacing the term rule-following with concept-building. This was, for me, a great relief. Concept-building has a much better ring to it in my experience-based world-view than rule-following⁹.

So, what those thousands of spectators at the football games have paid for, is the opportunity to participate – although peripherally – in the action-based concept-building of each specific ball game.

In the same way, work practice can be seen as action-based concept-building. Thus, for example, Maja Lisa Perby, in her study of meteorologists, speaks of 'the inner weather picture' as a metaphor for professional knowledge, and describes how this inner picture is constantly being enriched and revised through-out the day by new information from various sources, which is judged and assessed on the basis of previous experience and knowledge, individually and within the work team¹⁰.

Notice how the notion of concept-building both paves the way for and fits with an inter-constitutive view of reality. Concept-building, and the metaphor of 'the inner picture', when used together, indicate both the social dimension of 'being and acting in the world, together with others', and the importance of 'self', of making inner connections to previous experience, and to one's own goals and world-view, when interpreting new situations and choosing how to act in them. The actor becomes, from this point of view, more actively a part of the action, both as part of a constitutive community, and as an autonomous, interpreting, and acting 'presence of self'. Experience, and the ability to make competent judgments as new situations arise, have a place in the picture which they seem to lack in the traditional view of rule-following. This is brought home already by the metaphor of the 'inner picture' on its own. But concept-building is, for some reason, easier to imagine as a cooperative, inter-subjec-

tive process. For me, it seems to bring to the metaphor of the ‘inner picture’ a more explicitly communal dimension. Concept-building is not something you do alone, from scratch. That would be defeating its most basic, communicative and constitutive purposes. It is not possible for only one person, only once, to have ‘followed a rule’, for the rule is defined by the practice, according to Wittgenstein’s view.¹¹

The question then becomes: how do we best go about designing technology to support action-based concept-building?

But it is not so easy to shift from one perspective to another with only one stepping-stone. Where did we come from, and where are we going? For each shift of perspective, there is a historical dimension to consider, and a context, i. e. a complex of relationships which need adjusting, too. If we don’t wish to fall right back into the old way of thinking, we are compelled to consider in depth the meaning – and the implications – of interpreting rule-following as action-based concept-building. We need to reconstruct the framework from which to consider the design of technology. At least a rough sketch of the landscape around us and behind us from this new angle would be helpful.

This is a landscape in which I feel far from home, so I have chosen to follow the trail of the philosopher Georg Henrik von Wright, as he marked it out in his book *Explanation and Understanding* 1971. Along this trail, I kept bumping into signposts with names of which I know practically nothing. Yet some of them appeared to point in more constructive directions than others. So I wrote down a selection of names in my sketch-book, and drew a rough map of the trail, following a red thread partly my own, and surely missing a lot of what was being pointed out by the scholarly and wise man I was trying to keep up with. What follows is, therefore, not my own sketch of the landscape, but my scribbled memorandum from a guided tour, during which I kept getting lost in the footnotes¹².

Wittgenstein was not the first philosopher to take a constitutive view of practice. More than two thousand years earlier, the Greek philosopher Aristotle came to the conclusion that there are three intellectual virtues, all three constitutive of man as a moral being.¹³ According to Aristotle, scientific knowledge, *episteme*, is very limited in scope, dealing only with strictly necessary conditions, eternal and unalterable. Practical wisdom, *phronesis*, is about reflecting on and knowing what is the morally right thing to do in a specific situation. Craftsmanship, *techne*, is about being able to make things with a correct understanding of the principle involved and what materials are suitable. None of the three virtues is treated as more important than the others. All three are considered necessary for coping with human existence.

Aristotle’s analysis of man as a moral being is part of a teleological tradition in the history of ideas, a tradition in which concepts of goal-directedness, intentions, purpose are central in making reality understandable. This tradition is

sometimes called *aristotelian*, and its explanations *finalistic*. The other main tradition, sometimes called *galilean*, looks to causal connections to explain and predict phenomena. Explanations of this second type are also called *mechan-istic*.¹⁴

In the stand in the philosophy of science known as positivism, which was given that name by Auguste Comte, but is traceable in its principle ideas back to Hume and the Enlightenment, the attitude towards finalistic explanations is either to reject them as unscientific or to transform them into causal explanations.

Towards the end of the nineteenth century, there was an antipositivist reaction, usually referred to as idealism or hermeneutics, in which the positivist view of explanation was questioned. The German historian and philosopher Droysen introduced a methodological distinction, which was originally a trichotomy between the philosophical method, *knowing* (Erkennen), the physical method, *explaining* (Erklären) and the historical method, *understanding* (Verstehen).¹⁵ According to Droysen, the aim of the natural sciences is to explain, while the aim of history is to understand, the phenomena being studied. Droysen's ideas were further developed by Wilhelm Dilthey, who coined the name *Geisteswissenschaften*¹⁶ for the domain of the understanding method. The methodological dichotomy thus introduced between explaining and understanding sciences became a gap which widened in the ensuing discourse. In Pirsig's book *Zen and the Art of Motorcycle Maintenance*, it is still echoing, now as the gap between technology and the humanities, or – the difference is not made very clear – between what is portrayed as a deterministic system view and the creative individual;

It is against being a mass person that they seem to be revolting. And they feel that technology has got a lot to do with the forces that are trying to turn them into mass people and they don't like it. [...] I disagree with them about cycle maintenance, but not because I am out of sympathy with their feelings about technology. I just feel that their flight from and hatred of technology is self-defeating. The Buddha, the Godhead, resides quite as comfortably in the circuits of a digital computer or the gears of a cycle transmission as he does at the top of a mountain or in the petals of a flower. To think otherwise is to demean the Buddha – which is to demean oneself.¹⁷

As a computer scientist involved in worklife research focusing on the use and design of modern technology, I stand with one foot in the natural and technical sciences and one in the social sciences¹⁸. And I agree with Pirsig, who is saying, as I understand him, that whether there is a gap between the different domains of science or not, and between a systems view and respect for the

individual, depends mainly on the over-all perspective and values of the beholder.

I can appreciate the poetics of programming, and the aesthetics of a good network design. And I can usually understand a program I've worked with for a while much better than I can explain it. But I really like to see it running smoothly, in use, before I praise Buddha or whatever. Just as the narrator in Pirsig's book knows his motorcycle, and, when riding on it, is attentive to it, understanding from the sound, feel, look and smell of it what state it is in and what maintenance it might need, so computer support needs to be known in use, and continually tuned and tended for. This is not only about the aesthetics of design, it is about the ethics of information technology design and maintenance – or what I call, in this thesis, IT management.

It's more basic than that, though. When you get right down to it, it's about the ethics of everyday life.

The difference between explanation and understanding, according to the nineteenth-century antipositivist methodologists, was that understanding, as a method in humanities, should be seen as a form of empathy, or re-creation in the mind of the scholar of the mental atmosphere, the thoughts and feelings and motivations, of the objects of study¹⁹. Another distinction is that understanding is connected with *intentionality*, with aims, purposes, meanings and significance, in a way that explanation is not.²⁰

The re-creating in one's own mind of the inner state of what one is trying to understand is, to my way of seeing it, about connecting what one is experiencing in a certain situation to an inner picture one already has. It is about envisioning²¹. This is as useful and necessary a capacity when dealing with technology as when dealing with people or history²². I see no gap here at all. But now take the word 'empathy'. That's not a word you come across very often in technical literature. In the Swedish national encyclopedia, the word 'empati' (from the Greek *empa'theia*, 'passion') is related only to the capacity for participating in another person's feelings and needs. In my English Webster's Dictionary, this capacity for participation includes another person's *ideas*²³. But there is another difference. The first definition given for empathy in Webster's is a broader one; the imaginative projection of a subjective state into an object so that the object appears to be infused with it.

How do we understand the world around us? As a world full of objects? As a world full of subjects? Is *that* difference the true nature of the gap? If so, it is a gap between different sets of attitudes and values, rather than between scientific domains, just as Pirsig implies. But there is also this business of *intention*, of understanding being connected with intention, in a way that explanation, supposedly, is not. What does intention have to do with the object/subject gap?

The concepts of objectivity and intentionality seem to rub each other the

wrong way. In order to be objective, you must step out of the intentional mode of everyday life, abstract yourself to a universal level of total disconnectedness from all personal interest – not to mention *empathy*, which can sometimes even represent the inverted version of personal interest – and find the general rule under which all the messiness you have left behind can be neatly subsumed. If you try to incorporate issues of intentionality in your theorizing, you run the risk of being accused of teleological explanation. And teleological explanation has long been considered unscientific, although the proof commonly given for this is something of a vicious circle argument²⁴.

According to von Wright, Hegel thought of himself as a follower of Aristotle;

For Hegel, as for Aristotle, the idea of law is primarily that of an intrinsic connection to be grasped through reflective understanding, not that of an inductive generalization established by observation and experiment. For both philosophers, explanation consists in making phenomena teleologically intelligible rather than predictable from knowledge of their efficient causes.²⁵

Hegelian and marxist ideas about laws are very different from the idea of law which underlies causal explanations. Nor is the dialectic schema of development through thesis, antithesis and synthesis a causal pattern of thought. Hegelian and marxist ideas of laws and development are closer to what might be called patterns of conceptual connections²⁶.

Although positivism was at its height at the middle of the nineteenth century, and was succeeded by an antipositivist reaction, it returned in the form of logical positivism (and later logical empiricism) in the decades between the two world wars, when it drew support from the new developments in formal logic.

Georg Henrik von Wright's book was published in 1971. It is clear that we live in a world where the aristotelian and the galilean traditions concerning what constitutes a scientifically respectable explanation still co-exist uneasily, each, metaphorically speaking, staying clear of the other, when possible, by respecting the traditional disciplinary boundaries between natural sciences and the humanities, yet sometimes being forced to confront each other in the social and behavioral sciences, and in the many newer, mixed disciplines such as business administration, work science and science dealing with the design of computer systems. As an illustration of this, take, for instance, Gordon's rather summary dealing with teleology, in *The History and Philosophy of Social Science* 1991;

The discipline of teleology is a primitive error in reasoning but, unfortunately, it frequently creeps into social analysis.²⁷ [...] The Aristo-telian notion of teleology is the argument that events are governed by the ends or purposes that are achieved by them. [...] The doctrine of final cause reverses the temporal order of cause and effect that materialistic science employs; the final cause is subsequent to the effects that one empirically observes. For this reason it is regarded with suspicion by most philosophers and with derision by natural scientists. Some social scientists occasionally flirt with it on the ground that human action is purposive and can be explained only in terms of ends. This is a simple mistake, however. Human actions are undertaken *now* in accordance with desires that the actors *now* have and the ends they *hope* to achieve. Social phenomena are determined, in part, by what men do; not by the desires or intentions that motivate their actions, but by the actions themselves. There is no teleological element in this.²⁸

According to Gordon, the relationship between what people do and the desires and intentions they have appears to be unproblematic. Within for instance open systems theory, and other theories touching on issues of design, however, this very relationship is of great interest to problematize and study closer. Here, teleology is not necessarily a bad word. In *The Design of Inquiring Systems*, 1971, Churchman writes;

First of all, design belongs to the category of behavior called teleological, i.e. "goal seeking" behavior. More specifically, design is thinking behavior which conceptually selects among a set of alternatives in order to figure out which alternative leads to the desired goal or set of goals. In this regard, design is synonymous with planning, optimizing, and similar terms that connote the use of thought as a precursor to action directed at the attainment of goals.²⁹

There is at present an on-going philosophical discussion about Aristotle, teleology and ethics which is giving echoes in management literature, personnel courses in quality, personal management and organizational development, and in political discussions³⁰. An example is the book *The Seven Habits of Highly Effective People – Restoring the Character Ethic*, by Stephen R. Covey. The book was a national bestseller in the United States in 1989 and has been much cited in the business world, as well as in public administration, in discussions on service quality and ethics. In his book, Covey uses the following quote, from Aristotle, in a central way:

We are what we repeatedly do.
Excellence, then, is not an act, but a habit.³¹

What is it that Covey is pointing at, with this quote? What I read out of it is this: *We choose, and we show, by our habits, who we are.* That, to me, is about concept-building. And about ethics. If you see that, you can also see the revolutionary power of Wittgenstein's interpretation of rule-following. And if you do, you have managed to move beyond the object/subject gap to the intersubjective. Look around you, and you will begin to realize what this means. Like you, people around you have their own intentions, know things through their own experience and have the capacity to make situated judgments. If that doesn't feel novel to you, perhaps you've been more of a servant than a master up until now. Which means you may need to concentrate, not on acknowledging pluralism, but on realizing your own autonomy, taking responsibility for your own choices and habits, on being your own master³².

5.1.2 Understanding practice: putting purpose back into function

We have thus bridged, without much ado, the gap between the natural sciences and the humanities, which had been made out to be a wide split between explanation and understanding, but which we perceived to be part of a narrow but deep crevice running in a different direction. We found ourselves standing before the object/subject split in some awe, having not really noticed it in this way before. Something in the lighting had changed. Hegel's dialectic schema of development through thesis, antithesis and synthesis, so alluring before, now seemed to be set up to bridge the wrong gap. If we go for synthesis, 'objectively', we'll still end up on the wrong side of the object/subject gap.

In the back of my mind, something is bothering me about the path we have been following. There was a signpost back there pointing in another direction, which we passed by without any comment. Checking my notes, I find the spot; before Dilthey set the chisel in the methodological crack between the natural sciences and *Geisteswissenschaften*, Droysen had introduced a trichotomy, not a dichotomy. He had distinguished between the philosophical method, *knowing* (*Erkennen*), the physical method, *explaining* (*Erklären*) and the historical method, *understanding* (*Verstehen*).³³ Why had the philosophical method, *knowing*, disappeared in Dilthey's interpretation and further development of these methodological distinctions?

I'm a stranger in this landscape, and von Wright has taken a different path. Or so it seems. I look around: no signposts. But I have a red thread of my own, albeit a thin one, and that's all I really have to hold on to. So I try my transcendental trick, so useful for catching sight of vaguely contoured relationships between parts in paintings; I squint at this strange landscape around me. And I see, again, the object/subject split. The step out into the 'objective' mode, out of time, out of space, has made teleological explanations scientifically illegitimate. Aristotle took intentionality as a starting point for his reasoning – if he hadn't, what

would the point have been of bringing up ethics at all? But we've been so enlightened that we've lost sight of ourselves as people. The everyday philosophy, the knowing that holds it all together, is invisible from the 'objective' mode of scientific thought. We are truly products of our own construction, in a construction process so intent on attaining the objective truth that we're further from the subject than ever.

Speaking of which...what *does* all this have to do with design? I'm getting to it, really I am. It's just that I've been twiddling this thin little red thread in my pocket for years, and it's all I've got to go by that really feels like it's mine, knots, snarls, sweat and all.

I used to think this 'master's view' approach was all Hobbes' fault, with his Leviathan view, so extremely atomistic it induced people, paradoxically, to let themselves be swallowed by themselves into one single sovereignty in the name of individuality. But from where I stand now, Hobbes can be seen as one of many indications at that time of the on-going construction of the object/subject split, and the deconstruction of the teleological tradition of ideas.

So now I will turn to concept-building in design, and what I'm taking with me, from the wanderings we've just been through, is the idea that the reputation of a teleological approach in serious scientific research should be resurrected. Or at least, as a starter, that the usefulness of it be considered and tested in a reflective way in research practice. What this implies is a profound inversion of how we go about looking for meaning. Wittgenstein has pointed us towards it. He turned his back on the object/subject split by moving in the other direction, towards an intersubjective landscape, taking action and interaction as a starting point, exploring the intrinsic indexicality of what he called language-games. Maja-Lisa Perby calls the meaningful connection between the symbol and what it represents *the unresolvable connection*.³⁴ She claims that it is not an interpretation, it is a direct connection. As I understand it, this connection is a connection to an *inner picture*, i.e. what I call intrinsic indexicality³⁵, which is something we need to understand more about in order to begin to understand knowing and how to support it. But in order to accept the fact that there even is such a thing as intrinsic indexicality, we need to take intentionality seriously. We need to put purpose back into function³⁶. I will try to show, in the following, what I mean by this in relation to the field of systems design.

In the traditional analysis process involved in designing information systems, the goal is usually to specify the desired system in detail on a functional level. These detailed functional specifications are then used as blueprints in the continued design work. The functional level is deliberately kept free of descriptions concerning meaning and intentionality of the system. It is supposed to be a pure and logical mapping of functions, from which design work can take its bearings.

Design work, consequently, tends to focus on building a functional system.

Usability aspects are discussed in terms of functionality rather than purpose. Supplying lists of values for individual fields, for instance, becomes more important and time-consuming for the systems engineer than gaining an understanding of how the whole system is expected to support the on-going work in the work place. Bo Göranson has an interesting passage which illustrates this dilemma in his book *The Practical Intellect*.³⁷ In a discussion about the importance of understanding a specific computer system which will make fundamental changes in the working practices, the systems engineer focuses exclusively on the practical understanding of codes and the like, which he feels has been adequately taken care of in the system. He feels frustrated, therefore, by the fact that it is proving difficult to get the system 'off the ground'. A department head then suggests that there may be several different levels of understanding a computer system, and that the code and parameter level may actually be the most superficial, the lowest in the hierarchy of levels. Beyond this level he sees another, representing an understanding of the sequence and functions of the calculations in the system, i.e. what happens in the actual computing process. But the deepest level of understanding is about *the essence of the system* (my italics), what purpose it is expected to serve. The key to successful implementation of computer support may well be to ascertain that the users have this deeper understanding of the purpose of the system. For this to happen, it should be essential for the systems designers to be aware of these different levels of understanding and to respect the fact that functions have a purpose and users have intentions, and that the aim should be for these to match each other in the system. As I understand it, this is what Churchman is referring to when he defines, as a specific characteristic of the design of systems, that the designer attempts to identify the whole relevant system (including its users) and its components, and the design alternatives are defined in terms of the design of the components and their interrelationships³⁸.

In his book *Explanation and Understanding* 1971, von Wright developed what he called an intentional model of explanation. This model, he felt, was more appropriate for explanatory purposes in the sciences of man than the deductive-nomological model which is generally used in natural sciences, and which calls for at least one universal law among the premises from which to draw a conclusion. The intentional model of explanation is based on the use of conceptual rather than formal logic in the conclusive step, and does not call for any universal laws among its premises. Instead of *universality*, the intentional model looks to *meaning* for explanation. The link of conceptual logic lies in the concerned party's understanding of a given situation. If a person has the intention of achieving a certain goal, and she thinks she has to perform a specific activity in order to reach that goal, then it is her understanding of the situation which determines if it is, in fact, the right situation in which to perform that activity or not.

What von Wright proposes is that the sciences of man are essentially characterized by the fact that the objects of study have intentions and exist in a socially and historically constructed, meaningful reality. This reality is de facto a reality only to the extent that it is actually understood. Thus the basic necessity of meaning to the reality of humans must be mirrored in the methods used to study them.

von Wright distinguishes between two main types of meaning, the meaning of language and the meaning of action. Yet these are intertwined and interdependent. In order to understand an action taken, one must identify it as just such an action, thus giving it conceptual form based on the context in which it is taken. von Wright chooses a pragmatic approach to meaning and views language as an essentially social and intersubjective phenomenon. As a consequence, meaning is seen as something which is actively acquired within the framework of a shared language and shared social practices. 'Practice gives words their meaning', according to Wittgenstein.

While Wittgenstein takes this literally – his writings are a continual explorative dialog, with himself, and with the reader, where he examines how words are used in, and acquire meaning through, practice – von Wright goes on to analyze the concept of rules, and categorize them, from a more traditionally theoretical standpoint. He argues that social practices are governed by rules; constitutive rules which define practice (such as the basic rules for playing chess) and regulative rules which give directives for what is a preferable course of action in a certain situation (such as social conventions concerning proper table manners). Unless we understand the underlying rules and conventions of a certain practice, we will not be able to understand the observed intentional activities within this practice. Constitutive rules help us understand the meaning of actions, while regulative rules help us understand why certain activities are undertaken.

To me, it seems as though von Wright, here, is stopped short by the object/subject gap, while Wittgenstein is sketching in a different landscape, already deep into intersubjectivity. von Wright is looking for the rules, the essence of which he doesn't really question, to understand the practice. While Wittgenstein is looking to practice to discover and understand the nature of rules. They are approaching philosophy from two entirely different directions.

In his article *Interpretation and the Sciences of Man*, Charles Taylor suggests that the notion of the constitutive interdependence of language and practice should be extended beyond the domain of rule-governed behavior³⁹. There are constitutive distinctions, constitutive ranges of language, which are inseparably dependent on certain practices. Charles Taylor's definition of the concept of practice supports von Wright's intentional model. He sees meaning, and interpretation of practice as the intersubjective constitution of meaning, as essential to the study and understanding of man. Implicit in every human activity is a

vision of the active party and his relation to others and to society. This vision carries with it certain implicit norms. A person's actions cannot be fully understood without an understanding of this inner picture and the norms which accompany and help to define it.

The meanings and norms implicit in a practice do not just exist in the minds of the people involved in the practice. They are intersubjective, taking shape in the practices themselves, practices which should be seen as mutual action, as modes of social relation. The paradox is that Taylor's definition, if accepted, reverses the meaning of certain scientific concepts in the most profound and provoking way. It's a reversal of the main-stream definitions almost as mind-boggling, and along the same line as, Wittgenstein's concept of rule-following. Thus 'abstract' ideals, in this alternative reading, are such ideals as have not yet become rooted in practice and thus are not intersubjective and thereby objective – the abstract ideal becomes, according to this interpretation, truly subjective, that is, individual! Taylor, as I understand his article, has stepped beyond the object/subject gap, and is looking back, beginning to see more clearly from his new, intersubjective vantage point the far-reaching consequences of the constricting grid he has left behind.

How, then, should the systems engineer, the designer of computer support, understand practice? First of all, by putting purpose back into function. By seeing function as part of human activity, and human activity as intentional and part of a social practice. Habits and routines are, from this perspective, not mechanical repetitions of sets of actions, but parts of on-going concept-building activities. They involve continual interpretations of new situations, and appropriate choices of action in relation to intentions and goals. The designer needs to understand that, in order to get the system 'off the ground', it must be built to fit into an existing practice and be able to develop over time as part of a mutually constitutive, intersubjective system of language, practice and intention.

The philosopher Elisabeth Anscombe, in her book *Intention* 1957, made the observation that behavior which is intentional under one description of it, need not be intentional under another. It makes a difference to the explanation of a given item of behavior how it is described, that is, understood as being an action⁴⁰. Put this insight in relation to design issues, and you begin to see the importance of intentionality to, for instance, the concept of *affordance*, as discussed by Donald Norman in *The Design of Everyday Things*⁴¹. Norman's view of affordances is that they result from the mental interpretation of things, based on our knowledge and experience applied to our perception of the things around us. Affordances provide strong clues to the operations of things, and when they are taken advantage of, the user knows what to do just by looking. A chair affords sitting, a door affords opening. The designer of computer applications needs to consider affordance. The issues involved on the lower levels of

understanding of the system are easy to conceptualize; these concern for instance the choice of icons and giving relevant feedback on interaction. But if we consider the different levels of understanding of a program, and the different possible descriptions of purpose or intention, and try to get them to match, we begin to realize the complexity of the problem. There are different use perspectives, which may call for the same function being described differently in different parts of an application. An example of this is the type of help system offered in many applications, which can be activated for beginners or in case of difficulty and which gives explicit descriptions of functions when called for. There are also functions which may differ in different situations but which should, if possible, be presented under one and the same description to the user.

The mapping of the purpose of a system on the highest levels of understanding is still the least considered, yet by far the potentially most powerful design issue for enhancing the use of modern technology in society. Public electronic information systems, which are now being implemented via Internet or intranet, bring this issue to the fore. This is where the informing capacity of modern technology, which Shoshana Zuboff writes of, should be made use of more purposefully, lest we end up with a mindlessly automated public sector and no one left to turn to who knows anything about anything that matters to us in our everyday life.

Zuboff uses the word-pair *informat*e/*automate* to stress the fact that we have a choice to make about the goals we set when developing modern information technology, and that we should be aware of the options. While I, being curious about why strategic plans so often don't materialize 'as planned', have focused on intentionality and, because I don't believe there can be any such thing as objective intentionality, the concept of putting-purpose-back-into-function. (Which is, of course, really about bridging the object/subject gap, and moving beyond, or rather, closer to home, to the intersubjective landscape.) But, although we move along different paths, what both Zuboff and I are getting at is that modern technology can be used, if we choose to work towards this goal, to give people their own minds back, acknowledging that every person has the right to be their own master, and to let their own intentions steer their choice of action. This means, in turn, that we need to understand and take responsibility for what we are doing, and for what purposes – that we need to be reflective in our concept-building, communicative about our intentions and aware of the ethical issues involved in the choices we make.

Stepping beyond the object/subject gap, moving out into the intersubjective landscape, inverting the indexicality of language, means seeing the people around you. It reminds me of an old American nursery rhyme I heard as a child;

Here is the church, [*clasp your hands together*]
 and here is the steeple, [*let your index fingers mark the steeple*]
 open the doors [*pull your thumbs apart*]
 – but where are the people? [*show the inside of your palms*]

Here is the church, [*clasp you hands together, fingers pointing inwards*]
 and here is the steeple, [*let your index fingers mark the steeple*]
 open the doors [*pull your thumbs apart*]
 – and THERE are the people! [*show palms, wiggle your fingers*]

All you had to do, between the verses, to bring the people into the picture, was to reverse the way your fingers pointed. Inwards instead of outwards.

5.1.3 Generalizing in practice: seeing meaning in the concrete and specific

But what does it mean, this concept I've been using, inverted – or intrinsic – indexicality? It has to do with Maja-Lisa Perby's concept of *the inner picture*, and of *the unresolvable connection* between the symbol on the screen and the reality of the machines and processes which the process controllers she studied were in charge of⁴². It has to do with Wittgenstein's comparison between *knowing* and *saying*, and is most clearly illustrated in the example he gives where the difference is the greatest – how a clarinet sounds⁴³. It has to do with the rose, by any name⁴⁴. It has to do with understanding practice as concept-building.

The German philosopher and mathematician Gottlob Frege uses an example containing the phrases 'the evening star' and 'the morning star', to show how different phrases can have the same reference, in this case Venus, but different senses. It is an example which is well-known and much referenced. In the same text, Frege acknowledges the existence of *inner pictures* and their importance for appreciating art and literature. But he sees them as being of little interest for science, where the quest for objective truth should always drive us on to seek the sense and the reference of the given phrase⁴⁵.

In trying to get beyond the object/subject gap, I have chosen to trace the conceptual connection in the other direction. My inverted or intrinsic indexicality is thus a deliberate inversion of the direction of indexicality which Frege chooses as the goal for 'objective' science. If we see practice as concept-building, and if we have accepted the fact that there are other people around us participating in the same practices, we can see that the inner picture is not as isolated and individual a construction as Frege sees it to be⁴⁶, and that we may have something to learn about intersubjective construction work, interpretation, knowing and understanding by looking at inverted indexicality⁴⁷.

Wittgenstein approaches philosophy in this way, exploring the use of words

to grasp their meaning, but also to understand how that meaning is constituted, supported, communicated and changed by use. By delving in detail, exploring ambiguities, he is, paradoxically, moving towards a coherent understanding of a whole. This is what I refer to as generalizing in practice, as seeing meaning in the concrete and specific. It is what I see the generalists doing, as they manage the complexities of everyday life at the front desk. They listen to people who come in for help – and the stories told, the questions asked, are *never* identical – and they make sense of what they hear by seeking meaning in it and making connections between each individual case and the appropriate kind of service and information they can offer in this specific case.

If their work is viewed as rule-following in the traditional sense, then the diversity and ambiguity they meet may rightfully be seen as irritating, something to be reduced as much as possible. But if their work is viewed as concept-building, then the richness of the concrete and specific is what helps them build an *inner picture* with a fine enough grain to really be of use in seeing meaning and coherence, and in making good judgments.

What, then, is the connection between putting purpose back into function, and generalizing in the opposite direction of what is traditionally considered to be what generalizing is all about, i.e. seeking meaning in the concrete and specific, rather than through abstraction to a general rule level? As I see it, they are interdependent figures of thought – wild cards, if you like, thought they're not really all that wild – which may help us move beyond, or away from, the object/subject gap, towards an intersubjective landscape. They are basically about one and the same thing, but for now, we need them both.

To use Hegel's parable again, the first – putting purpose back into function – helps the servant to step into the role of being his own master, to acknowledge his own intentions and take responsibility for his choices, to see where he stands in the world, what he wants, and why, when he stands on his own two feet. The second – seeing meaning in the concrete and specific – helps the master step back into time and space, into the messiness of the lived-in world, to see the people around him as subjects, not just objects or means to obtain objects, and to begin to understand how things come to be what they are – to see, so to speak, the work practice of everyday living, which only the servant could see before.

One of the main artifacts of thought for attaining 'scientific objectivity', according to positivism – for reaching the out-of-time, out-of-space realm of the objective mode of thinking – has been the subsumption theory, the idea that individual cases must be explained by subsuming them under hypothetically assumed general laws of nature (including 'human nature').⁴⁸ By so doing, however, you lose sight of the concrete and specific conditions of each unique case, the very stuff of which war stories are made up⁴⁹, for instance. The vivid and detailed account is replaced by the precise rule. When examples are

given, according to the positivist view, they are given to exemplify the rule, not to show the situated choices of action. Not only have time and space and the general messiness of everyday life disappeared, but so has intentionality, so displaced has it become by the subsumption theory of causal explanation.

In *The Nichomachean Ethics*, Aristotle uses so called practical syllogisms to show how, in practical reasoning, there is an inter-relatedness between the choice of general starting point and the choice of what course of action to take in a specific situation⁵⁰. The general starting point in a practical syllogism is an opinion or view, not a law. It is 'general' only in the sense that it is intersubjectively defined and people-based in the lived-in world in which it is being invoked to reflect on choices of action in an individual situation. Subsumption of an individual case under a general premise is not the issue here. (*That* would be rule-following, in the traditional sense!) Choice of intentional action – the use of good judgment in action – *knowing in action* – is.

Practical reasoning, in this perspective, is constitutive of the very norms and values which it generalizes in and through practice, for use in individual cases, involving individual choices of courses of action, and the subsequent purposeful and responsible carrying through of them. The ethical dimension, according to a practical syllogism, lies in *choosing one's plan in and through situated action, not vice versa*. This, to me, is the very heart of the matter. This is why teleology must be taken seriously in understanding human action. For in this sense of inter-relatedness, of the connection between the general and the specific – which, because of the intentionality of human action, is a teleological connection, not a causal one – lies the potential of inverted indexicality, of turning from the traditional concept of generalizing *away* from the specific, the individual case, through abstraction/subsumption under general laws, and instead turning to study how people *know in action*, how they build concepts and inner pictures, and, in doing so, learn to make good judgments. This is the inter-subjective dimension. Ethics is an issue here, because generalizing is done in and through practice, through intentional action. As Aristotle's practical syllogisms show, intentionality affects both the choice of starting point and the choice of action. This is constructive thinking and constructive action.

In Hegel's parable, the master could not see the work practice of the servant. We see now that not only the master had a blind angle, from where he stood. In trying to understand the implications of Aristotle's teleological view for practical reasoning, we see that something vital has been invisible to the servant, as well. By accepting the master's view of an objectified world, and by enacting the servant's role in it, he has made himself out a slave. He has lost sight of himself as an active subject, and of his own intentionality as constitutive of the world he lives in.

5.1.4 Distributed intention: plans as situated action

And now it is time to loop the loop. If you haven't seen the duck-rabbit⁵¹ yet, chances are you'll *really* disagree with me here. I'm using the title above as a deliberate provocation, of course, but I'm serious about both intention and plans.

According to my interpretation of Aristotle's practical syllogism, deciding to act in a certain way in a specific situation, and carrying through that intention, are interdependent in practice with the choice or construction of general premise by which to decide how to act. The meaning you see in the concrete and specific situation is what you go by in choosing how to act. And you see this meaning because you generalize in practice by making connections between many different aspects of the individual situation you are in this time and your previous experience – your inner picture.

This is what knowing in action is about.

What you are doing is choosing, and communicating your choice of plan to people around you, through situated action.

To quote Aristotle once again:

For it is people with rich experience of the individual, who are able to evaluate work in a specific domain in a qualified way and who are aware of the premises for and the means of attaining set goals, while at the same time knowing what harmonizes with what.⁵²

But now, if intentionality has been removed from the picture, and purpose from function, what happens? Do you even realize that you are using a plan in your work practice? Or is your understanding of a plan that it is a strategic, formalized plan that someone else – usually a manager, or 'management' – has constructed, a plan which you align to at meetings, by for instance making notes about critical dates in your personal calendar? While your own plans concern those domains of your everyday life where you have a say; vacation plans, weekend plans, shopping lists, diet menus? These expressions of plans are intrinsically connected to your inner picture, they structure and are structured by your habits. But the others? All those visionary plans about modern information technology? How connected are they, through intrinsic indexicality, through intersubjective sharing of understanding, to the work practice of those they are intended to support? For whom are all the formal plans made? Whose situated action are they intrinsically connected with in practice? (In Hegel's parable, the servant cannot see the wider meaning of his own intentions for his actions. There is no intrinsic purpose for him in the functions he is performing.)

In her book *Plans and situated actions*⁵³, Lucy Suchman challenges the traditional view of plans as directly determining action. Suchman suggests that plans may be seen as resources, artifacts for reasoning about action, and for orienting us for situated action. Rather than subsuming the details of action under the study of plans, she subsumes plans under the larger problem of situated action.

Here I am trying to go a step further. I am trying, as an experiment of thought, to see plans in the way Wittgenstein sees rules. Using this alternative interpretation of the concept, to follow a plan is a custom, a use, an institution, a habit. To *say* you are following a plan is not to follow a plan. (That would certainly explain a lot about the discrepancies we found between formal expressions of plans and what was actually happening.) With this interpretation of ‘plan’, plans may be seen as situated actions – in fact, that is the *only way* they can be caught sight of. Formal expressions of plans, such as written representations, are *interpretations*. Now, just like the concept of rule-following, this could easily be mistaken for the opposite of what I intend with it. It depends on where you stand, so beware of your present position relative to the object/subject gap. I am *not* saying that *formal expressions of plans* are the generative mechanism of action – that’s a conception that Suchman, among others, just got us out of. I’m saying that if we now can see formal expressions of plans as subsumed under situated action, let us take the consequences of this, showing in action what we know. Let’s take the next step. We now need to make formal expressions of plans accountable to our habits, rather than vice versa.

Think about it for a minute.

If something’s bothering you about the idea, there may be a good reason. My guess is, you’re either applying the master’s eye view, in which case you are wondering how things are going to be kept under control. (What? Other people?⁵⁴) Or else you’re applying the servant’s eye view, in which case you are wondering what it is you’re supposed to do, and feeling uneasy about it (Who? Me?⁵⁵).

This means, as I see it, that intentionality has to be brought in to the picture again. I have used the term ‘distributed intentionality’ here as a provocation, but also as an extra stepping stone on the way to shifting perspectives. So let’s make one last digression here, just to get a view of the landscape, before we round off the discussion about intentionality and plans in action.

The combination of ‘distributed’ with concepts that normally refer to attributes of individuals signifies, to me, the problematics of the object/subject gap⁵⁶. Take, as an example, ‘distributed cognition’. If you take it literally, it’s hard to fathom, like ‘distributed digestion’. What does it mean? In what aspect is it distributed? Who is distributing it? To whom? But then again, if you step

back and take it as a wild card, a metaphor, it opens up new possibilities of seeing alternative aspects, relations between parts which you haven't noticed before. The problematic part is when it slips, unnoticed and unreflected upon, from an inspiring metaphor to a concept which is taken for granted. This seems to be what often happens to metaphors that are shifted from the subjective or the intersubjective to the objective mode of thought. The indexicality starts working in the wrong direction. The metaphor becomes a straight-jacket to thinking, instead of a patchwork quilt in the making.

Here's a fictitious (I hope) example. Take 'distributed digestion' again. Apply it, metaphorically, to the multinational fast food industry. In terms of distributed digestion, it would be natural to include the handling of garbage, sewage and other waste products in the picture, integrating forward in the production chain in a way which otherwise might not spring to mind when thinking about frozen hamburgers and pizzas. I can see the conceptual power in a new metaphor, when used like this. But I definitely wouldn't want a doctor to operate me, re-applying the metaphor with these new insights from the multinational food industry, and using it unreflectedly as a tool for conceptualizing my digestive system.

So I'm using the expression 'distributed intention' metaphorically here, but with an ironic twist, because to me, this kind of expression, taken literally, is part of the conceptual straight-jacket of the master's view.

Intention, then. Aristotle uses the Greek word *prohairesis*, which Ringbom⁵⁷ has translated as the decision or resolution to perform a chosen action, in order to reach a chosen goal. In practical reasoning, as described by Aristotle with the aid of the practical syllogism, being aware of the interrelatedness of the choice of general premise and the choice of action (including the performance of the act itself) means taking personal responsibility for the intentionality of your own actions. This, to my mind, is what free will is about. To see this interconnectedness, and to begin to understand it, is to realize that you can determine, through intentional action, who you are. By internalizing intentionality, you subsume the servant/master relationship under your own intentional choices of action. The object/subject gap becomes a tool for your own reflection on – and in – action.

When intentionality becomes fused with situated action in this way, we can begin to see *plans as situated action*. As was the case with reconceptualizing rule-following, it's about inverting indexicality, looking to the inner picture, and the inner connectedness, to see meaning. And now we can ask ourselves – taking ourselves seriously as subjects, who need objects like lists and calendars and computer applications as artifacts to support our meaningful planning in action – why so many of the external representations of plans are so far from our plans as situated action.

Are you wondering what all this has to do with design? If we acknowledge

plans as situated action, then we must begin to realize that the truly strategic planning within organizations – at least those that wish to see themselves as modern net-working organizations – is the constantly on-going situated action of work practice. If design, as I imagine, is about supporting and facilitating the interplay between intention and action, then management of IT – which I see as including design issues – needs to be radically re-conceptualized to support the net-working organization.

5.2 The everyday art of designing and managing IT systems

5.2.1 Supporting knowing in action

Knowing in action, then, is about making good judgments in individual situations, based on your inner picture of what the world you are part of is all about, and what you are doing in it. Every time you act with judgment, you are simultaneously enriching that picture, insuring through *self-chosen* action the interconnectedness of your inner picture with your goals and your actions. Anything else in the way of action might as well be automated. Now, my hypothesis is, that Zuboff is right; we can't use the old way of organizing if we want to use information technology for *informating*⁵⁸. There's too much mindless push and pull in all the old habits. We've got to all work together to deconstruct the old system of thinking. Then we can get down to really constructive knowing in action together.

Let's look again at what we just went over. There was a gap, but it wasn't where it was made out to be. I tried to use Hegel's parable of the servant and the master to catch sight of the problem. I came to the conclusion that the master/servant gap should be a concern of every individual, and might be used as a tool for reflection in connection with intentional and responsible choices of action – including the act of acting itself. This connection between *choosing* and *acting* is vital for the construction of meaning. The servant could not see the connection, because he had subsumed his own will under that of the master. The master could not see the servant.

I used the concept of putting purpose back into function to show what the servant needed to see, and the concept of seeing meaning in the concrete and specific to show what the master needed to see. But these two concepts are really one and the same. The gap was a product of the subsumption theory applied in practice. The servant needs to see the meaning of his own intentions to his choices of action, including the act of acting. The master needs to see the servant's intentions in his actions. For this, the servant needs to take his own intentions seriously and act accordingly. What the master would then be seeing – the master in each of us; let's get our act together, now – would be situated actions as plans. Yes, it can be put that way – as long as you acknowledge every acting person's right to their own intentional action⁵⁹.

Look at us! What are we doing, anyway? What plan are *you* enacting?

Now we're getting to the point. Once we're beyond the object/subject gap, and we've started understanding, or at least catching sight of, inverted indexicality, we see how instrumental and communicative action must be one

and the same. They can't be split apart. In agreeing on 'this table', it's not defining the table in absurdum that is the issue, it's defining 'this'. It's about showing what we mean in action.

Information technology can be used for informing only if we manage to make clear to ourselves and each other the purpose of the functions and the intentionality of our actions. Take heart; it's a meaningful endeavor.

Let's start by viewing the importance of informal contacts for knowing in action. It's a good example of why communicative action should be seen as instrumental action and vice versa. Accepting practical reasoning means that the means are constitutive of the overall picture and vice versa. That's why subsumption theory doesn't work – it simply takes the life out of the system.

Informal contacts with people within the rest of the municipal organization are important for the generalists. Informal contacts help them stay informed about current issues in municipal politics and administration. We heard this repeatedly voiced in interviews with generalists. We saw a great number of instances of informal contacts and communication, both during observation on the spot and in the subsequent analysis of the video recordings of front-office work. The issue was also brought up spontaneously at the workshop for generalists.

Many of the answers to questions which the generalists could give without having to search for them seemed to stem from the 'information in the air' which they were positioned so well to keep track of, located as they usually were in the main entrance hall of the public administration office building, and with the telephone exchange for the entire building either integrated in their work place or located nearby. So much of the knowledge we saw being shared was knowing in action rather than information extracted from computers, that we had to totally revise the original ideas we had, not only about the role of computers in front office work, but about the type of information that is asked for by, and of use for, the average citizen.

A large part of this knowing in action is based in local knowledge, which seems largely to be developed through a kind of continual social networking. An example is the case of the lost puppy in Arjeplog⁶⁰, where the generalist who got the phone call knew at once whom to turn to, i.e. the woman in the next office, whom she knew had a dog kennel, and, when her phone was busy, her husband, who just happened to be passing the reception. Much of this local knowledge is invisible in the formal representations of information systems in use we have seen. Such representations tend to focus on the role of modern technology in informational work, for instance listing what can be accessed online as the main sources of information altogether. Yet the local knowledge possessed by the experienced generalists clearly is essential for getting the daily work done⁶¹.

The issue of focusing on, studying and finding ways of representing knowing

in action, is worth looking into from several points of view, one being the growing interest for developing public electronic information systems. How do you put current, informal, usually orally exchanged information on-line in such a way as to be accessible and useful for a general public? How do you formalize the information structure of on-going procedures at an earlier stage than from the records? For when the records are made accessible, the decisions which might have been important for citizens to have a say about have already been taken.

One-stop shops are often discussed in the context of enhancing local democracy, by allowing citizens to voice their opinions about the services offered and about local politics in general, at a level where one voice (and one vote) makes a difference. But the average citizen presumably has a rather vague idea of at what stage of a political and/or administrative process pressure can most efficiently be applied to the local political system, or where to turn for relevant information about some specific issue. Generalists in a one-stop shop can help the citizen formulate his or her problem and find answers. But, how much of the generalists' knowing in action, so much of it obviously based on an active and on-going social networking, can be represented in a public electronic information system, in such a way that it can be retrieved and be of use for the average citizen? And is that even really the way the question should be posed?

Seeing the computer support the generalists themselves are working with – or, in many cases, working around – today, it becomes more relevant to question if the design efforts put into developing electronic public information systems might not benefit from being coordinated with efforts to improve the computer support for front office work. Electronic public information systems could then be developed as one part of a strategic, people-based information system for all kinds of public administration.

There are interesting design issues to look into here, which concern for instance the conceptualization of formal procedures of decision-taking in public administration. Such procedures, which are sometimes obscure even to the public administrators themselves, could be represented in the electronic information system in such ways that both public administrators and citizens in general can get a better overview of what's going on, and what courses of action are open to them in different cases. What immediately springs to mind, for instance, is the kind of simple mappings, like the wall maps on certain airplanes, ships and modern trains, which show with a string of lit lights how far along the way you have come, and how far it is to your final destination. A flashing red circle could indicate, in the case of on-going political decisions, the last day to interpolate. That's *my* first association. What's *yours*? (Let me guess; maybe a flashing light a *week* before the last day?) Mapping can be extremely inspiring to work with in groups, for example by data modeling, or using wild cards, and

sketchy figures of thought. It's a mapping that needs to take place in the intersubjective landscape. It brings intrinsic indexicality to the fore⁶².

This type of conceptualization work could be useful for the entire organization to engage in, as part of a deliberate move from automating strategies to informing strategies in public administration.⁶³ And from hierarchy/subsumption to net-working.

5.2.2 The gardening metaphor

How, then, do we support concept-building? Knowing in action? Situated action as plans-in-action? Certainly it must be clear, by now, that IT management, including design, should be out where the action is⁶⁴. We need design support for concept-building. The social construction of meaning is an ongoing practice. Supporting the computer support for it is a life-cycle commitment, just like motorcycle maintenance⁶⁵. It doesn't help how good the information highways are; if the bike won't start, who is going to use them? Not to mention all those informal, windy back roads where most of the real experiencing is done⁶⁶. IT management should be located out in the front office, in the middle of the spider's web, making sure the communication and information technology is functioning *in use* throughout the organization. Every day.

But there's still something missing here. I did the loop, and there's still another step in the practical reasoning that has to be made explicit. I can feel it, it's when my own reasoning begins to sound like push and pull, again. That's not going to work. The problem, now, seems to be in the conceptualizing of the idea of the *art* of IT management. It has to be seen in the light of the intersubjective landscape. We'll have to back-track a bit again.

According to von Wright, Hegel had a practical inference schema which is similar in its logic to the idea of Aristotle's practical syllogism. The first premise is afforded by the subject's aiming at an end, 'der subjektive Zweck'. The second premise is constituted by the contemplated means to the end. The conclusion consists of the 'objectivation' of the aim in action, 'der ausgeführte Zweck'. The end fuses, through a means, with the objective, and, through this, with itself. (Take your time, think it through. If you're into activity theory, you might see it as mediating. I'm not sure.) Thus, the means becomes the formal link in the middle of a whole. It is neither a subjective end, nor an objective end. It is something different, something *other than*.⁶⁷

I read into it the idea of the intersubjective landscape. By being aware of our own intentions in action, and what they mean to our overall goals, we can become visible to others. And by being aware of the meaning of the concrete and specific to others, as shown in *their* intentional action, we can share in constructing the inner picture of the landscape we want to inhabit. Hegel occasio-

nally calls it 'Schluss des Handelns'. The striving for objectivity is shifted to the action (rather than the old master's view of the servant as an object, and the servant's view of not having anything to say about the objective). Where the action is, is where we can interpret intrinsic indexicality, after all – we can't get closer to intersubjectivity than that. Taylor seems to have seen this, too.⁶⁸

Herein lies the strength of participatory design.

But that's too simple, too. That's not the real issue here.

I turn to Pirsig again for help. What was it his narrator wrote about his creative but allergic-to-technology friends and travelmates?

It is against being a mass person that they seem to be revolting. And they feel that technology has got a lot to do with the forces that are trying to turn them into mass people and they don't like it.⁶⁹

But wait a minute. We've been over that ground. Didn't we come to see that the crevice was not between technology and the humanities at all? It had to do, rather, with the object/subject gap, which ran in a different direction. I see now what it is I'm after. I've known it for a long time⁷⁰. Empathy is not a tool reserved for *Geisteswissenschaften*. It's one of the sharpest tools there is in technology development, too. It's just that technologists don't *talk* about empathy, they use it in action, if they know their art. Pirsig says this, and points to it, throughout his book, mainly using motorcycle maintenance as a concrete example. One of the most beautiful passages, to me (having struggled for so many years trying to understand and use technical manuals and instructions), is this;

"What I wanted to say," I finally get in, "is that I've a set of instructions at home which open up great realms for the improvement of technical writing. They begin 'Assembly of Japanese bicycle require great peace of mind.'"

This produces more laughter, but Silvia and Gennie and the sculptor give sharp looks of recognition.

"That's a *good* instruction," the sculptor says. Gennie nods too.

"That's kind of why I saved it," I say. "At first I laughed because of memories of bicycles I'd put together and, of course, the unintended slur on Japanese manufacture. But there's a lot of wisdom in that statement."⁷¹

I've been surrounded by technicians and programmers and computer scientists for years and years, and I can't think of one of them, off hand, that has

had a purely master's eye view of the world. Most of them are very reflective people. If you listen to them talking about their networks, or their programs, or their theories, you'll see plenty of intrinsic indexicality in action. They can get *very* empathetic. And if you listen, you can begin to understand how these things work. Basically, it's so simple, if we just don't subsume empathy under the straight-jacket of unconnected universal laws, i.e. intention and purpose under function, we can begin to see meaning in the concrete and specific in technological matters, too. *Anyone* can understand it.

Who? *Me?* (What? Other people?)

Yes. You. Me. If we put our *minds* to it. Anyone who is willing to take their own intentions seriously in action, and to use their own empathy to understand and to take an active part in concept-building, can understand design. You can get pretty far understanding your own computer applications, if you try to go into an empathetic dialog with them, taking both your own and the programmer's intentions seriously⁷².

If we take our own intentions seriously, and are willing to be responsible for our actions in relation to our goals, we need to take design seriously. Herbert Simon called design a science of the artificial. To my mind's eye, he was way over on the other side of the object/subject gap there⁷³.

Design is the science of the living.

So, some detective story, isn't it. No victim, no murderer, no knife. We just haven't been putting our minds to work in what we're really doing. We haven't been trying very hard to see our meaningful place in a larger picture. That's all. This rusty thing over here? It's some kind of gardener's tool, from the looks of it. Hasn't been used in a long time...

Using the metaphorical title *A Gardening Attitude*, Ellen Christiansen writes about her experiences of coming as a new guest researcher to the Institute for Research on Learning in Menlo Park, California, and being given excellent support by two people there who were part of the technical support team. Impressed by their attitude to their work, she did a study of their work practice, and found that the metaphor of gardening was a good one for what this type of work involved.⁷⁴ As I pointed out earlier, from my own experience taking care of a help desk function for computer support, the net-working, the informal communication, the empathy put into the work, the many different on-go-going activities and interruptions, all make this type of supportive work very similar to the generalist's work in the front office of one-stop shops. It's very much about mutual understanding and caring, based on supportive and reflective interaction in everyday work. It's a support of the daily organizing going on,

and, according to the reasoning we've been doing above, it can be viewed as the most strategic planning in the organization.

Just one more war story, from my years at the help desk. It's to show what I mean about the use of empathy in understanding technology. In those days, I was not a programmer, though I could scan through a COBOL program and get a general understanding of the logic of it, if I had to. I had reading access on-line to the source code of the administrative programs in use. This allowed me to pursue difficult problems to the core and describe them with accuracy, which was useful because fuzzily defined problems often didn't result in responsible action from the IT department. The COBOL programs were to the point. Their most useful attribute was that they had the programmers' names, and all changes made to them, as notations in the headers. Very useful. Still, I got along well, as I remember it, with the programmers. Maybe they actually appreciated someone seeing the work they did. But at one point, I hadn't felt like looking up the source code. I was sure I understood the nature of the problem. I contacted the responsible programmer several times, but nothing happened. Finally I got really mad at him, telling him I *knew* there was a loop in his program. A few minutes later he came storming in to my office and laid out a big sheet with a print-out of part of a COBOL program on the desk in front of me. 'Show me!', he stormed at me. 'Show me where the loop is. I've been over this program five times. *There is no loop.*' I realized I had gone too far – but I still *knew* I was right. I was sure I had understood the problem from the inside. I looked at the sheet of COBOL code – it swam before my eyes – and before I had consciously even begun to read it, my hand pointed to a parenthesis in the middle of the page and I found myself saying 'There. There's the problem.' He bent over my shoulder, looked at it, and saw it at about the same time as I realized I *had* hit on it. We were both kind of shaken. He took the program and left. The problem was fixed by the next day. But I was – *scared*. I couldn't understand it. It was too good to be true. Things don't happen that way. Not rationally speaking, they don't.

It never happened like that again. I still don't consider myself a programmer, even if I have done systems development work. I've never written a COBOL program, and have mostly worked with SQL. Looking back, I think this was something like the workings of an unresolvable connection between the logic of the program, as I had understood it in my inner picture of it, and the *purpose* of it in our work practice. .

If you accept teleology in understanding the world, there is nothing scary about that experience. It's not magic at all (which I actually briefly contemplated as an explanation at the time). It's just the result of a strong sense of intentionality and an understanding of the relation of an action to the imagined goal. I read my intention into the program, understanding it as a means to reach the goal (in this case the program, running, without the loop).

The really powerful insight here is what is beginning to come to me now. *Anyone* can understand technology in this intrinsic and truly meaningful way, if they see the purpose of it for their own goals.

Accepting the powers of teleology, of intentionality in action, and empathy, we see a powerful resource which we haven't been taking advantage of. How do we teach design? Why don't we talk about empathy? My feeling is, women would understand this connection intuitively, but they need to be supported in taking their own intentionality seriously. Not only do the generalists in front office work need to see their work as meaningful concept-building, so do we as computer scientists⁷⁵. So do we as members of a society being interlaced by information and communication technology. Do we want to stand aside, watching this development going on in a rather mindless fashion? Or do we want to take responsible action, seeing design as the science of the living and a concern for everyone? The least we should strive for is competent technical support – IT management – at a level where it supports meaningful on-going concept-building.

These are, to my mind, ethical questions which need to be taken seriously and personally by all of us.

6. Who is 'we'?

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6.1 Shifting perspectives

6.1.1 The shifting signification of 'we'

During the course of the research project *Working at the Front*, and of writing this thesis, I have come to realize that I have shifted perspectives in more ways than one. And I have also discovered that it is easier to write about having *ambitions* in this direction, than to actually understand and describe what using alternative perspectives and developing, if possible, some kind of multi-perspectivity, are about, and involve. Chapters 4 and 5 are, basically, narratives born out of this kind of revolutionary process. But they are already new stories in the making, new patchworks being stitched and taking on new patterns. In this chapter, I will lay out a few of the patches which still haven't settled into new places. It is an attempt to illustrate, more directly, some of the experiences I have had during the research work which I perceive as involving shifts of perspective. Perhaps the most central of these, for me personally, has been the experience of maintaining and developing a presence of self within the 'we' of a new community of research practice.

'Who is 'we'?', my colleague Sissi Ingman asked me, having made her way through my manuscript in its nearly final stage¹. Looking back, I realize that 'we' has been used with shifting signification in this thesis. To some extent, I have used 'we' as a rhetorical form for including you, as a reader, in the wanderings along my paths of reasoning. This is obviously the case in much of chapters 4 and 5, where no one but I myself can be held responsible for the directions taken and the distances covered or ignored. I am, of course, responsible for this entire thesis, and for the results of the research project as they are presented here, but otherwise, and generally speaking, I have never felt alone in this project. From the beginning of the project, and throughout, 'we' was Bo Helgeson, who was the research project leader – and who has also been my supervisor in the work with my dissertation – and myself. Later, my colleague Kajsa Cadwell² and I did fieldwork together in Arjeplog, and, to a lesser extent, in Sölvesborg, so in descriptions from Arjeplog, 'we' often refers to 'Kajsa and I'. Later still, 'we' were the joint forces of myself and the first-year students of the MDA program, who shared in the fieldwork in Sölvesborg.

Throughout the research project, there has also been the supportive community of researchers and students of the MDA program, the people who participate in the video-lab sessions and literature seminars we have every

week, and thus in the sense-making of on-going research work. Perhaps it is this activity-based feeling of community which has caused me to write 'we' with-out usually clarifying to whom I am referring. Somewhere along the way, however, I have also shifted perspective in relation to this 'we', coming to see myself as less of a tentative newcomer and more of an active and responsible, and at the same time more autonomous, member of this community.

There have been other shiftings of perspective along the way, too. One shift I hadn't anticipated, because I hadn't realized that I was using that perspective from the start, was what I see now as the shift from an information flow to a work practice perspective.

6.1.2 From information flow to work practice

Let's go back two years, to a specific point in time (as nearly as I can recall it, looking back from where I stand now). We'll be going over some ground we've been over before, but this time I'm attempting to show you, not so much the landscape itself, as how, almost imperceptibly, the lighting can shift across it, so that, suddenly, it may be perceived as dramatically different than before.

I don't believe that revolutions start with the first gun-shot. But I think there are moments in time when you become suddenly aware of on-going processes which you normally aren't really conscious of. Here, then, is the scene I am reconstructing. It begins with me watching a video-taped sequence of front office work;

A woman is working quietly at the desk, her back to the camera. The telephone rings and she swivels on her chair, reaching over to her left to pick up the receiver. Suddenly, for a few seconds, the screen is full of talking heads. The students have moved in to change video tapes. Noses blur, inches from the camera lens. Abruptly the recording ends. I blink, rewind and replay the last few seconds to get an exact notation of the time, then switch off the electronic snowstorm that ensues. The recording ended at 10:35 am. I glance at the information I've already put in the page header. Start-time 7:32 am. That means I've now watched and written a content log for yet another three hours of the six work days that students filmed in March 1996 at the one-stop shop in Sölvesborg.

There were four or five situations on this tape that I will be returning to, to do a more detailed transcription of the dialogue and actions involved. In my mind's eye, I'm working with a kind of choreography of front office work³. By

studying the actions and communication of the people working at the front desk, I hope to understand more about how they get things done. Are they, as some researchers and many managers claim, basically just following rules? Or is there something else or more, perhaps more complex, going on here? Obviously, there are different interpretations of what it means to follow a rule – but what does it mean to the understanding of front office work, to use one or another of several alternative interpretations of rule-following? And what are the implications of this, in turn, for the design of computer support for front office work?⁴

Even with the limited view of the work space which these video-taped sequences can give me, I am beginning to see the actions and communication of on-going work at the front desk more and more as the confirming and continual constituting of a network of relationships – to objects, to people, to artifacts – which functions as the 'real' information system in the front office. This information system is not computer-based. It includes the computers and

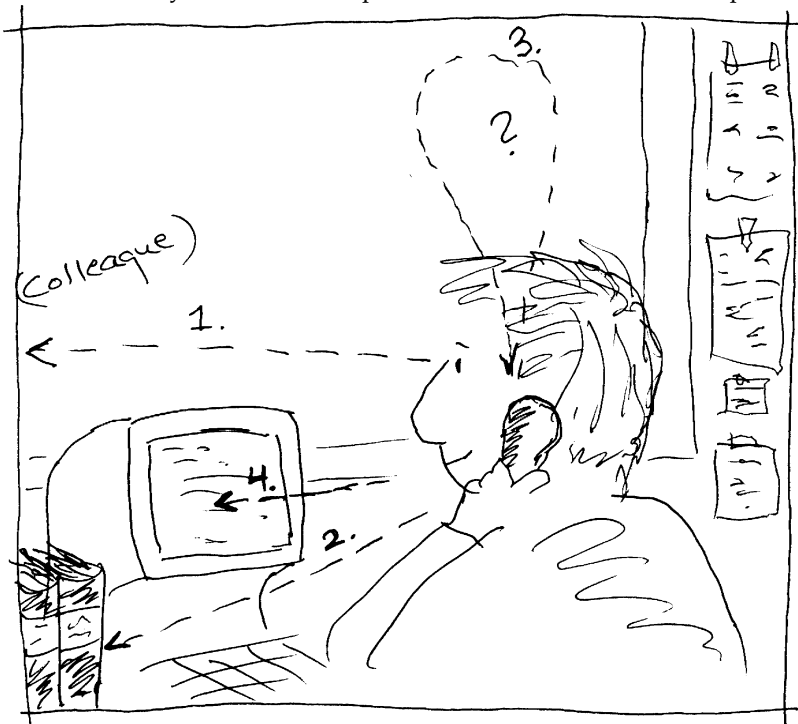


Figure 6.1 A generalist in action – a central feature in this people-based information system. (See text above and below for further explanation.)

those applications which are running and being used on them, certainly. However, many of these applications are peripheral in the overall information system I see in use. Perkins wrote of the 'person-plus' concept of knowledge, which he elaborated to include people in collaboration, for instance work- groups, and called 'people-plus'⁵. What I seem to be observing in the front office is 'people-plus' knowing – a people-based information system in action, which includes a number of different structuring practices and artifacts, among which computers, when they work, are one.

To give you an idea of what I mean, let me explain more about the way I'm trying to map work practice on to a figure of thought (see figure 6.1). Imagine the actions taken by a generalist responding to a question for which she doesn't have the immediate answer. Each move could be represented as a dotted line in some specific direction in the work space in which she is situated. She glances over to see if her colleague has listened in on the conversation, managed to anticipate her question and has an answer – that's a dotted line off to the left. If that is her first move – and it seems often to be, from what I've observed so far – then let's mark it with a 1. If her colleague can't help her solve the problem, she might perhaps swivel around on her chair and reach for a binder from the middle section of the work desk, where shared materials often consulted are stored within easy reach of both work places. That's another dotted line, in this case marked 2. If this still doesn't help her answer the question, she might ask the person calling another question to try to reframe the problem or pinpoint the issue. That's a dotted line, too – she's attempting to access/retrieve more information⁶ – even if it takes a loop back to the customer. Mark it 3. This time her query helps delineate the problem. She realizes from the answer that what this person is actually asking about is something she should be able look up in one of the computer applications. She types her way into the computer system and searches there. That's dotted line number 4. This time she finds the answer to the caller's question in the computer system. Four dotted lines in different directions show the paths she tried out to find the answer. (See figure 6.1).

In contrast to all these dotted lines to indicate how she completed the task, one straight, short line under a column heading which states the general administrative area of the problem is all that will show up in the statistics at the end of the day. Providing, of course, she doesn't have so much to do that she forgets to draw that specific line on the form when she is finished with the telephone call.

What is the use of marking up all these dotted lines within a work space?

Well, for one thing, it gives a visual indication of the span of the information system in use in front office work. It helps the observer sort out what's going on. As long as you don't extract this kind of data too far from the context and situation in which it has been observed, you can gain understanding of the work practice you are studying by quantifying certain parts of the different mappings and comparing them. You could for instance mark out the time spent moving along each path, and see how long it takes to find answers in different directions. (This would have to be tempered, of course, by some sort of classification of the relative difficulty of the problem, the frequency of the use of this pathway etc. – that's what I mean by this kind of quantification only being useful within a very grounded sort of methodology.) I might do this to check a hunch that has arisen during my observations so far. What I think I've observed is, that sometimes consulting the computer seems to generate more new questions than useful answers. Problems frequently appear to arise from the application or the computer network itself. These problems are immediate and stressful in that they bring up new questions that need to be attended to before the customer's query can be answered. These questions are often voiced aloud, seemingly put partly to colleagues, partly to higher powers; 'Why can't I get in to this system? It worked fine yesterday.' – 'Why isn't this information registered yet? It should have been in here by now!' – 'Why can't I update from this screen?' – 'I can't find anything about it in the manual – do you know what I should do here?'.

You could check which paths are tried first for problem-solving, and how often first tries actually do solve the problem. These types of quantifications and comparisons could all be helpful, as long as you try to understand their relevance within the context of the observations they are a partial mapping of.

As I sit speculating over my growing web of dotted lines, I realize that my perspective on front office work is shifting – has, in fact, shifted – from primarily information flow to work practice oriented. The dotted lines are there to indicate paths tried in the quest for information. But the starting point is in the work practice, not in the computer systems. It isn't human-computer interaction I'm seeing, it's human action and interaction, in which the use of computers is a part.

I lean back and rub my eyes. After spending all those years as what I like to think of as a reflective practitioner, when I went back to academic studies I was convinced that I had a good solid work practice perspective. I wanted to learn more theory about practices I thought I understood. What I see now is that I thought I needed the theoretical knowledge to help me understand more of the same, not differently. And, paradoxically, what I see now is also

that my work practice carried with it a theoretical view of information flow which I had learned to use in such a way that I didn't distinguish it as theory.

What's more, if that's how I work, that's probably how most other people work, too. From that angle, work practice could be seen as the constitution of reality out of a multitude of different applied theories which we try to convince each other are 'the way things really are'.

Maybe what I've called applied theories here are something in the order of what Wittgenstein meant by rule-following, when he stated that rule-following is a practice⁷ and that any explicit rules are, in this sense, only *interpretations* of rules, as we can try to understand them and put this understanding into words by studying the way they are constituted through practice.

What I especially like about Wittgenstein's approach is that he really puts practice first and subsumes theory under practice as interpretations. Whereas I – the alleged reflective practitioner – unwittingly have subsumed practice under theory by sticking with the concept of 'applied theory'.

When I first started studying front office work in one-stop shops, I used the concept of themes to give coherence and structure to the research. I could see three basic themes which I felt were interrelated and upon which I wanted to focus or tune in my research. These were, to put it simply, *integration*, *cooperation* and *participation*⁸. The aim was to follow the three themes in each case study, using a combination of perspectives from informatics and work science. It seemed natural that in the concentrated area of a public service office, where several different organizations had decided to coordinate and cooperate around their service to the public, some of the most central issues would be about how to integrate different information systems and how to support and encourage cooperation. Given the evolutionary history of the labor movement, work environment and systems development in Scandinavia over the past three decades⁹, it also seemed reasonable to expect that the employees in one-stop shops would be encouraged to take an active part in defining and developing their new work role and in the participatory design or redesign of computer systems to support it.

Subsuming our initial research questions under the concept of themes was part of a deliberate strategy. It was intended to support an open approach, allowing not only for the successive refinement of, but also, if necessary, for the re-formation of a set of research questions which we wanted well grounded in the local contexts we were studying¹⁰. But it was also a strategy which I hoped would help me make use of my own work life experience in my research work. I felt comfortable with these themes. As a practitioner, I had been interested and actively involved in issues of integrating systems, supporting

cooperation at work and participatory systems design and development for a number of years. By thinking in terms of themes rather than hypothesis and theories, I wanted to bring forward those things I felt I could be good at, in the strength of their own context. I wanted to support my own associative thinking, reflecting on and explicit indexing of and referencing to this practical experience.

Basically, I felt there was an undue gap between practical and theoretical knowledge in much of the on-going reasoning about work practice and systems design. I thought I might be able to get around the gap without even having to jump, simply by using alternative figures of thought. But moving up close to study work practice forced me to reconsider my own position and perspective. It made me realize that theory and practice aren't that clear-cut and separable from each other. I was beginning to realize that all interpretations, all structuring and organizing, no matter how situated, in effect are theories at work. And my initial themes, I now reluctantly had to admit, were beginning to look more and more theoretical. I was definitely in the midst of shifting perspectives, and not at all in the premeditated way I had planned when I chose my 'multi-perspective' approaches to the research project *Working at the Front*.

6.1.3 Interpretations as 'theories at work'

In the first chapter of this thesis, I brought up some issues about management on the shop floor. One of the questions I had was, in what ways the explicit models and metaphors which surfaced in the discourse used by managers and consultants working with public service administration and the development of one-stop shops, might actually affect the way everyday work gets done in the front office. What consequences do different interpretations – different theories at work – of what front office work involves, have for the work and how it is supported?

One way to explore this area is to ask different people, including myself: What is the nature, or essence, of front office work? How can it be described – briefly yet to the point – to an outsider? Despite the local differences between one-stop shops, are there some common characteristics or concepts that can be used to convey what the work is about, what it involves, what it's like?

The examples and war-stories given by the generalists at the workshop we held in April 1995 (described in more detail in section 3.2.2) seemed in many ways to confirm the picture of the work we were getting from our detailed work place observations. This picture showed a surprisingly – to us, at that time – complex work situation. The work, as we perceived it, was characterized

by hectic periods of many things going on at once, an uneven work load over the day and a large number of unpredictable interruptions of on-going work tasks – unpredictable not only as to when they would occur, but also as to what they would be about and how long they would take to handle in a satisfactory way.

Yet even during intensive and prolonged onslaughts of interruptions, there was a visible and audible interweaving of informal networking activities within the team, interactions which apparently helped to give coherence both to the various different interrupted and interrupting work flows and to a shared overall sense of what was going on. This informal communication and cooperation would usually occur almost seamlessly in different stages of the work, even when each team member seemed to be busy with his or her own tasks. Help would frequently be asked for, and helpful suggestions and comments offered and accepted, both in defining what a posed question or problem was actually about and in finding solutions and relevant information from various sources. Besides this, there was a great deal of sharing of work-relevant information even when it wasn't explicitly requested or apparently needed by the others at the time it was offered. To the observer, it seemed as though there was a continual oral filling in of details concerning changes, or previously unknown circumstances, or possible pathways – perpetually on-going work in an informal shared mapping of available resources for the work as a whole.

So, could this be said to be the essence of front office work? A dynamic and complex juggling and sharing of information and resources within a team, serving to take care of a number of different things for a number of different people? Telephones ringing, visitors hanging over the reception desk to see why the computer is taking so long, colleagues from the back office running in and out asking for things?

That's what it looks like a lot of the time on our video-recordings. Admittedly, most of the video-recordings and observations were done from a position in a corner of the office behind the front desk. In this way, we aligned ourselves with the front office team, and became, if not part of the team, then at least observers on the same side of the desk as they were.

The picture, and how you frame it, depends partly on where you stand.

As a visitor to a one-stop shop, you would presumably notice other things about the place, the people and the on-going activities than we were focusing on. Or notice some of the same things we observed, but understand them and the situation differently. We decided, early on in the research project, that we would limit our interviews to, and focus our observations on, people

working within public service administration, and let the citizens visiting the one-stop shop remain peripheral in our research work – although of course central and essential to the front office work itself.

But within public service administration, too, there are different ways of perceiving and describing front office work. Some of these differences appear to be more pronounced between people employed on different organizational levels within the same organization than, for instance, between people from the same organizational level but from different case studies in different local public administration organizations¹¹.

Why does front office work look complex to the observer behind the front desk, yet appear basically simple and routine to the manager higher up in the organization, at least as expressed in discussions about what tasks can be moved to the front office and what kind of work gets done there? What is it that makes us see completely different pictures when looking at the same center of activity? Obviously, there must be more to perception than meets the eye.

Perception, I read in *A Dictionary of Philosophy* (Lacey, 1996), is the faculty of apprehending the world specifically through the senses. Perception is a complex notion. Two main and connected problems concern its relations to sensory experience, and to intellectual notions like belief, judgment, inference.

Perhaps these notions, listed in the dictionary, implicitly cover motivation and intention. Perhaps they should be added. In any case, it would seem, from the above definition, that perceiving front office work involves some element of interpretation on the part of whoever it is who is apprehending this piece of the world through their senses. Which supports our hypothesis, stated in the title of this section, that in everyday work in one-stop shops we have to do with various interpretations of what the work involves, interpretations which may differ more or less, but in any case which are simultaneously 'at work', i.e. in use, as the basis for choices of action.

The observer behind the front desk is studying cooperation, skill and the use of computer support in front office work. She is looking for interaction – and sees it, intricately interwoven in a complex work situation. The manager, on the other hand, is involved in his or her own complex work practices, which are connected to an organizational discourse on another level¹². He or she will normally classify front office activities, as is usual within the framework of this discourse, as routine work, and will probably not see the complexity of the work at all. In fact, he or she may well challenge the observer's claim that it is so.

The question seems deceptively simple: *Is front office work complex?*

The observer, although understanding, to some extent, the practical rationale

for the manager of classifying front office work as routine work, wishes to emphasize the subjectivity of this type of categorization, and to problematize the concept of routine work seen as simple rule-following. She turns, therefore, to researchers with good renomm   within work science for examples to show what she means with 'complexity'.

Berndt Brehmer, professor of psychology at Uppsala university, has studied process controllers' ways of thinking, building up and sharing knowledge about their work (Brehmer, 1993). He points out that the process controllers' work is characterized by a much higher degree of complexity than the engineers' work at the same pulp plants. This is so, because the problems the process controllers have to deal with are seldom well defined, and the solutions they have to come up with need to be fitted to the concrete situation in each individual case – all of which calls for a coherent, experience-based understanding of how the plant works. While the engineers think in terms of simplified, general models, the process controllers use more specific and situated 'mental models', models *abstracted through the prism of action*, as de Montmillon and De Keyser put it in their study comparing the way engineers and process controllers reason about their work¹³.

Complexity is greater where the problem domain has not yet been identified and this becomes part of the job. Defining the problem domain as well as finding good solutions involves dynamic decision-making.

Work in the front office is to a large extent about listening to people's problems as described in their own words, and from this being able to define in what domain or domains these problems belong, seen from inside public service administration. Once the relevant domains have been defined, good solutions must be chosen and effectuated, often in cooperation with other people within the organization. The generalists presumably need a specific and situated 'mental model' built on experience in much the same way as process controllers do, on which to base their judgments, judgments which must often be made without much time for deliberation.

The Danish computer scientist, programmer and program language constructor Peter Naur has written about programming as theory building (Naur, 1985), using the notion of theory which Ryle expands on in his book *The Concept of Mind*¹⁴. Having a theory in this sense means not only knowing how to do certain things but also having an insight gained through experience, and reflecting on experience, about why, such that the actual doing can be supported with explanations, justifications and answers to questions about the activity of concern. Yet a theory built on experience in this way is dependent on a grasp

of certain kinds of similarity between situations and events of the real world, knowledge which is not possible to express in terms of rules or criteria.

Naur's article is about programmers. An important conclusion he draws is that the problems of program modification arise from acting on the assumption that programming consists of program text production. Instead, programming needs to be recognized as an activity of theory building about the manner in which the real world problems at hand are solved by program execution. In Naur's interpretation, programming as theory building naturally encompasses the entire lifecycle of the program.

However, Ryle's notion of theory was developed as part of his analysis of the nature of intellectual activity, which he did not limit to any specific group or groups of professionals. Intellectual activity, according to Ryle, goes beyond activity that is merely intelligent, such as to talk grammatically, or to fish. Even just plain intelligent behavior, in Ryle's book, does not rely on any notion of following or adhering to rules, prescriptions, or methods. (If it did, there would have to be rules about how to follow rules, and about how to follow the rules about following rules etc., which is, as Naur points out, absurd). What takes intellectual activity beyond mere intelligent activity is the person's building and having a theory about what she or he is doing.

Comparing the reasonings of Naur and Ryle with those of Brehmer and de Montmollin and De Keyser, it would seem as though the concept of theory building in action is similar to the concept of the 'mental model' as an abstraction made through the prism of action. In both cases, these models or theories springing from action-based experience, are more closely connected to some specific part of the real world, and more complex by far, than the traditional concept of an abstract theory. In both Ryle's theory building and de Montmollin and De Keyser's 'mental model', the bounds of causal explanation are overstepped, allowing for a richness of detail on the one hand and an over-all coherence based on perceived similarity and relationship, even where the logics of causality have no foothold, on the other. The very complexity and situatedness of these models seems to be what makes them so useful in practice.

The British historian, philosopher and empiricist David Hume, in *An Inquiry concerning Human Understanding* 1748, writes about principles of association between ideas;

It is evident that there is a principle of connection between the different thoughts or ideas of the mind, and that, in their appearance to the memory or imagination, they introduce each other with a certain degree of method and regularity. [...]. To me, there appear to be only

three principles of connection among ideas, namely, *resemblance*, *contiguity* in time or place, and *cause or effect*¹⁵.

During the past 200 years, the principle of cause or effect has become the sole legitimate principle for connection among ideas, while perhaps theorizing in practice is closer to Hume's view and thus allows for richer connectedness with the real life world.

In the above, I have tried to show that front office work is indeed characterized by high complexity. Along similar lines as Brehmer, I have argued that understanding and managing complexity has something to do with theorizing in practice ('mental models'). Next, without explicitly making comparisons to front office work, I have shown how Naur shifts the whole idea of programmers' work from telling a machine what to do next to building a theory about what the targeted activities in the real world are about and how they can best be supported by the program. Since Naur leans on Ryle, and Ryle thinks people in general are capable not only of following rules but of intelligent activity, and not only of intelligent activity but even of intellectual activity, which includes theorizing in practice, I would argue – using Hume's principle of association of ideas through resemblance (or, in Ryle's terminology, similarity) that front office work is so complex that in order to understand how it gets done at all, you need to use some coherent model or idea such as seeing the constant on-going definition and solving of problems, the judging of situations and the choosing of action, as theory building. Or, with another word, concept-building. Looked at in this way, what goes on every day in front office work becomes much more of a potential resource for the entire organization. Computer support, division of work and work organization in and around the front office can, from this point of view, be studied as resources – or obstacles – to theory building in practice around public service.

6.1.4 What is a theory?

What is a theory? At times – when I've been feeling more like a practitioner than an academic – I have envisioned theorizing as a process of abstraction and generalization, through which one's understanding of the studied phenomena must pass, as though through a distillery. What comes out at the other end is often refined almost beyond recognition. At such times, it has appeared, to my begrudging eye, that a tremendous amount of work is put into the distillation processes, while relatively little attention is paid – from the academic community at least – to developing the corresponding dilution processes so that these abstract theories, once they've been formulated, can be constructively applied to concrete practice.

At the other end of the scale from the most general and abstract theories are the contextually situated theories of the grounded theory approach. Or are they?

Theories evolving from much of the research focusing on action and interaction appear to bring together theory and practice in ways that are generative of new ways of conceptualizing in both. As scientific and practical reasoning are brought closer together in interaction research, it seems reasonable to question what the point of retaining the dichotomy between them is. What is the bottom-line difference between the way people make sense of and organize their lives in day-to-day activities and scientific theorizing? Shouldn't they be closely connected in reflective practice?

Looking up the term 'Theory' in Lacey, *A Dictionary of Philosophy*, I find a reference to 'Laws'. Here, theory is given a condensed description, based on several different usages of the term:

Theory has various meanings: (i) One or more hypotheses or lawlike statements (either of first two senses), regarded as speculative. (ii) A law about unobservables like electrons or evolution, sometimes called a theory because evidence about unobservables is felt to be inevitably inconclusive. (iii) A unified system of laws or hypotheses, with explanatory force (not merely like a railway timetable). (iv) A field of study (e.g. in philosophy: theory of knowledge, logical theory). These senses sometimes shade into each other.¹⁶

Normally a *hypothesis* is a statement not yet accepted as true, or as a law, while a law is only called a law if it is accepted, whether or not we call it 'true'. [...] A *lawlike* statement is sometimes a statement resembling a law except that it is not accepted and is perhaps rejected, and sometimes a statement not general enough to be a law because it refers to individual objects. (Lacey, p.176)

Seeking more of an explanation, my eyes roam across the previous pages' text about laws, of which theory, according to some interpretations (here notably (i) and (ii)), could be seen as a weak case;

[...] scientific laws are sometimes thought to be rules governing the scientist's expectations, and so prescriptive, or else idealized descriptions to which the world approximates [...] ¹⁷

Although Lacey's descriptions of and around the concept of theory don't solve all my problems with it, what he writes does seem to point to the importance of differentiating between scientific laws and scientific theories.

Theory according to description (i) in the above is speculative. According to description (ii) the evidence is for ever inconclusive. Let these meanings shade in to each other, and you can begin to visualize an explorative, tentative concept of theory with more pull than push in it.

Scientific laws might sometimes be thought to be prescriptive – scientific theories should not be. Theories should not be thought of and used as rules governing the scientist's expectations. At worst this misconception can lead to the paradoxically unsatisfactory result of finding exactly what one was looking for from the very beginning. Nor should theories be applied as though to a world which is expected to approximate them. Rather, one would expect that theories themselves should evolve as approximations of in-depth understandings of those parts of the world about which they theorize. Yet, in order to gain in-depth understanding of a part of the world, there would presumably need to be some basic assumptions made about concepts and relationships in that part of the world – a kind of initial theorizing. For which there would have to be some kind of perception of that part of the world as a base.

What here begins to look confusingly like the problem of 'which was first, the hen or the egg?', could be seen as interdependence of parts in a whole, or, for instance, as constructive interaction between theory and practice.

When you begin to understand interpretations as 'theories at work' – and this, of course, is another way of talking about work practice as concept-building – then you can also begin to see the importance of theory to intentional action. And vice versa.

The abstract concept of theory has been bothering me for years. Now I'm beginning to understand how concrete a notion it basically is. And again, I marvel at the feeling accompanying the discovery: 'but – this is something I already knew! Why haven't I realized the meaning of it – and taken the consequences of it – before?'

Let me tell you another story. Although born in a family that sailed practically all year around – or so it seemed – I didn't learn to like sailing, or to understand the essence of it, until the summer I was twenty. That summer I spent sailing a windsurfer, which was a new invention in those days, at least in Sweden. And suddenly, I understood what it was about, the joy of accomplishing speed across the waves through balancing and tuning the sail and the 'hull' – in this case the board – to the wind. What a challenge it was, and what fun!

But the actual story is this:

At the beginning of that summer, some friends of my sister came driving up to visit with a windsurfing board on the top of their car. This was the first time we had ever seen a windsurfer. As we stood on the dock watching the one and

only expert, the young man who owned the board, sail elegantly and effortlessly back and forth on the bay, my father came out to join us. He was an old sailor and skier, and he liked the look of the new invention. I knew, even before he suggested it, that he wouldn't be able to resist the temptation to try sailing it himself. We tried hard to dissuade him. He had a very bad back, he was sixty, much too big and heavy for the board and completely out of condition. But he wouldn't be talked out of it. So, while the young, slim, muscular and well-trained men on the dock held the mast and helped him down the ladder to the board, we shook our heads and prepared for the worst.

He stepped on to the board, and for a moment the bow dipped under water. He must have realized at that moment that he wouldn't be able to come about on it, because of his weight. But he took hold of the boom, caught the wind in the sail – and sailed across the bay. At the other side was a dock with a ladder. He sailed up to the ladder, slowly climbed off and turned the board around, climbed back down on it – and sailed back, landing at our dock again with even his feet still dry.

I've never seen anyone else sail a windsurfer for the first time without falling off. Nor had any of the young sailors who were there that day. It's like bicycling, you need to figure it out bodily. Needless to say, my father was very pleased with himself. Later, I asked him how he had done it. *Everyone* falls the first time they try sailing it – so why hadn't *he* fallen?

And he told me. He had watched them sailing this marvelous new invention, this cross between skiing and sailing, through the window, and he had known that he had to try it. So he figured out a theory of how to keep his balance on it. It was simple: an inverted triangle. You imagined the tip of it at the foot of the mast, and one hand at each upper corner, and then you used the tip as your point of balance, pressing your hands down towards that point to keep your balance. It worked.

I didn't sail the windsurfer the first time without falling off, but I learned fast. It was a good theory. Above all, I have since used this inverted triangle time and time again as a metaphor for what you can accomplish with a good, simple theory. I've used it as a metaphor for talking in public; let your audience be the point of the triangle, use them as your point of balance¹⁸. I've used it as a metaphor for one-stop shops; tired old institutions can make excellent use of new ideas and new technology, if they set their minds to it and decide where they want to put their point of balance¹⁹. I see it, now, as a metaphor for understanding theories, because it has encouraged me to grasp hold of triangles,

and triangles inside triangles (or what-ever), and make concrete use of them, rather than backing away, intimidated by the seeming abstractness of them. (See figure 6.2)

I see it, basically, as a question of using empathy to subjectify the goal — to make it truly *mine* — through the intentional and deliberate choice of action with which to achieve it, and making an object of the *action*. I.e. using theory actively in this way, rather than objectifying the whole world, including oneself, as a kind of basic condition for legitimate 'theorizing'. Used in this *self-conscious* way, I believe it to be one of the most powerful resources we have as human beings.

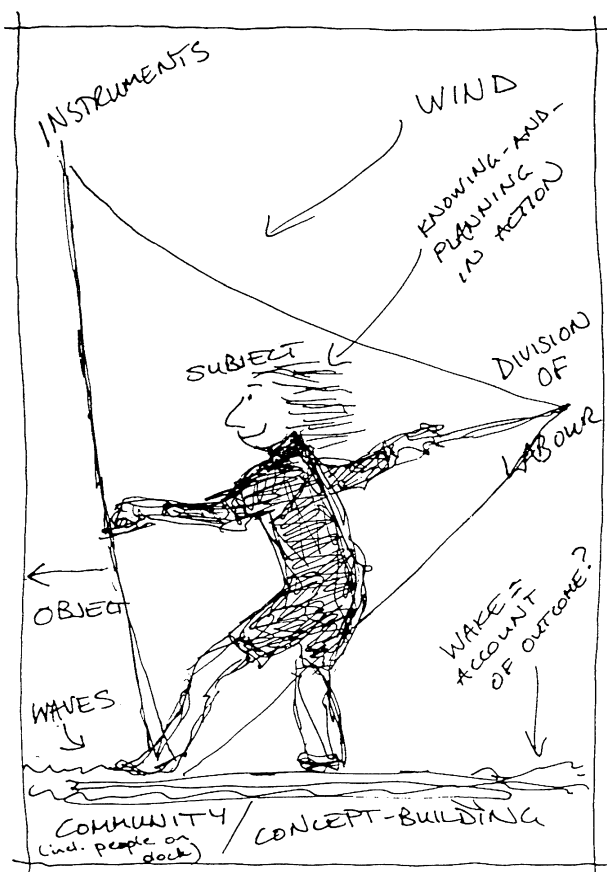


Figure 6.2

Learning to try out triangles on my own. Fun!

6.2 In search of methods for meaningful research

6.2.1 Action and interaction in social theory

Grounded theory is an action/interaction oriented method of theory building²⁰. Anselm Strauss, the sociologist who 'discovered' grounded theory²¹, insisted that social theories, in order to be applied and made useful to the field of research, should be built inductively, through the qualitative analysis of data from that field. Grounded theory should thus grow out of a constant, methodological interplay between proposing concepts and relationships and checking the collected data:

*Your final theory is limited to those categories, their properties and dimensions, and statements of relationships that exist in the actual data collected – not what you think might be out there but haven't come across.*²²

The discovery of grounded theory didn't come out of the blue. It grew out of a tradition of action theory which took shape long before the label 'action theory' came into existence. Anselm Strauss was a follower of the American pragmatist tradition of John Dewey and G. H. Mead, a tradition which stressed the active nature of humans. In a classical paper published in 1896, Dewey rejected the dualism of stimulus and response that was becoming popular among American psychologists at that time. He argued that the unit of experience is *the act*, and stimulus and response are events whose meaning and identity are constructed within the act²³.

Dewey was an educationalist and philosopher. G. H. Mead, a social psychologist and philosopher, who got part of his education in Germany, was strongly influenced by Hegel's dialectics and, more than Dewey, emphasized the collective aspects of action and interaction. According to Mead, the individual identity is constructed through social interaction. Even individual action is basically interactive, i.e. linked to internal interaction between multiple imagined actors within the socialized individual²⁴. Mead saw meaningful, directed action as two closely connected kinds of activity, situated improvisation – the actual act of acting – and deliberation and reflection on action – the act of representing action (including such representations as plans about the future and retrospective accounts)²⁵.

Mead is usually seen as the father of symbolic interaction. The term itself

was coined by Herbert Blumer, a student of Mead's (and later a teacher of Anselm Strauss'), in an attempt to form a coherent whole of pragmatist philosophy, mixed social movements and social psychology²⁶. Blumer also contributed the notion of sensitizing concepts. With sensitizing concepts, 'we seem forced to reach what is common by accepting and using what is distinctive to the given empirical instance'. To generalize here becomes to focus the concrete and specific²⁷. Blumer contrasted this with the definitive concepts necessary for natural sciences, and elsewhere where confirmation, verification or falsification is the primary interest. Definitive concepts must be unambiguously defined, showing what is common to instances that fall under the term and distinguishing them from what does not fall under the term. According to Blumer, the necessity of accepting the use of sensitizing concepts is not due to the immaturity of sociology but to the nature of the empirical world which is its object of study²⁸.

Blumer argues that human beings act towards things on the basis of the meanings these things have for them. But meanings are not static, rather they are a product of social interaction, and as such must constantly be constructed and reconstructed²⁹. It is this interactive process of definition which shapes, directs and determines behavior, not 'thought objects' per se, according to Blumer;

A realistic analysis of the human act shows that the tendency to act cannot be taken as molding or controlling the act. At best the tendency or preparation to act is merely an element that enters into the developing act – no more than an initial bid for a possible line of action....³⁰

In her book *Plans and situated actions*, Lucy Suchman³¹ shows how Mead's and Blumer's concepts of human acts, along with recent developments within anthropology and sociology – especially ethnomethodology – challenge traditional assumptions about purposeful action and shared understanding. Such traditional assumptions, based on traditional social theory, still underlie much of the design of work organization and information technology. Suchman introduces the term *situated action*, and juxtapositions it to the term plan;

That term [*situated action*] underscores the view that every course of action depends in essential ways upon its material and social circumstances. Rather than attempting to abstract action away from its circumstances and represent it as a rational plan, the approach is to study how people use their circumstances to achieve intelligent action. Rather than

build a theory of action out of a theory of plans, the aim is to investigate how people produce and find evidence for plans in the course of situated action. More generally, rather than subsume the details of actions under the study of plans, plans are subsumed by the larger problem of situated action.³²

One of the main consequences of this inversion of traditional social theory is, that it makes very clear the importance of studying human action and interaction *in situ*, looking not for a structure that is invariant across situations, but for how the significance of actions and artifacts is established and conveyed in specific, unique situations. It is through our everyday social practices that we make sense of the world. Through the particular, concrete circumstances of situated action, we collaboratively interpret and organize our world.

Action is not, in Mead's, Blumer's and Suchman's interpretations, determined by rules. Suchman is explicit about this; situated action is neither rulebased nor procedural. Rather, people use the normative rules of conduct that are available to produce significant actions. It is only at times when situated action becomes problematic that rules and procedures may be made explicit and the action made accountable to them for reasons of deliberation³³.

6.2.2 The art of managing ambiguity and diversity

In the book *M/T and the Tale of the Forest Miracle*, the Japanese author Kenzaburo Oe³⁴ writes about the world as he perceived it through the stories and legends he heard when he was a child. Oe relates the legends in the way he remembers his grandmother telling them to him – in numerous different versions, one version usually contradicting another, and each tale even in itself often ambiguous and vague as to certain details, yet always beginning with the identical, almost magical, chant;

Here is the story! True or fictitious, who knows? But since it is a very old tale, you must listen to it as though it were true – even if it isn't. Understood?!

At this point, a quick and clear answer was required of the listening child; 'Yes!'. Thus the pact was sealed and the listener's participation guaranteed.

In the book, a rich and complex picture slowly takes shape through the retold legends. The many ambiguities and contradictions, which are never

ex-plained or resolved, but rather added to and expanded with each new and differing version, are at first both confusing and irritating. After a while, however, a strange thing happens between the reader and the text. The ambiguities in themselves become bearers of meaning. The frustrating impression of fragmentation and disparity shifts, almost imperceptibly, to a many-faceted picture of a previously unsuspected whole. It happens through letting oneself be drawn in to the text – or the story being told –, not through stepping back from it.³⁵

In the preface to *Philosophical Investigations*, Wittgenstein writes:

After several unsuccessful attempts to weld my results together into [...] a whole, I realized that I should never succeed. [...] – And this was, of course, connected with the very nature of the investigation. For this compels us to travel over a wide field of thought criss-cross in every direction. – The philosophical remarks in this book are, as it were, a number of sketches of landscapes which were made in the course of these long and involved journeyings. (p. v)

Precisely by *not* arranging his results in a smooth, coherent whole, Wittgenstein forces the reader to begin a journey of his or her own, to shift perspectives. Diversity and ambiguity are a natural premise and point of departure for the investigations. His journeyings are driven, it would seem, by a growing understanding of, and a need to make explicit, the intersubjectivity of how we build concepts, and, consequently, the intersubjectivity of how we comprehend 'reality'. Kjell S. Johannessen writes in his article *Philosophy, Art and Intransitive Understanding*, that the relationships between the different sketches are of importance for the ability to grasp the whole of the landscape, a whole which no single sketch can convey. Laid out next to each other, the sketches can awaken associations and insights in the observer of connections which would otherwise not have been discovered. And that is not all. By letting the different sketches change places and move around, you can discover new connections. One way of ordering them may uncover connections which a different way of ordering them conceals³⁶.

According to main-stream scientific research practice, choice of perspective is an important and necessary part which should be attended to at the beginning of a research process aiming at *explaining* what we are studying. Wittgenstein – and Oe – show us that, rather than stepping back and freezing in one position, stepping in to the midst of something, moving around and repeatedly shifting

perspectives, is a traversable way in a research process aiming at *understanding* what we are studying. In the former case, we are looking for causal connections, in the latter we are trying to develop an understanding for the coherence that determines the context, beyond – and to a large extent independent of – the particular causal relationships. In the former case, we are trying to attain as objective and unambiguous a view as possible, partly through an extensive abstraction process aiming to separate function and form from meaning and content. In the latter we are instead searching for and starting in the diversity and ambiguity – chaos, if you will – of an intersubjective world of ideas and concepts, where function and form, meaning and content are mutually constitutive. This calls for moving in the opposite direction of abstraction. We need to seek the meaning of the function and the content of the form, rather than the function devoid of meaning and the stand-alone form.

In the preface to his book *Clues, Myths and the Historical Method*, the Italian historian Carlo Ginzburg describes how, for decades, he did research in a way which he himself neither understood nor could motivate³⁷. On the one hand, he carried out very detailed and meticulous studies of historical sources from a certain period and geographical area concerning the phenomenon he was interested in. On the other hand, he searched in a very general and seemingly uncritical way for material concerning the same theme. This approach was completely different, more associative and ahistorical. Through the years, his research became an intensive, intellectual activity centered around a self-assumed challenge which seemed to expand continuously. He could not himself see any clear logic in his methods. Insight came unexpectedly after many years, when he stumbled on a passage by Wittgenstein in *Notes on Frazer's "Golden Bough"*. Here, Wittgenstein juxtaposes two different ways of presenting material. One is a form of account, based on a hypothesis of a chronological development. The other is synoptic and achronic. Wittgenstein emphasizes the superiority of the latter. Ginzburg chose to continue working with and attempting to integrate both methods – as he had already been doing for a long time, without really realizing it.

Ginzburg came to understand his own methods better thanks to Wittgenstein. It is, however, unclear to what extent he understood the scope of or point of departure for Wittgenstein's stated preference. In the following text in Ginzburg's book, it becomes clear that he sees Wittgenstein primarily as a representative of structural analysis. This is in accordance with the traditional logical positivistic interpretation of Wittgenstein's philosophy³⁸. At the same time, it is an interpretation which leaves no room whatsoever for the most central theme and impelling force in everything Wittgenstein has written. From

Tractatus Logicus onwards, inseparably linked with Wittgenstein's characteristically self-evident literary style, there is a striving to stretch what can be said to its utmost limits. In *Wittgensteins senfilosofi*³⁹, Kjell S. Johannessen shows how Wittgenstein initially tries to reach what can not be said by purifying the logic in what *can* be said. But this road leads in the wrong direction. In the purified world of theory everything is as explicit as it is predictable. That which can not be said is not only unspeakable here, it is invisible, impossible to catch sight of, impossible to point to. In his later writings, Wittgenstein chooses a different road. He seeks insight into what he calls the logical grammar of concepts. Concepts gain their meaning through use – therefore, you can get closer to that which can not be said by getting closer to the actual use situations rather than by theorizing about the logic of language. Through descriptions of different kinds, through examples, metaphors, analogies, imagined dialogues, you can mediate an intransitive understanding like that which art can mediate⁴⁰.

But how is it possible to mediate insight into and understanding of a wholeness beyond? How is it possible to get an idea, from a fragment, of the something of which it is a part, without being able to explicitly describe that something and the relationships that give it coherence? At what point is the passage made from deciphering signs to catching sight of an idea, thinking a thought – to connecting to an inner picture? When I point in writing or in speech towards something beyond, how can the reader or the listener follow my mind's eye? Wittgenstein writes;

Explain to someone that the position of the clock-hands that you have just noted down is supposed to mean: the hands of this clock are now in this position. – The awkwardness of the sign in getting its meaning across, like a dumb person who uses all sorts of suggestive gestures – this disappears when we know that it all depends on the *system* to which the sign belongs.

We wanted to say: only the *thought* can *say* it, not the sign.⁴¹

I see the position of the clock-hands and understand – providing I trust that the clock in question keeps the right time – that the time is now such-and-such. The position of the hands has a meaning for me. But the meaning I read into what I see is not built on manifest causal connections but rather on practical experience. It is not possible for me to explain in detail how it can be that the clock shows a time which I in turn can define as the 'right' time. Bes-

ides, for me, the 'right' time may in fact be the 'wrong' time. The system to which the position of the clock-hands belongs in my lifeworld is a system of values which has been, and is continuously, constituted in practice, not a theoretically structured system constructed of functions connected by causal relationships. Past experience has given me insight into likely consequences of certain situations, which means that I, for instance, can draw split-second conclusions about the significance of the combination of the position of the clock-hands, my contemporaneous geographical position, and the distance to another geographical position where I have promised to be at a specific, impending point in time. The meaning intrinsic in the situation and the instantaneous insight are inter-related, they are based on my personal experience, but also on an understanding of the world which I have acquired in social interaction with people around me. Charles Taylor writes of *experiential meaning*, i.e. the meaning of something specific for someone specific in a specific situation⁴². He distinguishes it from linguistic meaning, which he sees as the meaning of signifiers, and thus being about a world of referents. (You could, however, argue that experiential meaning is about a world of referents *in the other direction* – see the discussion about inverted, or intrinsic indexicality, chapter 5. The aim of introducing this concept is, as I have explained elsewhere, to bring in to focus a 'real-life' dimension which I feel is often lacking in theorizing about action, i.e. the presence of a subject or subjects, of *self* or *selves*).

The situation and its signification can make me break out in a cold sweat. It can induce me to take immediate action. The position of the clock-hands, the realization of what that means, the feeling of tension and sense of impending trouble and the impulse to act (*run!*) are all interrelated, they are all part of a meaningful context⁴³. Thus, in some situations, the position of the clock-hands may have a special significance for and impact on me, which in other situations it may not have. This kind of liveworld meaning, so obviously dependent on the specific situation and the specific individual involved, is central to people's actions – and to understanding people's actions.

If practice is not studied under the more or less implicit assumption of being about rule-following in the more traditional sense, but instead is seen as being about action which is intentional in relation to the interpretation of a situation – where the intention and the interpretation of the situation in turn are constituted through action and conceptualization in practice – then this should mean that the individual person's scope of action and responsibility in practice are larger than what is normally considered to be the case. And that acting

with an awareness of one's responsibility in individual situations can only be learned through practice, and can only be taught through setting good (or perhaps bad) examples in one's own choices of action. It isn't explicitly formulated rules or verbally expressed rule-following one is teaching. It is action which is given meaning, and meaning which is created in and through action. It is the ability to make sound judgments which is learned through examples given in practice. Wittgenstein writes, concerning judgment about the genuineness of expressions of feeling and similar 'subjective' knowledge about mankind:

Can one learn this knowledge? Yes, some can. Not, however, by taking a course in it, but through '*experience*'. — Can someone else be a man's teacher in this? Certainly. From time to time he gives him the right *tip*. — This is what 'learning' and 'teaching' are like here. — What one acquires here is not a technique; one learns correct judgments. There are also rules, but they do not form a system, and only experienced people can apply them right. Unlike calculating-rules.⁴⁴

Rules and rule-following, as Wittgenstein tries to conceptualize them, differ from the way these terms are used in everyday language in for instance service administration and management (see section 5.1.1). Or, for that matter, in computer science. In the latter case, this can be attributed to the fact that what is usually being discussed is the construction of programs in formal languages for the efficient control of the behavior of dumb, or at best artificially intelligent, machines. What is harder to understand is why there is so much talk of rules and rule-following in the traditional sense when it comes to people, who actually do not usually respond as efficiently as machines to formal languages, but whose actions are based on real intelligence, intentions, experience, the ability to sense, respond and make judgments in context, and to even step back and reconsider the entire framework of a situation if unexpected events call for reassessment of the available scope of action.

As my colleague Bertil Ekdahl pointed out and proved quite convincingly with the aid of Gödel in his doctoral dissertation⁴⁵, computers cannot be said to be reflective, from the view of a model-based aspect, nor can they be said to have beliefs in the way people do. If autonomous agents are supposed to be able to make their own decisions, and thus not only be instrumental but go beyond this and be anticipatory, then this cannot, according to Ekdahl and Gödel, be realized on a Turing machine. However, people *can* have models which they themselves can reflect upon and revise, and one of their strengths

is their capacity to be not only instrumental but to use instruments to reach goals, and to be active and efficient in anticipatory systems in which they are allowed active and responsible roles. Thus it would seem that the concept of autonomous agents – or much of what it is professed to stand for by enthusiastic computer scientists – would actually both have more revolutionary potential and be more easily realized if used by managers to revise their models of the people they are in charge of, and the work these people do.

In the discussions about one-stop shops and the work role of the generalist, there is much talk of routine work and 'simple rule-following' when attempting to characterize what types of tasks can be taken care of at the front desk. The generalists represent public service institutions which are for their very existence dependent on explicit laws and rules and which are expected and intended to be run in detail according to rules and regulations. Yet in the front office, the generalists are expected to smoothly and seamlessly transform the various bureaucratic methodologies they represent into meaningful and efficient service for citizens who come in asking for help or information. In order to do this, they need to be able to understand the meaning of a concrete situation and the intention behind a visit or phone call for a specific person. And this understanding must in turn be related to the institutionalized routines in the public service organizations they work for. Embedded in the very location of the one-stop shop, between bureaucracy and the individual citizen, lies a conflict between expectations of explicit rule-following and the need for sensitive situational assessment. This conflict is not unique for the generalist's work, to be sure. In certain types of jobs it is managed through professionalization, which serves as a counterbalance to bureaucratic demands. But the generalist's role is as yet a new one and as such lacks a strong and well-established professional identity. In order to develop an understanding for the generalists' situation, it is necessary to try to see the diversity and the ambiguity which surrounds them as a very real part of their working conditions.

The models and concepts used by planners and managers can not be ignored or summarily dismissed, albeit they might appear over-simplified and seem mismatched with other perspectives on the reality being studied. They play a part in constituting this reality, and must be considered as part of the picture. Even when it is impossible to obtain a uniform structure, the disparate pieces need to be juxtapositioned. There may be unexpected connections which surface when the various pieces are laid out next to each other in a new way. Parts which have previously appeared to be completely separate and unrelated, may prove to be important fragments of a forgotten dialogue. It is essential not to categorize the pieces too soon, to be able to handle diversity and ambiguity

with confidence in that the intersubjective complexity you are faced with also – and for that very reason – indicates that what you are doing is potentially meaningful for more people and in a more encompassing framework than it would have been, had it all appeared simple and uniform.

Are there methods for meaningful research? Perhaps the listener in life, like Oe, needs to ritually make a pact with the story-teller, the other. In exchange for attentiveness and receptivity I may, at best, be offered the opportunity to take part in and gain insight into another person's way of seeing meaning and creating coherence. Thus, I step out into the intersubjective landscape, with my sketching-pad in my hand, settle down to listen and to watch, and hear, in my mind's ear, the unspoken prologue;

Here is my version! Does it sound strange to your ears, perhaps? Doesn't it fit with your version? But since it is a meaningful story to me – since I am telling it to you, here and now – you should listen to it as though it were true – for it has something to tell you about what you want to know. Have you understood?!

And my answer must be; *Continue. I am listening. I want to understand.*⁴⁶

6.2.3 Methods that take multi-perspectivity seriously

Scene of action: The woman came in through the door and hesitated for a moment before approaching the reception-desk. I was sitting in a back corner, taking notes, and looked up when I heard the door open. She moved toward the clerk at the right-hand side of the counter, perhaps because the other clerk seemed occupied with paperwork. She didn't seem to notice the video-camera which was rigged up behind the desk, recording the central work-space of the front office. 'I want a new care-taker for my little boy', she said. 'He can't stay on any longer where he is now. Can you help me?'. She was a foreigner and spoke the language haltingly. The clerk she had turned to responded by asking her more specifically about her problem, and as the errand was handled, I continued taking notes. The woman was obviously troubled, timid yet insistent, and seemingly close to tears. The clerk made several phone calls and, at one point, handed the receiver across the counter to the woman so she could talk directly to the person at the other end of the line. After about ten minutes the woman left again, having received an earliest date for possible change of day-care for her child which she seemed to accept with some reluctance.

As she went out the door, the phone rang and two new visitors came in. I made a note of the time, the new events and the actions taken. Later I would view the video-tape and make a detailed log of it, comparing that log to the so-called 'live notes' I was now making on the site.

But when I viewed the video-tape, I saw a totally different situation than I had seen when taking notes of the actual event. The camera had been set up on a high tripod in the opposite back corner from where I sat. That angle gave more of an over-view of the reception-desk and the visitors as well as the people working at the desk. However, it wasn't only the camera angle which altered my perspective. On the site, sitting inconspicuously in a corner taking notes, I became part of the setting behind the reception-desk. Although an observer from outside the organization I was observing, the very fact that I had been let in and accepted made me, while I was there, part of the work-team behind the counter. But back at my own workplace, the university, viewing the video along with my colleagues and fellow researchers in an interactive video laboratory, I became more of the outside observer I had thought I was when sitting in the one-stop shop taking notes. And now I could see that the visitor in this specific case had actually been very upset during her conversation with the generalist in the front office. The answers she was getting to directly put questions were not so much soothing, as I had thought at the time, as of an aversive character, and what I had taken as a helpful gesture – the passing over of the telephone receiver across the counter top – appeared, upon viewing the video, to be done in exasperation, by a clerk who was really signaling quite clearly, in gestures as well as in words, that she couldn't do more than she had already done for the woman in front of her – and if she didn't believe it, she could see for herself by putting her questions directly to the person on the other end of the line!

I was shaken⁴⁷. How could I have observed so much while it was actually going on – and yet seen so little? Was I, in my fieldwork, actually taking sides with the front-office workers without even realizing it? I'm still shaken by the discrepancies between what I saw on site and what I saw watching the video-recording, and, shakenly, I must confess that the answer to the last question is probably yes. Though totally unaware of the fact at the time, I must have been seeing the event through the eyes of the front office workers.

Many of the research practices which we are consciously cultivating today within the MDA research program, are designed in ways that help us take alternative perspectives seriously, and even to make that very most difficult

shift of all; realizing that our own perspective is not 'objective', and that the appearance of how things are should be questioned. Relationships between different entities need to be explored. As observers, we need to move around in the landscape, sketching what we see from different angles, in different lightings, and listening and observing to try to understand the connections and meanings that other people give things in their environment. The way we compare observation notes and logs, the way we set up video-analysis labs together with students and colleagues, and workshops together with the people whose work we are studying. The way we regularly take part in literature seminars where we discuss texts, using the text as the joint focal point, anchoring our reasoning to concrete and specific quotations, which we use to share our perspectives around, giving examples from our own experience. These work practices help to structure and stabilize a creative research environment so that the fact that we come from different disciplines and favor different approaches, which are not in all parts compatible with each other, can be used as an asset rather than causing chaos or forcing us into one or another stalemate position.

6.2.4 Navigating by triangulation: stone houses and amoebas revisited

When I started writing this thesis, I was fairly new in the academic world, and rather uncertain of my position in it. Now, towards the end of this endeavor, I realize that the figure of thought which I have used to talk about our research project *Working at the front* (see figure 2.1, chapter 2), could also be used, with some slight alterations, to describe my initial position in relation to the different research approaches I have been inspired by. Actually, it was my colleague Sissi Ingman who pointed this out to me. (I can't help wondering why I didn't notice it myself earlier. Once she had drawn my attention to it, it seemed obvious.)

At the outset, I was, figuratively speaking, a very small amoeba approaching a whole block of impressive stone houses (= academic schools of thought and more or less well established research approaches). All I had to go by, really, was the: 'Yes, but – *why?*' approach which has been with me for as long as I can remember. So I dutifully described the approaches and methods I was interested in (see chapter 2), and then went ahead with my pragmatic approach in the research project. Yet, for those readers who have had the stamina to read on after chapter 2, it will perhaps have become clear that I have described the methods I've used in the research work more elaborately as an interwoven part of describing and reflecting upon what I saw. Basically,

I feel that this, although messier, is in line with my pragmatic approach. It has helped me develop an understanding for, and retain in the account of what we saw, some of the most important interrelationships between methods and the resulting interpretations.

Be that as it may, I like the mild irony of Sissi's idea of seeing my approach in terms of stone houses and amoebas (see figure 6.3). She also pointed out to me that what I appear to have been doing is using the different approaches for triangulation. And yes, I think that is one way of looking at it, although admittedly I didn't see it in those terms from the start. Frankly, I didn't feel at home enough in any of the approaches to see it as a starting-point for serious triangulation. I think, rather, what I was really trying to do, was to prove that practical reasoning can be used in constructive ways in academic discourse. Providing, that is, that you don't force it out-of-time, out-of-space already at the entrance doors, so that it comes in speechless and lifeless like a fading specimen in formaldehyde, in a jar labeled 'tacit knowledge'.

Somewhere along the way, though, I began to see that practical reasoning has more theory in it than I had realized. And that theory, in practice – even in the academic world – is *very* 'here and now'. Theoretical approaches, as well as other work practices, when viewed thus, as social constructions, become more ambiguous. Now they're stone houses, now they're amoebas,

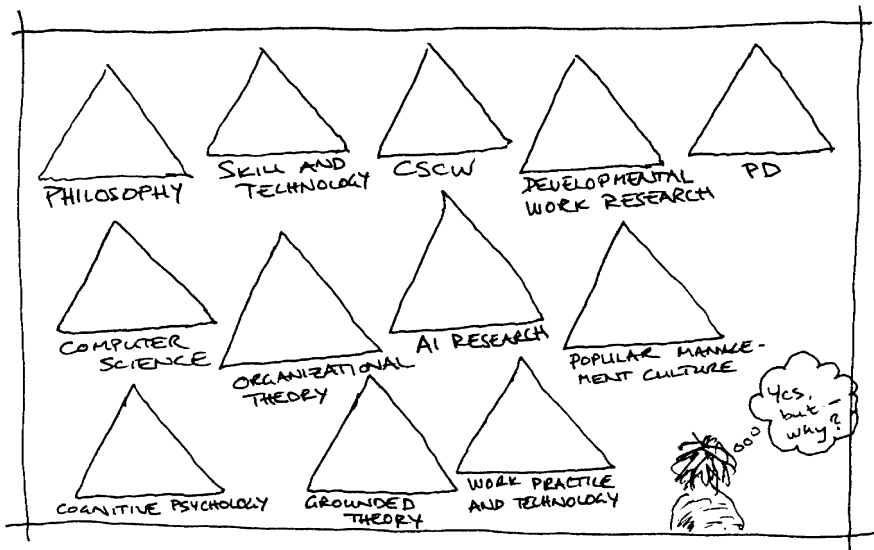


Figure 6.3 My initial research approach, figuratively speaking.

depending on how you look at them, and where you stand. And this insight, in turn, forces out into the open the issue of the observing subject. My own position can no longer be kept invisible. It is, in fact, central to the pictures I am sketching. In some sense, *I* am the solid triangle, and the approaches I am trying out are the amoebas, which I am attempting to incorporate in my own structures of reasoning and acting (see figure 6.4).

6.2.5 I, me, myself and we

What, then, is the object of all this consciousness-raising to the relativity of the world we live in? So, life is a patch-work quilt. But is it ever possible, or even desirable, to get inside other people's heads? And how else would we, truly, be able to understand their intentions and their perspectives? 'Masters', 'servants' (not to mention 'slaves'), 'plans', 'situated action', 'inverted indexicality' – how does it all fit together, and what do I plan – intend – whatever – to do with it? When you get right down to it, the question is still ringing in the air – '*What is your basic unit of analysis?*' (see section 2.2.7).

The first time I got the question, I didn't think I had one. I didn't think in those terms at all, at that time. But I am beginning to realize, now, that my basic unit of analysis is *myself*. I don't think I'm trying to get inside other people's heads, when I talk about intentions. I'm trying to get – to stay – inside my own body – hands, head, heart and all. It's about embodiment of

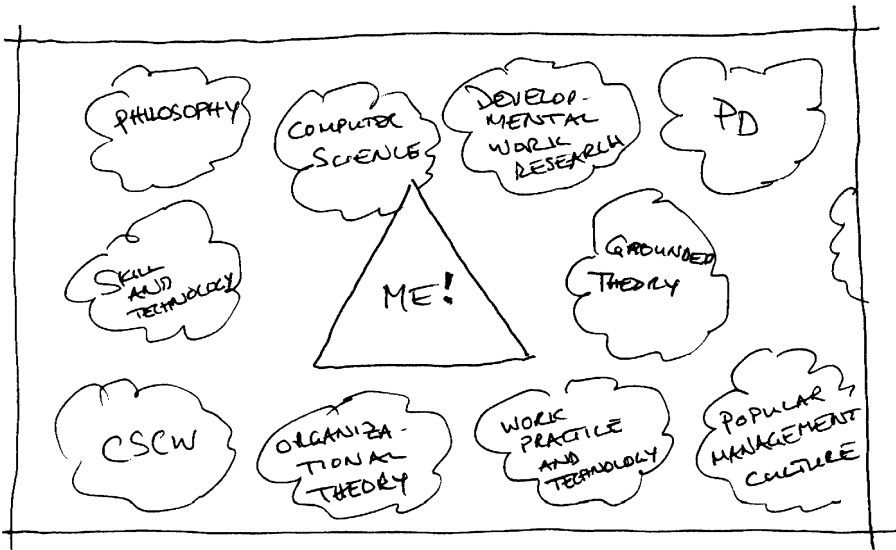


Figure 6.4 Repositioning myself as an observing subject, figuratively speaking.

self, not about invasion of others. It's about taking responsibility for my actions, connecting them with my intentions, making my own plans visible in action. About reflecting on and taking responsibility for actions versus plans, and about sharing my visions with others by the intentionality of my actions. It's about subjectivity and intersubjectivity, and about taking an active part in social interaction in communities.

The reason the master/servant metaphor really got me thinking was, I believe, that it embodied some of the problematics of the relations between plans and situated actions, and brought these home to me, in a way that much of the ab-stract reasoning about these concepts has not succeeded in doing. Again, I see *that* problem – of disattachment from the subject through abstracted forms of reasoning, a kind of personal disowning of real-life problems by the very structure of the discourse – as a result of the object/subject gap and the blind spots it causes.

But now, taking the question *really* seriously, and because I understand myself not as a self-contained, stand-alone unit but as part of a social community, let's look at what some of the basic units of reasoning are in that community. Two decades or so ago, there was much talk about democracy in the work place in Sweden. Now there is much talk about local democracy on a municipal level. One often proclaimed motive for opening one-stop shops, for instance, is to enhance local democracy.

What, then, is the basic unit of democracy? The answer is, in my opinion, not trivial. I would have said 'the individual', but I have had this view corrected by a friend who has been studying and writing in depth about democracy from a sociological perspective⁴⁸. The Anglo-American view might be that the basic unit of democracy is the individual, but the Swedish concept of democracy is based on the idea that all public power emanates from 'the people'⁴⁹. The Swedish expression for 'the people', 'folket', is basically singular.

This leaves democracy in the Swedish version in a bit of a spot these days. On one hand, there is the so-called customer or client-oriented view of public service, where the basic unit is the individual person. But on the other hand there is a whole system of public administration, legislation etc. which has been built around the concept of 'the people' as the basic unit.

It may be, just to exemplify with an area well-known to Scandinavian researchers in computer science, that some of the differences between the Socio-Technical and the Scandinavian Collective Resource approach, as sketched in for instance Bjercknes and Bratteteig 1995, could be better understood in the light of this fundamental difference. I am thinking, here, among other things, of the way the Collective Resource approach has tended

to work with one interest group at a time, as represented by their union, and emphasize power conflicts between employers and employees, whereas the Socio-Technical approach, rather, has stressed common interests between employers and employees in developing useful computer systems, and the emphasis has been on balancing different interests – an approach which has been accused of being manipulative by the trade union projects, but which could also be interpreted as an approach which sees people as, basically, persons who have a stake in the involved organization in one way or another.

The problematics of this unresolved basic unit conflict, between the stand-alone individual as customer/consumer/client and 'the people' as represented and ruled over, are reflected, too, in public service administration.

Public service administration is traditionally specialized in sectors, the boundaries between which have been heavily reinforced over the years by sector-specific legislation aiming, ultimately, to protect the rights and personal integrity of the citizen in his or her contacts with the authorities. But this very legislation has made it harder for public authorities to meet the citizens as whole individuals – they have become objectified and sliced into different identifiable needs which can then only be taken care of by specific, separate functions within different parts of the public sector. Legislation now paradoxically protects this basically administrative and bureaucratic division of functions with reference to the need to protect the citizen's personal integrity. Rather than making it the responsibility of each civil servant to protect the integrity of the citizen whose case they are handling, legislation makes it impossible, today, for one and the same civil servant to get a full picture of one and the same citizen and this person's situation. The person as a responsible individual is lost from sight – both the individual citizen and the individual civil servant – in the name of the rights of the people.⁵⁰

These issues go far beyond the design of computer support for front office work, yet they profoundly influence the possibilities of supporting integrated public service in one-stop shops. And basically, I believe the metaphors we use in society influence just about everything we do. In re-conceptualizing what 'all public power in Sweden emanates from the people' actually means in terms of local self-government and local democracy, even the logics of legislative structures need to be problematized.

Applying a strictly customer- or client-oriented view would seem to indicate that the step which is necessary to take next is one from the bundled-together unit of 'the people' to extreme individualism. But this, I believe, is a misconception. Turning away from the object/subject gap, re-embodying the self, opens

up other opportunities. By admitting to being a subjective person, I can admit the existence of the intersubjective landscape, and community becomes something more than public service administration – it becomes concept-building interaction, of which I am a visible, constructive part.

In the book *Computation and Human Experience*, Philip E. Agre⁵¹ discusses how deep-rooted metaphors are shifting in society with the rapid changes brought on by modern information technology;

With the growth of large-scale networking, [...] conceptions of computational individuality are shifting rapidly toward the new topological metaphor sometimes called "cyberspace". This development deserves critical attention; it lends itself equally to the political idiom of "empowerment" and to control regimes of unprecedented scope. Far from encouraging the values of collective action, this worldview would dissolve all individualities into a boundless *res cogitans*. The margins of such a picture lie in the human body, in the physical realization of all computation, and in the boundaries between the *res cogitans* of bureaucratic rationality and the *res extensa* of the human world. These margins will surely become the sites of deconstructive inquiry and material contest, and the sooner the better.⁵²

I think what's going on in one-stop shops has something to do with an ongoing shifting of metaphors in society, and I think it is important that we put ourselves into this picture as embodied, active, interactive, and reflective people.

7. What difference does it make?

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7.1 Reflections, conclusions, more questions...

7.1.1 Rule-following versus rule-following

Within the research area Skill and Technology, Wittgenstein is much quoted and referenced. It was during a doctoral course in this area that I began to read Wittgenstein first-hand, and found, to my surprise¹, that I liked his way of reasoning. When I came across his alternative concept of rule-following, I couldn't leave it alone. My reaction to explicit rules and instructions has always been pragmatic, and, to some extent, oppositional: 'Yes, but – *why*? Maybe there's a different way that's better/more exciting/*my own choice*'.

In *Philosophical Investigations*, Wittgenstein writes that to obey a rule is a custom (use, institution)², that obeying a rule is a practice³. This, obviously, was a whole different way of looking, not only at rules and rule-following, but at how people act, interact and make sense of the world. My conclusion was, that to understand more about what it means to follow a rule in front office work – in the Wittgensteinian sense of rule-following – I must go beyond reading documents in which the work processes are described, beyond interviewing the manager, even beyond interviewing the generalists themselves. For, to quote Wittgenstein again, '... to *think* one is obeying a rule is not to obey a rule.'⁴ Clearly, to understand what rule-following is, I would have to study work practice. (Which, as it happened, I was planning to do, anyway.)

However, one's own rule-following – in the Wittgensteinian sense – is no easy matter to come to terms with. To what extent can I be held responsible for rule-following as part of my own practice, rule-following which I can't even put my finger on? Taken seriously, this concept of rules can not be as easily and openly challenged as explicit 'rules' laid down by some external authority, no matter how critically reflective you think you are. And what are you supposed to do with all your choked-up opposition? Stand and yell at your own image in the mirror?

In public service administration, as in all bureaucratic organizations, there are a great deal of explicit rules, norms, standards etc.⁵, which in one way or another affect work practice. The very model used for division of work between front and back offices, the ROSA model (see section 1.3.4), is based on a mainstream managerial view of 'rule-following' as routine work that doesn't involve qualified decision-taking⁶. The further I got into my field studies, thus, the more the concept of 'rule-following' began to take on the shape of a duck-

rabbit⁷. This was when I gratefully accepted Kjell S. Johannessen's alternative term, 'concept-building', for the Wittgensteinian concept of rule-following (my interpretation of the Norwegian term for concept formulation, see section 5.1.1). Yet I couldn't resist making use of the tension between the alternative world views, and so I have kept using both terms throughout the thesis. I still see Wittgenstein's concept of 'rule-following' as revolutionary in relation to many, though not all, mainstream managerial models, metaphors and methods. What has surprised me more is that it also seems to be revolutionary in relation to many of the models and metaphors in use in research communities doing organizational research.

See for instance what Jack Whalen, who has done studies of work practice in different call and communication centers, writes about prevailing assumptions concerning how work actually gets done;

The prevailing assumption in research on the control and coordination of work activities in complex organizations is that process or task consistency and standards are typically introduced and imposed from outside the work activity itself, largely through the efforts of employers, engineers and managers. The systematic utilization of machine technology, the application of rational, bureaucratic forms of administration, and the establishment of a complicated division of labor have received special attention in this regard as "standardizing mechanisms". From this view, then, the observed uniformities and consistencies in both conduct at the work site and the products of that conduct are brought about by the imposition of certain technologies, rules, role demands and the like. This approach to work site and organizational "standardization" parallels that followed by sociologists when explaining behavioural regularities or consistencies more generally: such "standardization" is taken to be a consequence of (that is to say, determined by) actors adhering to rules concerning proper conduct that are external to any particular occasion or situation of action.⁸

Whalen's studies show that, whatever the 'standardization' that can be observed or measured, it is contingent on, and achieved by, situated, methodical courses of practical action and practical reasoning, which is accomplished by the people who actually do the work.

The difference between this view and the traditional view of 'rule-following' is, that according to this view, *people make all the difference in the world*. I.e. we

participate, through our actions and interactions, in constructing the world we live in.

In the traditional view of rule-following, taken seriously and carried to its extreme, the main difference people make is, that they make mistakes.

To me, it has been especially challenging to begin to explore what an alternative view of rule-following as dynamic, interconstitutive action means for intentional and responsible action. This view opens up for the ethical and aesthetical dimensions, which from this perspective seem to merge into one⁹, and which I feel are crucial for, and at the very center of, everything that has to do with people and design of living systems. And I believe this is so, to an equal extent, whether the contemplated design concerns above all issues in one's own life or has to do with systems which may affect a great many other people's lives and activities.

The thing is, I don't believe this kind of reasoning can be done in an out-of-time, out-of-space mode (see chapters 4 and 5). Nor do I think that design, or intentional action, can be accomplished in such a vacuum.

So, start by shouting at your own image in the mirror, if that makes you feel better. When you've calmed down a bit, you may be forced to look yourself in the eyes and realize that some of your habits and routines may be rule-following – in the Wittgensteinian sense – that is counter-productive to your plans and goals. And maybe your plans and goals need to be thought through again, too? What kind of world do you want to live in? What can you do about it? Excellence, after all, is not an act, but a habit. And community is here and now.¹⁰

7.1.2 Formalization as part of the problem

In 1991, I attended the European Computer Supported Cooperative Work conference in Amsterdam (ECSCW'91), a trip which was financed by my employer at the time, one of the larger computer consultancy firms in Sweden. It was the first international research conference I had attended, and as such it was a bit of a culture shock. Just to give an example; one of the panels at the conference was called 'Formalization in CSCW' and was aimed at exploring formalization in use, i.e. the structuring of CSCW related activity¹¹. This, to me, sounded interesting and central to the field; I took it to be about interpretation and representation issues in systems design. I came to that session ready to find out more about how the CSCW community was problematizing and coming to terms with issues which were, basically, just as central to participatory design

and to most of the systems development work practice I had come in contact with. But once the discussion got going, I couldn't make sense of it. It was, it seemed to me, a display of a language-game so fluent and so self-contained there were no footholds in it for practitioners. I came out confused. Did talking about formalization really have to mean using formalized language throughout the communicative process? That's not how I understood the concept. I had expected the discussion to be clarifying, even for a newcomer like me. It wasn't. At least not in the way I had anticipated.

While there, I wrote an article about the conference which was later published in the company personnel magazine¹². In trying to interpret what I was taking part in, and convey something meaningful from it to my colleagues at work, I realized what a gap there was between the research field and the everyday worklife of systems developers and systems consultants, at least at that time, and where I came from.

Towards the end of the conference, a British civil servant, who seemed to be feeling the same kind of doubts as I was as to what he was there for and what kind of useful information he could possibly bring back from there to his employer and colleagues, stood up and asked why so much of what was being presented was on a theoretical level which he could not relate to at all. There must be something of what was being said and demonstrated which had some practical relevance for public administration, or office work in general, he said, but if so, he hadn't been able to understand it or catch the significance of it for those he was there representing. As I remember it, he didn't get much of an answer – or if he did, I didn't understand it.

Thus, one thing I concluded from the ECSCW'91 conference was that the discourse of the researchers involved in the field did not seem to have much in common, or much connectedness, with the IT-related discourse within systems development firms and among those IT-managers and users of administrative systems I had most contact with.

Probably, many researchers today ask themselves questions similar to the one Staffan Furusten poses about why modern organizational research has had so little impact on the popular discourse and on ISO 9000 (see chapter 1, section 3). To me, it seems as though the concept of formalization should be viewed as part of the problem. And I don't mean just part of *this* problem, but of *any* problem. As I see it, for the formalizations used in a problem area to result in something meaningful to someone, they need to connect in some meaningful way to that person's 'inner picture' of that problem area. The formalization process itself is fundamental to the resulting understanding of the problem thus formulated. In systems development, this developing of understanding

during the formalization process is as crucial for the systems developer as it is, or will become through the resulting artifact, for the user. This is, of course, nothing new. It is central to what action research, activity theory, developmental work research etc. are all about. In Scandinavia, unions have been fighting for decades for their members' rights to participate in the formulating – which I understand as a kind of formalizing, in the sense that it is usually used as a first step towards operationalizing solutions – of work- and workplace-related problems¹³. The thing is, we have to keep reminding ourselves that if we want people besides ourselves to get involved, and if we want to deepen and broaden our own understanding, we should be formalizing problems in an intersubjective landscape, not just within our own private, or research community, ivory towers.

(What? Other people?) (Who? Me?)

That's why design is political.¹⁴

7.1.3 From intentional spaces to purposeful places: where aesthetics and ethics are one

It seems to me, that it is precisely through the ambitious but misguided striving for out-of-time, out-of-space objectivity in our formalization processes, that we so easily lose sight of the messy ambiguities, the multitude and diversity of different lived-in worlds, and the more or less conflicting interests, which are so obviously a part of everyday life. And of which we, ourselves, are so obviously, and so inescapably, a part. How could we ever hope to build functional systems without addressing and taking into serious consideration the existence of intentions and purposes, in the plural forms? It's like the vision of a perpetual mobile. It looks beautiful, even perfect – but there is no infusion of life, no energy to keep it going. Design is all about intentions and purposes. And politics.

The idea of affordances, as Donald Norman writes about them in *The Design of Everyday Things*, addresses intentionality in space, and suggests that the artifacts we design at best mirror our intentions (within the limitations and possibilities offered by the materials used), so that we recognize in them, basically, what they are *meant* for, and how they are *meant* to be used¹⁵. This indicates and assumes a world in which places and things are designed for a purpose. Why, then, should the purposefulness of how people act in everyday life – the teleology of living systems¹⁶ – be such a blind spot?

Representations of plans are generally recognized as expressions of intention. If we look at them with an eye to affordances, we might ask whose purposeful places they match and represent, and to what extent this affects how they are

used, or not used, by different people who are, or should be, affected by them. In chapter 5, I went back all the way to Aristotle's practical syllogism to show how being aware of the interrelatedness of the choice of general premise and the choice of action – including the action itself – means taking personal responsibility for the intentionality of your own actions. It is this interrelatedness, once caught sight of, which offers us the possibility of moving from intentional spaces – representations of plans, whether daydreams, budgets or shopping-lists – to purposeful places, where those representations become truly useful as supportive of choices of action, because the goals they represent are part of our 'inner picture' and we can recognize, and realize in action, what they are *meant* for, and how they are *meant* to be used.

Today, we design technology to support intentional spaces. But it's in purposeful places that things get done.

7.1.4 What about the ROSA model?

In chapter 1, I gave a brief description of ROSA, one of the management models which is often used in connection with the implementation of one-stop shops in Sweden.¹⁷ ROSA contains, among other things, a *task-cruncher*,¹⁸ which is used as part of the basis for deciding what tasks should be moved to the front. From the start, I had the ambition to study what effect the ROSA model actually had on the work itself. I was sceptical about some of the assumptions which I felt the model was based on, and my aim was to see to what extent it might restrain the development of front office work as something other and more than just the delegation of the most simple tasks in the organization to the front desk personnel.

During the first part of our research project, I heard managers and consultants talk alot about the ROSA model. During the later part of the research project, as we moved closer and closer to the on-going work in the front office, we lost sight of the model completely. You might say that work tasks, in this way, shifted, before our very eyes, into work practices. That is when everything turned upside down (see chapters 3 and 4), and I found I had to invent 'inverted' or 'intrinsic' indexicality in order to begin to understand what we were catching sight of.

So, what about the ROSA model? I can only say, as I did in chapter 1, that the ROSA model was developed as a consultant's tool, and that both the consultants and the managers who talked about it with me said it was useful. They used it for analyzing and discussing what tasks should be moved out to the front, as well as for presenting the idea of one-stop shops to politicians and upper management. As such, it helped one-stop shops become visible and

'manageable' at these levels of the organization, and so probably supported the official political and organizational implementation process.

I still feel wary and uncomfortable about the task-cruncher as such, but I see it, now, as more of an expression of some of the existing concepts of office work in organizations, than as a threat in itself to the development of front office work as something other and more than delegated routine work tasks. If anything, I have become less sceptical of the ROSA model during this research project, because I have come to understand something about how it can function as a political and organizational tool on other levels than on the shop floor. Still, in the long run, I believe that new models and metaphors are needed in order to move towards new conceptualizations of what organizing and organizations are about, and in order to envision and realize informed and informing¹⁹ organizations.

7.2 ...and plans!

7.2.1 Where to from here?

In our next research project²⁰, we will concentrate on the *use and design of technical support* for front office work in one-stop shops. Because of the rapid development of electronic public information systems – or at least of formal plans for implementation of such systems – we will also look at how the municipal informing strategies are being handled in the case studies, and to what extent the development of electronic public information systems is being integrated with the development of computer support for public service administration in one-stop shops.

We believe there is a need for supporting and encouraging local envisioning²¹ around cooperative development-in-use of these systems. The public electronic information systems need to get beyond the ‘on-line access to outdated addresses and inaccurate open-hours’ level and become supportive – and supported – parts of *living, people-based information systems* (i.e. of purposeful places). And the computer support for public service administration needs to be seriously addressed within this same conceptual framework. But there is a third crucial issue involved in this envisioning process; the successive building-up and supporting of local IT management resources ‘on the shop floor’. The envisioning and developing, that is, of IT management that is visible, and makes a visible difference, in everyday work life.

The questions we will be asking are ones which have evolved out of the research project *Working at the Front*, upon which this thesis is based. In view of the discussions in chapters 4 and chapter 5 in this thesis, we will especially be high-lighting questions concerning local design in use, and support of knowing in action. This is, as I understand it, part of what moving on from *automating* to *informating* processes (Zuboff 1985, 1988) is all about.

The following are some of the questions of interest to us:

How well does the technology in use support the everyday managing of *complex situations*?

This includes questions such as: Can you move back and forth between different applications with ease, and without losing information along the way? Is there any local standardizing and tailoring going on in the

applications to support complex situations? Who is doing it? Is the use of it spreading in the organization? How can it be supported and enhanced? What are the obstacles?

How well does the technology in use provide support for *concept-building*?

Can it support and enhance the formulation of intentions through action? Through formalized local plans and other accounts which make intentions tangible within the team? Within the organization? Without increasing the administrative overhead?²²

This might be easier to understand as a question of to what extent the generalists can map and recognize the topology – the local logic and logistics – of their work in the applications they use. Not only work task by individual work task but as on-going practices of communicating about, organizing and managing a broad range of local, situated projects.

Are *communication and feedback processes* supported by the IT in use?

If generalists can make their work practice visible to themselves in their IT support, they should be able to make use of this in communicating with the public as well as with other parts of their own organizations. In this way, they become, more actively and profoundly, part of an informing organization.

How visible, concrete, and locally accountable, is the *IT management on the shop floor* in the one-stop shops we are studying? Is there a *gardening metaphor*, or something like it, in use in the cases we are studying? Caring for, cultivating? Awareness of the needs? Understanding of the use situations? Attentiveness? I.e., is there a supportive team for local design-in-use?

Do the users know where to turn with their problems, needs and ideas?

Paradoxically, the question here becomes a paraphrase of what we thought we started with in our first research project, *Working at the Front*. We wanted, from the outset, to study the development of computer support in one-stop shops, including the integration of different specialized information systems, in the light of the developing cooperative work practices here, and what appeared to be excellent possibilities of engaging in participatory design. But the issue of integrating *computer-based* information systems became subordinate to the overshadowing problem of how to integrate specialized and centralized *organizational functions* in front office work. I.e. how can *IT management* (understood in the inclusive way I have tried to introduce here, as concrete, visible, locally accountable design and management of IT support for everyday work

practice) be made visible, be supported and be continually designed and developed in everyday use as an asset for the informing organization? Yes, I'm still talking about *IT management*.

IT management is in desperate need of redesigning. At present, nobody knows what it looks like. In real life²³.

But I understand it is a real art.

7.2.2 'Yes, but – how?'

Here, finally, is a question I feel I have some well-founded and well-formulated answers for, thanks to work done, both by Scandinavian and other research groups, during the past years within areas such as Participatory Design and Computer Supported Cooperative Work²⁴. And, close at hand, thanks to on-going developments and research projects here in Ronneby.

In this thesis, in section 3.2, I have given a brief description of one useful method for envisioning new ways of organizing work and computer support, the Future Workshop²⁵. Although I used a somewhat different concept for my workshop with generalists, I have used the Future Workshop method in other contexts and found it very inspiring and productive of new ideas, enthusiasm and cooperative design work. Within the *People, Computers and Work* educational program, we work extensively with mock-ups and other forms of prototyping, which also work well to inspire cooperative reflection and design work. And in general, the way we focus on information technology *in use* means that continued design and development of information technology during the entire life cycle of the applications we study in use become natural issues for student projects to high-light.

A new idea which is being developed and implemented in Ronneby within the work science department is a Work Practice Laboratory for trying out new technology in creative ways together with future users. This is not a use laboratory in the traditional sense, for studying work practice. That can best be studied *in situ*, in its everyday environment. The Work Practice Laboratory is for trying out new ideas which have developed during on-going research projects in the field, and for letting various on-going research projects and the users and organizations involved in them share in each-others cooperative envisioning and design work, in order to broaden the base for seeing new possibilities and alternative uses of information technology²⁶.

Two of my colleagues, Yvonne Dittrich and Gunnel Andersdotter, are looking at the work practices of software developers who work in project

groups. They are introducing ideas from Participatory Design to enhance communication within and between project groups, and working with ideas about programming as cooperation around theory building.²⁷ This creates new possibilities to reflect on processes of design and communication and how they can be supported, by organizational structure, methods and technology itself, but, above all, by attitudes to how people actually organize and make sense of their work to get it done.

My answer to *how?*, then, is, that I plan to use reflective, participatory methods such as these together with users, and with technical support and help desk people in one-stop shops, in order to support the local development of the art of IT management. I.e. of a long-term capacity for cooperatively envisioning, developing and supporting purposeful work places and living information systems.

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Epilogue

In September 1997, I had the opportunity to talk about my research project at the annual conference held by the national Generalists' Association. The audience consisted of about eighty generalists from various parts of the country. After my presentation, they split up into smaller groups to discuss their experiences and expectations of front office work. I moved around from group to group, listening in on, and sometimes joining, the discussions.

'It all depends on where you want to put your thoughts', one generalist said, just after I had joined the group. They were discussing how information should be structured, distributed and stored in order to be easily accessible when you needed it. Examples given included neatly organized and color-coded loose-leaf binders stored in a centrally placed bookshelf, post-it notes stuck in strategic places, and e-mail. The woman who had just spoken was referring to the advantages of e-mail when it comes to letting people organize important information as it suits them best. *'Some people like to order things one way, some people like to order them another way, and for a whole number of different reasons and purposes'*, she continued. *'This function in e-mail which allows you to make your own mailboxes and give them names you can choose yourself - it's great!'*

The discussion grew animated around the topic of standardized versus individualized information, how to reach the right people with the right information and how to allow and support individual initiatives while encouraging sharing and cooperation. Although much of the discussion was focused around communication within the front office work team and with the back office organizations, some of the people in the group brought up issues of on-line information to the public and how it linked in with their work.

I sat back and listened. What I was hearing was an inspiring and initiated dialogue about rethinking the structuring of information and communication in public service administration. And, unlike Pirsig's philosophical discourses in *Zen and the Art of Motorcycle Maintenance*, it was truly polyphonic. Despite his holistic approach and extensive use of dialogues, it took the narrator in Pirsig's book more than four hundred pages to get beyond himself as subject and realize that his son was an individual in his own right, who needed to make his own journey and speak in his own voice.

While I write, it's happening - the front end revolution of work. And democracy?

Notes

Author's note

¹ Those who have read Robert M. Pirsig's book *Zen and the Art of Motorcycle Maintenance*, may recognize here some of his rhetorical framework, which, admittedly, I have tried to emulate. His Author's note ends with 'It's not very factual on motorcycles either.' Just as Pirsig warns his would-be reader that he has not, despite the title of his book, written a manual about motorcycle maintenance, I am cautioning the reader, here, that this thesis is not primarily about IT management. However, with this dissertation, written in 1998, more than twenty years after Pirsig's book and in a different context, I am attempting to problematize the very factualness of 'facts', including the institutionalized factuality of IT management. Thus, when I write 'What follows is not very factual on IT management either', it is a statement charged with pragmatic ambiguity, and a warning, not only concerning what won't follow, but also concerning what will.

(For an introduction to the relativity of what is meant by fact, factual and factuality, consider the number of alternative definitions of 'fact' in Lacey 1996. For recent and on-going discourse concerning the social construction of scientific facts, see for instance Fleck 1997 (orig. 1935), Latour and Woolgar 1986.)

Prologue

¹ This is, I discovered after writing it, a slight paraphrasing of Schön, who uses the term reflection-in-action (Schön 1983 pp.59-69, and see also section 6.1.2 of this thesis). I rather like the underscoring of interconstitutive connectivity, or even fusion, with the on-going activity which 'reflecting' – like 'knowing' – seems to imply, so I'll keep to my phrasing of what I take to be, basically, the same concept.

Acknowledgments

¹ It would be easy to back off such a well-established concept all together, or say I was using it metaphorically. I am not. I am using it provocatively, suggesting that *the art* of IT management might be understood as, ultimately, the skillful managing of everyday problems, issues and possibilities concerning people, computers and work. If we are chronically unable to envision and realize the potentials of IT in everyday work life, of what use are long-term IT strategies, those artifacts perhaps most commonly associated with the term IT management?

² In Swedish called 'Samarbetets vänner', a network for sharing findings and experiences from research on work-related cooperation.

³ SCORE – Stockholm Center for Organizational Research, gave a series of seminars during the fall of 1994 and the spring of 1995 about professions, organizations and work activities in times of change, in which Bo Helgeson and I participated.

⁴ GaDIA (Government and Democracy in the Information Age) is a network for communication and cooperation between researchers from five different EC countries who are doing research within public administration involving issues of democracy and IT. GaDIA was initiated in the autumn of 1996 and is currently being funded by ECPR (European Council of Political Research) and the COST program.

⁵ The ATTACH project started in January 1996 and will finish in December 1998. It is part funded by the Telematics framework 4 program under EC DGXIII. The aim of the project is to develop and deploy interactive multimedia information systems, and integrate static and interactive services from a variety of sources, to provide an information resource with advanced, user friendly navigation techniques in publicly available kiosks and computer terminal systems. At the Ronneby site, the cooperating partners in the ATTACH project are the municipality of Ronneby, the University of Karlskrona/Ronneby and Ericsson Software Technology. The main other European partners are the Metropolitan Police Service, Olivetti and the Borough of Newham in London, the Aristotle University of Thessaloniki, TRD and Kalamaria in Thessaloniki, Roosendaal in the Netherlands, the County of Marseille and the Scottish Highland Police.

⁶Formerly the Swedish Work Environment Fund.

⁷ This involved the entire class of MDA95. The students are individually listed by name in the appendix, along with the titles of their reports.

⁸ See section 5.2.2 of this thesis.

Introduction

¹ Zuboff 1985.

² The research project *Working at the Front – skill, cooperation and computer support in public service one-stop shops* originated in preliminary studies carried out in 1992-93. It was financed by the Swedish Council for Work Life Research during a period of three years (project number 94-0349), and ended in June 1997. Bo Helgeson headed the project. Kajsa Cadwell Brimdyr and a number of students on the educational MDA program were involved with parts of the fieldwork.

³ To be specific, here, I have deliberately imitated the wording and style of his title, subtitle and author's note. Above all, however, I have taken heart from, and been inspired by, his challenging of traditional boundaries between

reflecting and practical reasoning about problems and experiences of everyday life on one hand and philosophical discourse on the other.

⁴ As Pelle Ehn puts it, in the 'moral-of-the-story' of *Work-Oriented Design of Computer Artifacts*, style is important, but what really matters is sincerity. The irony is, that to criticize reason and style, we have to reason within a style (Ehn 1988, p. 479). Ehn is referring, here, to work-oriented design of computer artifacts, while I am – characteristically – stretching it by spontaneous association to include, for instance, the design of this dissertation. I have tried, sincerely, to find a style within which I can reason as a visible, individual, subjective, reflective person – who is also part of an active, sharing, learning research community.

⁵ *Inverted* – or *intrinsic* – *indexicality* is a working concept of my own. I have coined it in an attempt to relate ideas about individual conceptualizing, sense-making and intentionality in work practice – roughly what I understand Maja Lisa Perby and others working in the research field of Skill and Technology to be focusing on through the metaphor of *the inner picture*, (see for instance Perby 1988, 1991, 1995, and chapters 2 and 5 of this dissertation) – to more interaction-oriented ideas about constructivism, communities of learning and the social construction of meaning, as presented by, for instance, Lave and Wenger 1991. The concept of inverted indexicality, albeit still fuzzy, is discussed further in chapter 5.

1. Why look at one-stop shops?

¹The Ministry of Public Administration, from July 1996 reorganized as the Ministry of the Interior.

² Such is the case in Botkyrka, for example, a densely populated suburb of Stockholm, where the first one-stop shop in Sweden, at that time called a 'service cottage', was opened in 1987. Botkyrka now has five one-stop shops, located in Alby, Fittja and Norsborg in the north and Tumba and Tullinge in the south, each catering to the specific needs of the citizens in their own area.

³ This may be inferred, for example, from the space given discussions about modern technology as a support for front office work in the publications from the Ministry of the Interior, as well as from centrally funded research and development projects such as the SAMIT project, (IT support for public co-ordinated services), which was funded by NUTEK:s ITYP program 1994-1995.

NUTEK, Närings- och teknikutvecklingsverket, is the Swedish National Board for Industrial and Technical Development. It is one of the main sponsors of joint research and development projects between universities and the

industrial and service providing sectors in the country. At present Sweden is also involved in several EC-funded Research and Development projects within the Telematics program which concern public electronic information systems. The city of Stockholm is involved in the INFOSOND project, for example, and Ronneby municipality and the University of Karlskrona/Ronneby are partners in the ATTACH project.

⁴ See for instance Westby 1997, and the article 'Är kommunerna bra på websidor?' ('Are the municipalities good at making and taking care of web pages?') in *Computer Sweden* number 39, 1997.

⁵ See for example the current development in Stockholm, where the city intranet to a large extent is being introduced and developed via a growing network of one-stop shops. In July 1998 there are one or more one-stop shops in 22 of the 24 different city districts, and the two remaining districts, Farsta and Östermalm, will be opening their first one-stop shops in August this year.

⁶ See Zuboff 1988 on automate/informate. She writes; '[...] information technology is characterized by a fundamental duality that has not yet been fully appreciated. On the one hand, the technology can be applied to automating operations according to a logic that hardly differs from that of the nineteenth-century machine system – replacing the human body with a technology that enables the same processes to be performed with more continuity and control. On the other, the same technology simultaneously generates information about the underlying productive and administrative processes through which an organization accomplishes its work. It provides a deeper level of transparency to activities that had been either partially or completely opaque. In this way information technology supersedes the traditional logic of automation. The word that I have coined to describe this unique capacity is *informate*. Activities, events, and objects are translated into and made visible by information when a technology *informs* as well as *automates*.' Zuboff 1988, pp. 9-10.

⁷ For the sake of consistency, I have chosen to use the term generalist throughout this thesis. That was the accepted term for the profession during the years we worked with our research project *Working at the Front*. However, at their annual conference in September 1997, the national Generalists' Association decided to change their name, and to recommend their members to work towards changing the name of the profession, to 'Samhällsvägledare', which might be translated as Community Guides. The main reason for this decision was that the concept of 'generalist' was considered vague and misleading, as it was already in use in so many different contexts (banks, health care etc.).

⁸ See for example Bostedt 1993, Bostedt and Rutqvist 1995, Gastor 1991, Gastor and Rutqvist 1998, Haveri 1998, Klee-Kruse and Lenk 1995.

⁹ See for example Hjern 1991, Bostedt 1993.

¹⁰ In Denmark, as in Sweden, there are several different names for public service one-stop shops, none of which are very exactly defined as to what they do or don't include in the way of services. The most common name in Denmark seems to be "kvikskranke", which is a term used in supermarkets for quick cash-desks. Other examples are, in English translation, information shop, service shop, service center.

¹¹ There have, however, been economic evaluations made. For a summary of these, see Civildepartementet 1993d, pp. 42-44.

¹² Hjern & Hjern 1991, Bostedt 1993.

¹³ Det kommunale Efteruddannelsesudvalg 1992. *Det kommunale Efteruddannelsesudvalg* is an interest group for cooperation in providing continued education for Danish municipal and county employees. It was founded in 1998 and consists of representatives for employees' and employers' associations for municipalities and counties.

¹⁴ See Eriksén 1992.

¹⁵ See for instance Covey 1990, Senge 1990, Gaster 1991, Ciborra 1993.

¹⁶ See for instance Floyd 1987, Floyd et al. 1989, Forsgren 1988, Friis 1991.

¹⁷ Although I didn't set out with the idea of studying IT management *per se*, and thus didn't recognize this aspect until I was well into my research work and trying to interpret what I saw, these three themes are of course all three issues having to do with IT management.

¹⁸ My translation from Swedish, where the original wording is as follows: 'Regeringens och riksdagens övergripande beslut ger ramarna och förutsättningarna. Framgången i förnyelsearbetet avgörs ytterst i den dagliga verksamheten runt om på alla arbetsplatser i stat, landsting och kommuner.' See Civil-departementet, *Förvaltning i förnyelse – mot en ny förvaltningspolitik* (Renewal of the administration – towards a new administrative policy) 1987, p. 45.

¹⁹ The term 'articulation work' had been used earlier than this. In 1985 Anselm Strauss published an article called The Articulation of Project Work: An Organizational Process in *The Sociological Quarterly*, volume 26, no. 1, pp. 1-19, a reference which I found in Schmidt and Simone 1996, but haven't myself followed up.

²⁰ Gerson and Star 1986, pp. 257-258. In their paper, Gerson and Star present a strong case for the need to consider articulation work when designing

office information systems. Their paper is the earliest publication in which I have come across the term ‘articulation work’. The idea of local negotiations as the basis for construction of meaning and meaningful action is not new, however. It is, after all, as I see it, at the very heart of democracy. See chapters 4 and 5 in the following, where I have attempted to trace it, in a sketchy, hopscotch manner, back beyond, for example, popularized management literature, open systems thinking, Wittgenstein, G.H. Mead, American pragmatism and Hegel to Aristotle’s practical syllogisms (where I see it as an internalized – to use a modern concept, which may not have had any practical relevance in Aristotle’s days, when teleology was part of the accepted world view – but mutually constitutive negotiation between one’s world view and values and choices of action in particular situations). – Still, I like the term ‘articulation work’. It has a nice constructive ring to it. See also the discussion of differing concepts of what formalization is actually about and involves in chapter 2.

²¹ Concerning the shiftiness of both flowing waters and seemingly solid shorelines, i.e. the complexities of various on-going changes and inter-mingling of a diversity of ideas, ideals, sources of inspiration etc. in organizations and in society at any one time as well as over time, see, for instance, Ciborra 1997, Ehn 1995, Gerson and Star 1986, Sahlin-Andersson 1998. Or listen to a political debate.

²² Ahne [ed.] 1998.

²³ Ibid., chapter 4, by Furusten and Lerdell about the managerialization of public administration, pp. 99-122.

²⁴ OECD, Organization for Economic Co-operation and Development, is an international organization which was founded in 1961 by 20 western industrial countries as a follow-up of OEEC, the Organization for European Economic Co-operation, which was founded in 1948 to administrate the Marshall plan.

²⁵ According to OECD, ‘*public management* encompasses the broad range of techniques and strategies that are used to carry out the responsibilities to governments. It includes, but goes beyond, the structure and administration of the public service. In contrast, “public administration” refers to the techniques by which government policies are carried out.’ See Furusten & Lerdell 1998 p. 102. I have not used this distinction in my thesis, except here where the OECD terminology is quoted. Normally, I have used the term ‘public administration’ meaning both the organizational structure and the people working within it, as well as the techniques they are using to administrate public service.

²⁶ The design of politics may, however, be as complex as the politics of design (and no less so as there are bound to be complex interdependencies

between the two), once you begin to look carefully at implementation processes and everyday work practice. (My reflection.)

²⁷ Brunsson, Jacobson et al. 1998.

²⁸ Ibid., chapter 2, written by Furusten on knowledge and standard, pp. 33-52.

²⁹ 'When ideas travel around the world. Research about public administration in times of change' ('När idéer reser över världen. Forskning om offentlig förvaltning i förändring') was the name of a seminar arranged by SCORE in Stockholm in June 1998, where the research publications cited here were presented. The main purpose of the seminar, according to the program, was to promote and enhance the dialog between researchers and practitioners – an attempt, that is, to breach the gap which Furusten and others have pointed to in their research reports.

³⁰ References given by Furusten here include Cohen, M., J. March and J. Olsen 1972, A Garbage Can Model of Organizational Choice, in *Administrative Science Quarterly* 1, pp. 1-25, and Brunsson, Nils 1985, *The Irrational Organization: Irrationality as a Basis for Organizational Action and Change*, Chichester: John Wiley and Sons. I have not read them myself, but include them here for readers who wish to pursue the issue further.

³¹ Furusten gives as references here the following; Carlson, S. 1951/1991, *Executive Behavior*. Reprinted with contributions by Henry Mintzberg and Rosemary Stewart. Acta Universitatis Upsaliensis. Studie Oeconomiae Negotiorum 32. Stockholm: Almqvist & Wiksell International, Lindblom, C. 1958, The Science of Muddling Through, *Public Administration Review*, vol. 19, pp. 79-88, March, J.G. and H. Simon 1958, *Organizations*. New York: John Wiley & Sons, and Mintzberg, H. 1973, *The Nature of Managerial Work*. New York: Harper & Row.

³² Here the reference given by Furusten is Håkansson, H. 1987, *Industrial Technological Development: A Network Approach*. London: CromHelm.

³³ Actually, Furusten doesn't word it quite like that. I've borrowed the expression from Goffman 1959, who writes about people, rather than organizations, and the presentation of everyday self. In this specific case, I think the borrowed metaphor comes close to what Furusten is writing about.

³⁴ Here, again, I can't help associating Furusten's reasoning about organizations and their need to 'look good' to Goffman's reasoning about individuals and the presentation of self in everyday life. As individuals, too, we are surrounded by a discourse dominated by ideals, yet we live our lives, and strive to survive, in the chaos of everyday life.

³⁵ See for instance Dahlbom & Mathiassen 1993, Dahlbom and Janlert 1995.

'Tinker' is a translation of the expression *bricoleur*, from *bricolage*, a term originally introduced as a way of interpreting certain patterns of social interaction by the French anthropologist Claude Lévi-Strauss.

³⁶ See for instance Christiansen 1996a, Ciborra 1997.

³⁷ See Drucker 1977, p. 76.

³⁸ My translation. See Folkesson 1976, p. 44.

³⁹ In Ahrne [ed.] 1998, chapter 6, Kerstin Sahlin-Andersson about managing mixed principles, pp. 157-177.

⁴⁰ Lucy Suchman 1987.

⁴¹ See for example Hjern & Hjern 1991, and Steel 1996. Steel writes that one of the major issues the city of Seattle, USA, had to deal with when 'going on-line' with PAN, their Public Access Network, was interdepartmental cooperation, and what was described as 'Turf Wars' – what Steel refers to as part of information politics. See Steel 1996 pp. 22-23.

⁴² See for instance Göranson 1993, about how forestry evaluation work was changed by the reorganization of work in connection with the introduction of new technology. What was considered routine calculation work was partly automated and moved from the specialist's desk to the administrative clerk's desk, a change which the specialists felt resulted in a double loss of quality in their work. On the one hand, the administrative clerks lacked the feeling for the values they were calculating, and could not easily detect and correct what for the specialists were 'obvious' mistakes. On the other hand, the specialists reported a feeling of loss of richness in the evaluation work, in which the 'routine' calculations had apparently been a more integrated part of their knowing in action than anyone had realized before the work was reorganized.

⁴³ Any parent who has had to do with a small child around bed-time, for instance, will know how fundamental this question is as a way of challenging the factuality of that which *is*, and trying to reason about if what *appears to be* for one person is actually relevant for what *is* for another. (Any parent who has had to do with two or more small children around bedtime will know something about what a situated, shared understanding of what *is* and what *isn't* can do for community spirit, even where interests are normally diverse and often at conflict within a group.)

2. How did we go about it?

¹ Although I call it a wild card, the idea of keeping the figure very simple could also, to some extent, be compared to the story about the man who could make something from nothing, which he proceeded to prove – at least in the Swedish version of the story – by cooking a wonderful soup using just one nail. He got his audience so involved in what he was doing that they each and every one brought the best ingredients they had to contribute to the magical soup. In my case, though, when I have presented such a figure of thought, I have felt as though I'm one of the audience, bringing what I can to the process and eager to see what will come out of it this time. I have found that data-modeling with future users can work like this in certain phases, too. It can be a very creative and exciting experience.

² In Swedish *Administrativ Teknik*, a two term course held by the department of Political Science at the Lund University. See Axelsson, Eriksén and Hjort 1986.

³ Although the term computer-based information system is more commonly used, the information systems I've worked with have always been people-based, and, at best, computer-supported. My choice of words here is deliberate and says more about the way I've worked with and conceived of information systems than about the specific design of the computer software and hardware and databases I've worked with. One method I've used to express this attitude towards people, technology and information systems over the years has been to put figures of people in almost all the illustrations I use. Even if they are just drawn with a few simple lines, I strive to give them an individual attribute such as curly hair or glasses, to show that some specific person is involved here and needs to be taken into account. This started as a protest against all the overhead slides of totally unpopulated network solutions I saw presented, where I knew from experience, and from my own involvement with the systems being described, that all those end nodes symbolized by neat little square symbols for personal computers were actually where people came in to the picture and, more often than not, made things work.

⁴ In chapter 6, I have written more about 'how we actually did go about it', including some reflections on how my own perspective gradually shifted. There, also, I have sketched some of the figures of thought I have used for my own reflective purposes during the later part of the research project, for thinking about research perspectives and approaches. Figuratively speaking, what seemed to happen was, that the observing eye in the margin of the original figure of thought, as it moved closer and closer to study everyday work practice, got drawn into the middle of the picture, and became part of the object of study.

⁵ I use the term 'phenomenological' here meaning, roughly speaking, descriptive rather than explanatory. At this stage, I am not problematizing the *how* and *what* of it, i.e. *how* things are described, or *what, precisely, about them*, you are trying to describe. I am not, here, discussing whether you can get closer to the essence of the things you are studying – whatever you propose to mean by that – by bracketing that which is concrete and specific in the studied situation and staying largely outside the brackets (according, as I understand it, to the later phenomenological philosophy of Husserl, which I admittedly haven't read first-hand). Or whether, as I personally believe, moving around as an embodied subject inside the would-be brackets is a human sort of way of getting as close as you can to where what I hold to be the essence of the living world I live in *is*. Issues touching on these questions are brought up, to some extent, in the last few chapters in this thesis.

⁶ George von Wright speaks of *methodological monism*, or the idea of the unity of scientific method amidst the diversity of subject matter of scientific investigation, as one of the tenets of positivism. He in turn cites Comte 1830 in this matter. I have interpreted von Wright as referring to a combination of choice of method and choice of approach – choices which I understand to be partly interdependent. See Wright 1971 p. 4 and notes. In what ways these choices may affect the researcher's possibilities of establishing some kind of intersubjective objectivity through shifting between different perspectives is touched upon again in coming chapters, from chapter 4 onwards.

⁷ For a comprehensive comparative study of several of the approaches mentioned in the following, see for instance Nardi 1992.

⁸ I don't mean, by this, to imply that choosing one approach and being consistent about it necessarily enforces deductive reasoning. Nor am I convinced that using more than one approach and mixing methods will always stimulate inductive reasoning. (The resulting chaos may simply be overwhelming rather than creative.) Basically, I think inductive and deductive reasoning should go hand in hand. What I'm concerned about is, that a narrow selection of methods, if rigorously applied, may shape the individual case to the general form of the chosen approach more than is commonly recognized. And that looks more like deduction than induction to me.

⁹ See for instance Elden 1981, Ehn 1988.

¹⁰ Strauss and Corbin 1990, Ely et al. 1993.

¹¹ Jordan and Henderson 1994.

¹² Interaction Analysis has become an important method for studies of human-computer interaction (HCI), computer-supported cooperative work (CSCW) and work practice. Although the focus is on interaction, the inter-

disciplinary domain of interaction analysis is very broad. The method is used by sociologists, conversation analysts, anthropologists and ethnomethodologists. Just *how* interaction is focused when using this method varies greatly.

¹³ Suchman 1987, Jordan and Henderson 1994.

¹⁴ These being, mainly, that I tend, now and again, to forget about the need for distinction and mix the two forms, which doesn't look good.

¹⁵ Blomberg 1993.

¹⁶ Jordan and Henderson 1994, p. 2.

¹⁷ Lave and Wenger 1991. The book was published in the same series as Lucy Suchmans book, the series *Learning in Doing: Social, Cognitive, and Computational Perspectives*, with Roy Pea and John Seely Brown as general editors.

¹⁸ See for example Suchman 1998. The concept of shared workspaces has evolved and gained wide-spread attention mainly thanks to a growing interest in the interdisciplinary field of Computer Supported Co-operative Work (CSCW). Many of the computer applications developed and presented within CSCW are built around the concept of shared virtual workspaces.

¹⁹ See for instance Bruner 1990, p. 4, who writes about how the original impulse of the cognitive revolution during the last quarter century has become fractionated and technicalized, shifting the emphasis, early on, from 'meaning' to 'information', from the *construction* of meaning to the *processing* of information. These, as Bruner points out, are profoundly different matters. I myself was caught up in the information processing way of thinking about computer support for front office work when I started on my research project. See chapter 6 about gradually shifting perspectives.

²⁰ See for example Ehn 1988.

²¹ Now the Swedish Council for Work Life Research.

²² See Perby 1988, Perby 1990, Perby 1991.

²³ See Schön 1983, Schön 1987.

²⁴ See for instance Greenbaum 1995.

²⁵ Compare the discussion about shifting boundaries and changes in division of work, with the Danish service sector as an example, chapter 1.

²⁶ Suchman 1987 p. 57.

²⁷ Göransson 1993 p. vi (in Foreword).

²⁸ See chapter 3, section 3.2.

²⁹ Polanyi 1965.

³⁰ This point was made by Kjell S. Johannessen in a lecture at the Summer School in Skill and Technology in August 1995.

³¹ Ibid. See also Molander 1992, p. 10, who refers to the second edition of Kuhn, printed 1970. The note by Kuhn which appears to have changed the notion is note 1 on page 44, Kuhn 1996 (my edition, the third – the original edition was published in 1962, and the note actually refers to Polanyi's book *Personal Knowledge*, 1958). Interestingly, in his postscript in the third edition, Kuhn actually in one paragraph uses the more active form in such a way that it emphasizes the 'doing' rather than 'having' dimension, in what looks like a deliberate way, although he doesn't make a point of the difference in conjugation or reflect on it: 'When I speak of knowledge embedded in shared exemplars, I am not referring to a mode of knowing that is less systematic or less analyzable than knowledge embedded in rules, laws, or criteria of identification. Instead I have in mind a manner of knowing which is misconstrued if reconstructed in terms of rules that are first abstracted from exemplars and thereafter function in their stead.' Kuhn 1996, p. 192. To which citation I can only, from my point of view, say 'Sic! A neat example of an exemplar.'

³² The brief presentation of Developmental Work Research given here is based mainly on Engeström's article from 1991, which is one of the most comprehensive descriptions of this research approach I have come across.

³³ 'Action research', i.e. research aiming not only to describe but to change the studied behavior, is a term which was first minted by the German social psychologist Kurt Lewin. I learned most about it not through any one definition of the term but by reading a number of inspiring contributions giving different researchers' own experiences from this type of self-involving research in Reason & Rowan 1981.

³⁴ During the five years I worked as a consultant with Kommundata, a large Swedish software-developing firm which specialized in computer support for municipalities, all the projects I worked with were explicitly organized with the view of involving future users in certain phases of systems development. The methods used were called SVEA and had been developed and published by two consultants who had attended lectures held at Kommundata by Siv Friis about the PROTEVS method. See Friis 1991, Axelsson and Ortman 1985. All Kommundata consultants who worked with systems development were expected to attend courses in how to use SVEA methods to ensure active user involvement in participatory design of new systems. Before I moved from Lund in 1989, I was also briefly involved in a large research project concerning forms for shared responsibility and participation in continual systems development, the AMIS project. See Agnér Sigbo 1993.

³⁵ The concept of multi-voicedness in the developmental research approach is similar, but not identical, to the concept of dialogue as used in the Skill and Technology approach. As I understand it, dialogue in the latter is used as a

tool for reflection and is therefore often constructed, rather like a dialectic mono-logue (compare Pirsig 1976), whereas multi-voicedness is more chaotic and polyphonic, as a concept born out of a constructivist world view. Concerning multi-voicedness, see Bakhtin 1984, which is where I first found this name for something I already seemed to know. Or try reading Selma Lagerlöf's novel *Jerusalem*.

³⁶ MDA stands for *Människor, Datateknik, Arbetsliv – People, Computers and Work*. When the name of the program was first translated into English, we had to fight for the People. We were told that Humans, or Human Work Science, or something like that, would carry more weight, and that 'people' quite simply was (=were?) not acceptable in the academic community. However, it was precisely more people we wanted to bring into the picture. So we stood our ground. And we're still bent on showing why we think the point made is important.

³⁷ The university of Karlskrona/Ronneby was founded in 1989. The MDA program started in 1993, and the first students to graduate from the four year educational program earned their masters' degrees in June 1997.

³⁸ In Swedish 'forskande lärande'.

³⁹ This way of working has been inspired by among others Lave and Wenger's work on situated learning and the concept of legitimate peripheral participation, see Lave and Wenger 1991. See also Helgeson et al. 1995.

⁴⁰ See Stolterman 1998, who has quoted this from Larsson, Hans, 1892, *Intuition – några ord om diktning och vetenskap* (Intuition – a few words about poems and science), Stockholm: Bonniers, p. 67. My translation.

3. What did we see?

¹ I am grateful for the permission I have been granted by those involved in all three of my case studies to use the actual names of the municipalities and projects in my thesis. In all detailed recounting of interviews or dialogues from the case studies, I have used fictive personal names. This was a choice I made, not because of any specific inflammable issues at stake, but because I felt it was difficult for me, as an outside observer, to foresee how these dialogues, lifted out of their everyday context and published in a doctoral dissertation months or years after they had taken place and been recorded by me, might be read and interpreted by the people involved. (Those who were actually there will probably know who said what, but they will also remember the context in which it was said and was made accountable.)

² The Arjeplog group and its functions are presented in the following pages.

³ The county of Norrbotten covers 25% of Sweden's area yet contains barely 3% of the total population. Arjeplog, stretching over an area approximately

the size of Northern Ireland, has a population of less than four thousand. Pajala, roughly half as large on the map, has twice the population, i.e. approximately eight thousand inhabitants (according to the national statistics from 1994).

⁴ This is a brief summary of notes taken during the initial presentation we were given by representatives of the county administration of Norrbotten, and from subsequent interviews with members of the Arjeplog group and the manager of the local public employment office in Arjeplog. What was presented was the official picture of the conditions in the region. This might be understood as one product of the continually on-going articulation work of the authorities, if articulation, in this case, is seen as 'giving clear and effective utterance to', 'forming or fitting into a systematic whole' (Webster's dictionary), i.e. making one's work accountable by putting words and shape to it in a political and administrative discourse. (Compare the discussion about articulation work in section 1.3.1). This work is important, not least of all for the governmental funding of projects offering new job opportunities in the region.

⁵ During 1993 MISO OMNIA changed ownership and soon afterwards disappeared from the scene.

⁶ The source of the information printed in this paragraph about goals for the local MISO project is the written application for funding which Pajala municipality sent to the Working Life Fund (dated October 7th 1991). The specific formulation of goals concerning work content and work environment, though not unusual, should be seen in this context.

⁷ In the spring of 1993, shortly after moving into the renovated offices, there were three people working at Pajala Partner, four people working at the county administration office and twelve people working for the crown forest service. Seven of these twelve were forestry foremen and, except during the coldest period of the winter, did not spend many of their working days at the office in central Pajala.

⁸ This issue, of what planning is, and what situated action is to planning and vice versa, is treated in more depth in chapters 5 and 6.

⁹ The project committee decided, at a meeting a year later, that this was an unfortunate wording which ought to be reformulated.

¹⁰ Locally, this does not, of course, guarantee anonymity to the people involved, for Arjeplog is a small community, where 'everyone knows everyone'. Nor was it a condition imposed in the case study. Rather, it is a choice made on my part, to indicate and acknowledge that the situations I describe here, although used to give a feeling of the actual context I was studying, still are altered by being described and used outside of that very context. See note 1.

¹¹ See Geertz 1993, p. 167.

¹² Ibid. p. 215.

¹³ These questions, as we voiced them at the time, say as much about our expectations about what we would see as they do about what we actually saw or didn't see. As I interpret it now, we were looking for very concrete manifestations of very profound concepts. During the later phases of the research project *Working at the Front*, after spending hours and hours doing interaction analysis of front office work in Sölvesborg, I came to understand the concepts of cooperation, skill and computer support in front office work differently.

¹⁴ Compare previous note. At this stage, we were intently straining our eyes to catch sight of 'shared work tasks', and still largely unaware of 'shared concept-building' as an issue for our research. Notice the gradual shifting of perspective as described in the next chapters (chapters 4 through 6). This doesn't mean that our observations weren't relevant — witness for instance what is said the following paragraph — but it does indicate that a deepening understanding can develop over time which gives new insights concerning old observations. (It's called learning).

¹⁵ Mainly MicroSoft Word, Excel and an e-mail application.

¹⁶ See for instance Ehn 1988, Ehn 1993.

¹⁷ See for instance Kensing & Halskov Madsen 1991. A special thanks to Siv Friis from the Department of Informatics in Lund, who introduced me to this type of workshop by arranging the first one — much appreciated — for the students in Ronneby.

¹⁸ Kensing & Halskov Madsen 1991.

¹⁹ See Perby 1995. Maja-Lisa Perby has added yet another dimension to some of her workshops by inviting participants from different professions to discuss, compare and reflect on their work practices and working concepts of skill and technology. I had the opportunity to participate in one of these workshops in the autumn of 1994, reflecting on concepts of the concrete and the abstract in everyday work in respectively systems design, meteorology, midwifery and the operating of chemical processes in large paper mills. The wide span of represented professions in this case seemed to encourage associative and imaginative discussions in ways rather similar to the effect of deliberately using metaphors in future workshops (see Perby 1995, p. 203).

²⁰ It also just happened that the conference room we used for the workshop had a large map of Sweden hanging in the hallway outside the door, which we could use during the first coffee-break for everyone to place each other on the map — a visualizing ritual accompanied by anecdotes which I, at least, found helpful as part of understanding their various wider contexts.

²¹ The opinion among the workshop participants, two of whom were members of the board of the national Generalists' Association and thus had met people from most of the one-stop shops in Sweden, was that this might roughly correspond to the proportion of women to men who are working as generalists in one-stop shops throughout the country.

²² With students, too, I have found this approach useful to spark a more embodied and personal involvement in systems development projects based on work place studies and prototyping together with users. Getting students to think and communicate in terms of floor plans and work spaces of a studied work place, as an alternative to information or work flow charts, helps to conceptually locate what they are talking about in actual everyday life, in intersubjectively experienced and shared space and time.

²³ Although all the participants agreed on the importance of informal contacts and information gathered in the early stages of the municipal administrative process, we did not discuss in detail what different types of information they were referring to. This may conceivably vary between different one-stop shops, depending on services offered, what citizens ask for and how aware the generalists are of what information is actually accessible and to what practical use it can be put. From the aspect of enhancing local democracy — one of the goals often mentioned in connection with establishing one-stop shops — this is certainly an area worth studying more closely. For the designing of useful computer support it is of course also of significance.

²⁴ See Blomberg 1993 pp. 125.

²⁵ Ibid.

²⁶ Perby 1995 pp. 209.

²⁷ Blomberg 1993 pp. 125.

²⁸ Orr 1996.

²⁹ Concerning talk in the work place and the collaborative construction of meaningful order, as described in more formalized conversation analysis terminology, see for instance Brun-Cottan 1991.

³⁰ Schön 1983, p.295.

³¹ Suchman 1987, p.19

³² Management consultant and director of the Systems Thinking and Organizational Learning Program at the Sloan School of Management, Massachusetts Institute of Technology.

³³ Senge 1990, pp. 233-69.

³⁴ About inverted – or intrinsic – indexicality, see footnote 5 of Introduction, and chapter 5.

³⁵ Sölvesborg has approximately 16,500 inhabitants (1995) within an area covering roughly 180 km². Around 50% of the population live in the town Sölvesborg. (As is the case with most municipalities in Sweden — Arjeplog and Pajala, too — , the municipality has the same name as the biggest town that belongs to it.)

³⁶This close-up description is the view as we saw it in 1996, when most of our fieldwork in Sölvesborg took place. At this time, there was an application for the administration of keys which could only be run on a separate, stand-alone PC. Because this PC stood in the opposite office, it caused a lot of running back and forth between the two reception areas. There were, however, other reasons for all the running back and forth, too. Most of them had to do with lack of space, which made it necessary to store binders etc. in the least used office, which thus came to function as a kind of inner back office or archive for the front office. There have been changes in Sölvesborg since we were there, and working conditions as well as computer applications have been altered and developed and look somewhat different today.

³⁷ See appendix for a listing of the student reports. The titles give an idea of the span of perspectives which this way of working resulted in. Imagine the video-analysis sessions the students and I had that spring, and the discussions born out of them!

³⁸ Actually, this is a rephrasing of part of a title John Bowers used for a paper presented at CSCW'94, 'The Work to Make a Network Work – studying CSCW in Action'. (Bowers 1994). Bowers warns about the unanticipated overhead when CSCW applications are implemented in real live organizations. To me, this seems closer than might be supposed at first glance to what front office personnel are kept busy with – the invisible overhead of implemented bureaucracy... All the more reason, then, to think carefully about design issues of computer support for front office work.

³⁹Dreyfus is quoting Miller, Galanter & Pribram 1960, *Plans and the Structure of Behavior* (New York: Holt, Rinehart and Winston), p. 16. The italics have been added by Dreyfus.

⁴⁰This quotation I came across in an introduction written by Robert Sobieszek, in *One mind's eye — The Portraits and Other Photographs of Arnold Newman* 1974. My interspacing of the words. Soieszek also gives the interpretation I've included in the first two rows below the quotation.

4. What's so special about front office work practice?

¹ Here, I am using the term IT management according to the notion I have of what it should be understood as encompassing, i.e. not only high-level strategic decision-making about IT investments and design but also – and as a basic requirement – access to support for users of IT in the workplace. The statement as a whole, about the help desk work being similar to the reception desk work, is based mainly on my own work life experience. This includes more than a decade of manning a computer support help desk for several administrative departments at the firm where I was then employed, and, later, years of grateful reliance on similar services from technical support personnel as I worked in various teams developing and implementing new administrative computer applications in complex network environments. Note that this implies a more general applicability to service jobs (such as reception work, front office work, besides of course IT management) of the gardening metaphor used to illustrate efficient distribution of development, support and management of IT by Nardi 1993, and elaborated upon by Christiansen 1996. See also Nørbjerg 1994 on the importance of working with systems maintenance and user support for building and upholding knowledge of the application area among systems developers. It seems we simply have to step into the messiness of everyday life to begin to understand what *knowing* is all about.

² Cadwell 1995.

³ Here, 'routine' is used in the sense habitual or mechanical performance of an established procedure. Making something into a routine, into a habit, through purposefully repeated choices of action, is not necessarily a negative accomplishment, as will be further discussed in the next chapter. Here, however, because we are talking about the way front office work is often presented by management and by consultants, and the way it is represented in for instance the ROSA model, I wish to take a closer look at what is behind the label, mainly applied by people who are not themselves daily involved in more or less purposefully repeated choices of action in front office work, of 'routine tasks'.

⁴ What, after all, is managerial work all about? According to Peter Drucker, it's mainly about providing service for other people; 'Indeed, if there is one right way to define management it is as the work and function that enables people to perform and achieve' (Drucker 1977, p. xi, Preface).

⁵ Smith 1988 pp. 78-79. Smith gives as a reference for the parable the following note; Georg William Friedrich Hegel, *The Phenomenology of Mind*, trans. A.V. Miller, Oxford: Oxford University Press 1977 (but no page reference).

⁶ See Smith 1987, pp. 75-82. What I have written here is extracted from these pages, and consists, in parts, of very nearly direct quotations. Such is her style of writing – clear, precise and extremely well-articulated – that I found it difficult to break away from her wording. However, I did reformulate and move things around a bit. Any diffuse formulations in the passages concerning her views are therefore almost certainly of my doing, and unwittingly so. I recommend reading the entire book first-hand as the best remedy for any such points that need clearing up.

⁷ Smith 1987, pp. 80-81. In two footnotes which I have excluded in the quoted section, Smith refers to Marx and Engels, *The German Ideology*, in which, she notes, Marx and Engels formulate the premises of a ‘positive science’ as ‘the real individuals, their activity, and the material conditions of their life’ (p. 42 in an edition published in New York by International Publishers 1976). I have myself not gone back to this work by Marx and Engels – as yet.

⁸ On the contrary, Marx and the ideas and theory-building he and a number of his contemporaries worked on, debated and wrote about seem to have had a great deal of what I would call primarily philosophical, rather than political, influence on modern developments in work science, sociology and political science. I keep coming across his work indirectly, in interesting references. It is perhaps significant of the present political climate that I have resisted reading him in the original for so long. All human practices are, after all, ultimately situated in time and space, in a context.

⁹ I realize the enormous ethnocentricity of this statement. However, I’m talking here most specifically about my colleagues and myself, and very unspecifically of a general image I have of the conditions and resources of people working for instance with administration and in the service sectors in large parts of Europe and the United States.

¹⁰ I have borrowed the concept of war stories from the ethnographer Julian E. Orr, who has written about how technicians use anecdotes of practical experiences as a central part of the process of diagnosing machine problems, of making sense of and sharing knowledge about their work. See Orr 1996. Orr has worked as a technician himself – perhaps this has helped him see the importance of this type of narrative. The telling of war stories, it seems, is part of the process of continually establishing and reinforcing the meaning of what you are doing.

¹¹ The first time I heard Joan Greenbaum give a seminar, in Lund 1987, she brought up ‘jokes and humor in the office’ as an interesting area to do more analytical research on. I think she is right. Humor is a great asset in coping with the complexities of everyday life – an alternative to abstract thinking for putting a bit of distance between oneself and that which one doesn’t fully understand, or can’t fully control.

¹² On the view of scientific research work as the social construction of scientific facts, see Fleck 1997 (original edition 1935), Latour and Woolgar 1986.

¹³ CSCW is an acronym for Computer Supported Cooperative Work. This new, interdisciplinary field of research is presented, albeit summarily, in the chapter about research approaches and methods (chapter 2). For CSCW literature about interruptions, see, for example, Rouncefield et al 1994.

¹⁴ Kajsa's initial handicap in understanding the language thus turned out to be a benefit for the MDA research group. When we joined in the interaction analysis of parts the video-recordings from the reception area, the rest of us often found ourselves being distracted by the on-going conversations in the filmed situations. We got drawn into the linguistic logic like you would with the dialog of a film, filling in with our own thoughts the words and context we might be missing. Kajsa, instead, pointed out to us the meaning she made of the way the receptionists were interacting with body language. She saw more in this way than we had heard, as though tracing in action a paraphrase of Wittgenstein's 'we can know more than we can say'. (What Wittgenstein wrote was: 'If you are surprised that one can know something and not be able to say it, you are perhaps thinking of a case like the first [how many feet high Mont Blanc is]. Certainly not of one like the third [how a clarinet sounds].', see *Philosophical Investigations* §78. 'We can know more than we can say' is, I believe, an interpretation of this, which I have heard either Allan Janik or Bo Göranson use in a seminar, and as such comes so close to what I believe Wittgenstein is saying in this quote that I chose to use it here.)

¹⁵ See Lave and Wenger 1991. For a brief description, see chapter 2 on research approaches and methods.

¹⁶ Johansson, Jönsson, Kilander & Nilsson 1996. See appendix with listing of student reports from Sölvesborg.

¹⁷ Concerning articulation work, see for instance Gerson and Star 1986. The concept is discussed in chapter 1 of this thesis.

¹⁸ See Perkins 1993, who starts with the concept 'person-plus' in reference to a person using artifacts like notebooks, mental structuring processes and computer applications to keep track of and access information. Perkins elaborates on the idea, brings up collaborative processes in work teams, suggests seeing the team as a functioning cognitive unit, and therefor using the phrase 'people-plus'.

¹⁹ It's a bit like my colleagues here in Ronneby, who are working with so-called intelligent agents (and they don't mean me – they're computer scientists, deep into computerized agents and distributed parallel processing in computer networks). They are now talking about autonomous agents, with

attributes like beliefs and being reflective and introspective. I'm basically optimistic – I think maybe they'll come around pretty soon and begin to see the multi-perspectivedness of the human world, too, with all its implications for design of computer support. (Actually, the fact that we are active in a small and new univer-sity means that we have not had the opportunity to entrench ourselves in our own disciplines. People with radically different academic backgrounds and approaches, who don't see eye to eye with each other in any way, still meet at the coffee table every day and have discussions about all kinds of things. Boundary busters come from both sides, and I've heard many well-founded arguments from people I probably never would have had the opportunity to talk to at a larger university. It's a very inspiring environment.)

²⁰ This is reminiscent of Lave and Wenger's peripheral participatory learning, although they approach learning from a different framework, with other conceptual tools (Lave and Wenger 1991).

²¹ Zuboff 1985, 1988.

²² Geertz 1993, p. 233.

²³ See chapter 3.1.2 about the MISO project in Pajala. MISO is the acronym for 'Medborgare, Information, Service inom Offentlig förvaltning', which translates into 'Citizens, Information, Service within Public Administration'.

²⁴ Kommundata, which was at that time owned by the Swedish Board of Municipalities and which had developed most of the existng computer support for Swedish municipalities.

²⁵ See note about Kommundata above (24).

²⁶ A new, extended version of this system, with an interface developed to work also for electronic public service, has since been implemented in Sölvesborg. We hope to be able to study it in use in our next research project, which concerns the integration of the development of computer support for one-stop shops and electronic public information systems.

²⁷ We did our main field studies in Sölvesborg in March 1996. Since then, they have started using groupware and are now using the computers to communicate and share current information within the organization in a much more deliberate way than previously.

²⁸ I realize that this is the lion speaking, i. e. I wasn't surprised, although the younger MDA students, who hadn't been out doing office work or developing municipal computer support in a previous worklife, were.

²⁹ See for instance Henderson and Kyng 1991, Sumner & Stoltze 1995.

³⁰ See Hjern and Hjern 1991. The problems which lead to the closing down of the Härnösand one-stop shop appear to have been partly of a political nature.

³¹ The concept of profession, as in professional and professionalism, is used in most places in this thesis in roughly what I believe professor Thomas Brante classifies as the naivistic definition, i.e. referring to competence and knowledge developed within a specific area, acknowledgement, ethics, the feeling of belonging to a group etc. (I am in debt to the sociologist Lennart Svensson from Gothenburg University for this definition, and for providing me with a beginner's grasp of the multitude of different definitions in use among professionals in this scientific field). There is an ambivalence, here, however, because in boundary discussions the definition of the concept profession tends to be used for boundary-defending purposes – *we* are professionals, *they* are not. In this case, issues concerning what is deemed as necessary formal education for a certain profession, legitimacy as an established profession etc., are emphasized. During our research project, I have begun to see the discourse about professions, deprofessionalization etc. as closely linked to an issue, which I am bringing up in this thesis, about whether you are acknowledged the right to your own mind – to intentionality – or not, in your work. Where losing your mind is not at stake, perhaps the boundaries don't need to be defended as aggressively. Using Hegel's metaphor again, it's about whether you are encouraged to be your own master or treated like a servant. More about that in the next chapter.

³² See for instance Ehn 1988, Ehn 1993, Ehn 1995.

5. What does all this have to do with design?

¹ Wittgenstein wrestles chest-to-chest with this relationship, it seems to me, throughout *Philosophical Investigations*. It is also central to what I understand to be a constructivist view of the world. So, for instance, Lave and Wenger, in *Situated Learning*, see agent, activity and world as mutually constitutive: 'Until recently, the notion of a concept was viewed as something for which clarity, precision, simplicity and maximum definition seemed commendable. We have tried, in reflective consonance with our theoretical perspective, to reconceive it in interconnected, relational terms.' (Lave and Wenger 1991, p. 121).

² Wittgenstein, *Philosophical Investigations*, no. 199, p. 81e.

³ Notice, already here, the dilemma of trying to redefine a concept and break free from the traditional way of using it, while at the same time basing the argument on the idea that use defines meaning. For a rule in the traditional, most common sense of the word *is*, according to this same argument, part of the solid, precisely defined foundation upon which a practice rests – in the world view to which it is connected through use.

⁴ Wittgenstein, *Philosophical Investigations*, no. 201, no. 202, p. 81e.

⁵ See also Göranson 1992, p. 80-81., and Johannessen 1992.

⁶ Here, I am referring to what may be characterized as part of a mechanistic view of the world, exemplified for instance in the quote I have used in the last part of chapter 3; 'Any *complete description of behavior* should be adequate to serve *as a set of instructions*, that is, it should have the characteristics of a plan that could guide the action described.' (Quote of a quote from Miller et al, in Dreyfus 1992. p. 174). However, when I use the rather sweeping term 'main-stream view', I am also referring to strong currents in the wild rapids beyond the academic world, and in this case in particular to much of the modern management discourse, of which I have tried to give a sketchy outline in the second part of chapter 1.

⁷ 'Just plain following instructions' has of course been problematized on the same grounds, and as part of the same seemingly paradigm-shifting process, as has the traditional concept of rule-following, see for instance Pirsig 1974, Suchman 1987.

⁸ This is a quotation I happened to come across in the Redstone Diary of the Absurd, Gooding and Rothstein 1997. It is attributed to N F Simpson, with the scanty reference *text*, 1959.

⁹ Our discussions were carried out in Swedish, or, actually, in a combination of Norwegian and Swedish. Long after I had incorporated *concept-building* as a fundamental expression in my thinking about and understanding Wittgenstein, I returned to Kjell S. Johannessen's article on rule-following (Johannessen 1992), and realized that he actually uses the English expression *concept formulation*, which is a basic concept in constructivist reasoning and, of course, the 'correct' way of putting it. I have chosen to keep using my first, spontaneous translation concept-building, for its very roughness, but also for the analogy it offers beyond pure language-use: building, construction, constructivism (and, somewhere in there, questions of design). Work, surely, which invites a cooperative approach. Of course, whether good reasons or not, these arguments are after-constructs. I've kept on using concept-building because it works well for me and I've grown accustomed to it. This, as well as the fact that it is so hard to rethink the concept of rule-following, seems to prove Wittgenstien's point about concepts gaining their meaning through use. The power of language – no, of understanding – comes from the fusion, through use, of a concept to an inner picture.

¹⁰ Perby 1990, Perby 1991.

¹¹ Wittgenstein, *Philosophical Investigations*, no. 199.

¹² This is symptomatic, somehow, of how I see *knowing* versus *Knowledge*. In trying to take in and dish out someone else's *Knowledge*, you end up loosing sight of the landscape because of all the signposts. But if you let yourself be side-tracked to the footnotes, you often catch sight of a different landscape, sketched by a knowing hand. It surfaces there, in the half-shadows, intuitive,

associative and speculative, pointing on to less well-known and unmarked trails full of luring dangers and enchantment – intrinsic indexicality shimmering in the air. These are, it seems to me, the paths that women have always walked to fetch water. (Wittgenstein, of course, is all footnotes.)

¹³ See Aristotle, *The Nichomachean Ethics*, book VII, also, referring to this, Ehn 1988 and Johannessen 1992.

¹⁴ See Wright 1971.

¹⁵ Wright 1971 pp. 5-6, who gives the reference Droysen, J. G. 1858 *Grundriss der Historik*, published in Droysen, J. G., *Historik*, 1937, edited by R. Hübner, Oldenbourg, Munich.

¹⁶ von Wright notes that the word *Geisteswissenschaften* was originally coined for the purpose of translating the English term ‘moral science’ into German, in connection with a translation of John Stuart Mill’s ‘Logic’. Wright 1971 p.6.

¹⁷ Pirsig 1976 pp. 17-18.

¹⁸ Although computer science is generally considered to be a technological discipline, informatics, which is the academic discipline within which I am presenting this dissertation, is classified as a social science. Work science, which I have used as part of my interdisciplinary approach, is generally classified as a technological science.

¹⁹ This may sound sinister, if you don’t take into account that the difference between explanation and understanding, in this view, concerns not only the ‘objects of study’ but also, and perhaps mainly, the *relationship* between the observer and the observed. I read ‘objects of study’, here, as that or those which are being focused, the subject or subjects of interest, and ‘understanding’ as ‘subjectifying’, or, in a sense, searching for an intersubjective landscape between the observer and the observed, rather than ‘objectifying’ that which is being observed.

²⁰ Wright 1971, p. 6.

²¹ In Swedish ‘att föreställa sig, att tänka sig in i, att gestalta’, in German ‘gestalten’. It’s about using imagination, feeling and experience together with a reflective and self-critical awareness to understand something. And it’s about keeping in mind, always, that this understanding, ultimately, is based on and delimited by one’s understanding of oneself.

²² See for instance Naur 1985.

²³ To me, it seems as though this might be envisioned as the sharing, through communicative actions, of selective views on ‘inner pictures’. Empathy, thus, could, metaphorically speaking, be seen as a tool for communicating about, and continually reconstituting and enriching, one’s ‘inner picture’.

²⁴ The premises given (not always as explicitly as here, but implicitly the same): 1. All causal explanations should be subsumable under one general law or another. 2. Teleological explanations are not causal. Conclusion: Chuck out teleological explanations, they don't qualify as scientific explanations. My conclusion would be that teleological explanations, clearly, should not be categorized as causal explanations, and thus should not be expected to be subsumable under any general laws. After all, why throw out an orange just because it isn't an apple? But I have seen these premises seriously presented as falsification of teleological explanations all together. My natural inclination, which I see as an unsophisticated, common sense approach, would be to go at falsification from the other direction. Why should all causal explanations, even, necessarily be subsumable under general laws? Aren't all explanations, in a broader sense, teleological? I.e. in the sense that there is a purpose in giving an explanation of this kind, in this case, at this time, which might affect what you catch sight of and interpret as causes? Compare the concept of the social construction of scientific facts according to Fleck 1976 (original edition 1935) Latour and Woolgar 1986. To me, this is typically an object/subject question – to be or not to be conscious of your own active part, as a subject, in the world you are studying.

²⁵ Wright 1971, p. 8.

²⁶ Wright 1971, pp. 7-8.

²⁷ Gordon 1991, p. 46.

²⁸ Gordon 1991, p. 385.

²⁹ Churchman 1971, p. 5.

³⁰ See for instance Nussbaum 1995.

³¹ Here as quoted in Covey 1990, p. 46.

³² From chapter 4 onwards, I have been working things out as I go along. The dialogue which surfaces in the text now and again, and which may sound overly cheeky at times, is, to a large extent, one I am having with myself. Like the dialogues Pirsig's narrator had with Phaedrus, they can get tedious and rather hard to follow at times, yet they are an integrated part of what I am trying to understand. The master/servant metaphor may not convey much meaning to some readers, but it has helped me to begin to see some of my own blind spots and to try to actively shift perspectives. Bear with me – in time I will find my own voice, and feel more relaxed with it.

³³ Wright 1971, pp. 5-6, who gives the reference Droysen, J. G. 1858 *Grundriss der Historik*, published in Droysen, J.G., *Historik*, 1937 edited by R. Hübner, Oldenbourg, Munich.

³⁴ Perby 1995. Perby is referring to her research work with process controllers

and how they work with computers in running the processes in a petrochemical plant and a paper pulp mill.

³⁵ I will try, in the following, to explain what I mean by this concept. Meanwhile, here is a story to start you thinking about the problem area; When the children were small, we once rescued a blackbird which had hurt its wing and couldn't fly. It lived in a box in our cellar for a week, until it could fly again, when we let it go. Especially with small children in the house, an experience like this becomes a memorable adventure for everyone involved (probably for the bird, too). One morning, a month or so later, my husband called out from upstairs; 'Look, the bird is back! I see it out there, singing in the apple tree!'

I, who was downstairs in the kitchen, looked out the window – and sure enough, there was the blackbird, singing away for all it was worth, right there in the apple tree. We both realized, of course, that it probably wasn't the same blackbird as the one we had rescued, but we could both see it – with a smile and a warming of the heart – as 'our' blackbird. The real humorous twist of this story, however, dawned on us when we met on the stairs – and discovered that *he* had been looking out at a blackbird in the apple tree at *the front* of the house, and *I* had been looking out at a blackbird in the apple tree *behind* the house. Now, what was the referent of 'the bird', in this case? And what, exactly, was the nature of the image or idea we, in some, very relevant, sense, were sharing?

³⁶ I have deliberately chosen the term purpose, and the expression 'putting purpose back into function', even though I use the term intention in most places in this thesis. The choice of wording here is mainly because I like the ring of it. It has a nicer rhythm. But it is also partly for the very reason that I *am* aware that there is a difference between the commonly accepted use of the expressions intention and purpose, purpose being closer to what is acceptable if you take a functionalist view of the world. It intrigues me that functionalism for some reason is not considered teleological but fully acceptable according to a causal explanation type of tradition, and that teleological explanations are considered finalistic while functionalistic explanations are not. To me, it looks the other way around. So I'm challenging it with my mixing of concepts.

³⁷ Göranzon 1993, pp 8-10.

³⁸ Churchman 1971, p. 8.

³⁹ Taylor 1971. Were it not for this, I would understand Taylor to mean by norms what I understand Wittgenstein to mean by rules. This 'domain of rule-governed behavior' is hard for me to conceptualize. From the perspective of the object/subject gap, I would interpret it to mean the traditional scientific way of interpreting the world. But I don't think that is what he means here.

Taylor appears to be, still, in the 'objective' mode of thinking, at least with one foot.

⁴⁰ von Wright 1971, pp. 26-27

⁴¹ Norman 1990, pp. 9-12. Norman has borrowed the concept of affordance from the psychologist J. J. Gibson, and admits to using it in a slightly different interpretation that it is commonly given within modern psychology.

⁴² Perby 1995.

⁴³ Wittgenstein, *Philosophical investigations*, §78.

⁴⁴ What has not been done, in the name of the rose? The answer is so obvious, it must be planted there. No one has followed the scent, by other names. The Italian cultural philosopher and professor of semiotics, Umberto Eco, wrote in *The Name of the Rose* about the quest for Aristotle's writings about the comedy, in the novel envisioned as a lost second part of his Poetics, which was hidden, according to the story (or one of them – the book is full of pointers towards alternative interpretations, each person following his own structures and ideas, no one sharing intersubjectively what they know subjectively), in a monastery, bound together with the first part, about the tragedy, but under another name all together. They are all looking for the lost essence of laughter. But there is no real laughter in the book, only death after death, and a lot of philosophy. Laughter, the comfortable kind, comes of being able to laugh about yourself together with others – and yet be serious about your intentions (I'm only beginning to see this myself. Bahktin points to the analytical power of irony, too). The double bind in Aristotle is intrinsic, it's there perhaps most explicitly in the practical syllogism, but surely elsewhere, too, once you begin to catch sight of it.

⁴⁵ Frege 1995, pp. 38-41.

⁴⁶ In truth, Frege mentions shared ideas, or general concepts which people share, but does not elaborate on what he means.

⁴⁷ Suchman writes; 'Expressions that rely upon their situation for significance are commonly called indexical, after the "indexes" of Charles Peirce (1933), the exemplary indexicals being first- and second-person pronouns, tense and specific time and place adverbs such as "here" and "now". In the strict sense exemplified by these commonly recognized indexical expressions, the distinction of conventional or literal meaning, and situated significance, breaks down. [...] the meaning can be specified only as the use [...] in some actual circumstances. [...] Among philosophers and linguists, the term "indexicality" typically is used to distinguish those classes of expressions whose meaning is conditional on the situation of their use [...] But the *communicative* significance of a linguistic expression is always dependent on the circumstances of its use.' Suchman 1987, pp. 58-60. However, it seems to me that, in

this concept of situatedness, there is still an awkward lack of *presence of self*, as though even the situational connection was being ‘objectified’ by the use of ‘indexicality’ without the acknowledging of the language-users as co-constructive subjects. Here, it seems to me, Perby’s concept of the ‘inner picture’ brings with it a historical and person-centered dimension, and thus manages to bridge the object/subject gap. Combining this with the idea of practice as concept-building, I saw a need for exploring the relationship between concept-building, which I see as mainly community-based, and ‘the inner picture’, which I see as mainly based in the individual. The concept of ‘inverted’ or ‘intrinsic’ indexicality seemed necessary to begin this explorative journey. (And if you press me more, here and now, all I can do is wave my hand at the situation and recommend that you read this dissertation from the beginning again).

⁴⁸ Wright 1971 p. 4.

⁴⁹ War stories are flavored by personal intentions, interpretations, exaggerations, by the fact that they are told for some purpose – and this is an important part of the concrete and specific conditions of a case. How they are experienced, and how they are retold. Yet in the name of objectivity, we have often turned our backs on lived, experienced reality, on the sharing of selected views on *inner pictures*, and searched for ‘the truth’ in totally unconnected systems of logic!

⁵⁰ This is my interpretation of Aristotle, *The Nichomachean Ethics*, 1147 a 25-30. von Wright refers to practical syllogisms, and, in this context, to Elizabeth Anscombe’s *Intentions* 1957. See Wright 1971, pp. 26-27. I have used the Swedish translation of Aristotle, by Mårten Ringbom, 1967, so Aristotle’s expressions, as used here, are my own rough translations from Swedish. I am aware that I may be interpreting Aristotle wrongly, but to my mind’s eye, it is like an open book, so I can’t not try. I am attempting to show you my intrinsic indexicality, taking the risk that it may be all wrong, once we look at it together. von Wright backs off here, writing that the peculiarities and relation of the practical syllogism to theoretical reasoning are complex and remain obscure. My hypothesis is, as you may have gathered by now, that this is because of the object/subject gap which the persistent habits of positivistic scientific work practice have imposed on us – that it was all quite natural to Aristotle, since it was about legitimate, even necessary, intentionality in individual cases, which he didn’t think was strange at all. Subsumption was not an issue. Choice of intentional, responsible action was.

⁵¹ In *Philosophical Investigations*, Wittgenstein uses a figure called a duck-rabbit (originally from Jastrow, *Fact and Fable in Psychology*) to discuss how seeing different aspects of one and the same object can give you completely

different inner pictures of it. I showed the picture of the duck-rabbit to my daughter, who pointed out that if you looked at it upside down, it was easier to see both aspects at once, because the ‘upside-down-ness’ estranged you from it and prevented a spontaneous first interpretation taking over. Perhaps that is why I see the object/subject gap in so many theories about people; because I’m looking at the representations from the bottom up, and most of them have been sketched from the other direction.

⁵² Aristotle, *The Nichomedean Ethics*, 1181 a 7 – b 7. My translation from the Swedish version. I have since found an English translation, which differs somewhat, partly through including what, in the Swedish translation, is the next sentence, but also through the very choice of wording, which I find less inspiring and more ‘departmentalized’ (prepackaged, heavy-handedly interpreted – whatever. I must learn Greek, or go to German and/or French and triangulate the various translations!) in this English version: ‘For while people experienced in any department judge rightly the works produced in it, and understand by what means or how they are achieved, and what harmonizes with what, the inexperienced must be content if they do not fail to see whether the work has been well or ill made – as in the case of painting’. (Sir David Ross’s translation of the *Ethica Nicomachea*, first published in 1925. This edition printed 1954). Oxford: Oxford University Press

⁵³ Suchman 1987.

⁵⁴ That’s the sovereign subject speaking. I can’t help thinking Hobbes had a hand in it all.

⁵⁵ Looking to myself, I can see how it is; maybe you’re suddenly sure you forgot to do something important, like buy a new toothbrush to scrub the cracks between the bathroom wall tiles with, and you’d better go do it. You’re subsumed under your own habits, and you don’t even see it. Yet your choices of action are, finally, your own. Maybe that’s what finalistic *really* means, when used about the Aristotelian approach?

⁵⁶ I’ve had problems with trying to understand ‘distributed cognition’ for a long time. It was my colleague Yvonne Dittrich who, in a discussion at the lunch table one day, helped me see the connection to the subsumption-theory problem. Which illustrates how, in an intersubjective landscape, cognition is shared, not distributed. (At least that was my view of it, and I don’t think Yvonne saw it as one-way knowledge distribution either.)

⁵⁷ I am using a Swedish version of Aristotle’s *The Nichomedean Ethics*, translated by Mårten Ringbom.

⁵⁸ Zuboff 1985, pp. 9-10 and, basically, throughout the whole book.

⁵⁹ And of course, that’s why people watch ball games!

⁶⁰ See chapter 3.1.3.

⁶¹ Rouncefield et al 1994 write about the importance of local knowledge in the accomplishment of work.

⁶² And, incidentally, when it works, there's usually comfortable laughter involved in it as you go along.

⁶³ Zuboff 1985.

⁶⁴ That's stretching it a bit far for the sake of making a point. What I mean is, out where the most intersubjective, and therefore most constructive, action towards the central objective of the organization – service delivery to the public – is.

⁶⁵ See Floyd 1987, Floyd 1992, Pirsig 1976.

⁶⁶ This is mixing the metaphorical levels – I was thinking of WorldWideWeb and of Pirsig's narrator moving across the country-side, and then realized he didn't like highways, and thought of e-mail, but that, of course, uses the highways, too... But if you step up a level or two, and let action be constitutive of the landscape, you can perhaps see informal communication – as e-mail often functions very well for – as the nice side-roads. On that level, maybe we should just forget about constructing any more highways? Highways, after all, were originally for tanks, (and before that, soldiers on elephants). If you want to move that fast through the intersubjective landscape, you might as well stay home and watch TV.

⁶⁷ von Wright 1971, p. 180. (Partly my translation, in which I was assisted by Meta Ottosson and her network, from German.) According to von Wright; 'Hegel writes: 'Der Zweck schliesst sich durch ein Mittel mitt der Objektivität und in dieser mitt sich selbst zusammen...Das Mittel ist daher die *formale* Mitte eines formalen Schlusses; es ist ein *Äusserliches* gegen das *Extrem* des subjektiven so wie daher auch gegen das Extrem des objektiven Zweckes' (Hegel 1812/1816, *Wissenschaft der Logik*. Bk.II,Sect iii, Ch. 2 B).

⁶⁸ Taylor 1971.

⁶⁹ Pirsig 1974, p. 17.

⁷⁰ As T. S. Eliot once wrote; [...] *the end of all our exploring will be to arrive where we began and know the place for the first time*. And, yes, I know I have a long way left.

⁷¹ Pirsig 1974, p. 158.

⁷² Haven't you ever talked to your car when it won't start? (You don't always have to be *that* empathetic, though.)

⁷³ Simon 1969. Admittedly, I should go back and read his book with more empathy, and I might change my mind about his position in the landscape, since I myself have shifted mine since I read it last. His concept of 'sciences of the artificial', and the importance of design in the human world, is basically

consistent with the teleological view which I am a believer in, and which I understand many open systems theorists are, too (see for instance Churchman 1971). One of the other problems I see with Simon's approach is, as I remember it, that he accepts 'natural sciences' as 'natural' in some seemingly mystical sense, and doesn't take the full consequences of his own stance, that people are designers of their own worlds.

⁷⁴ Christiansen 1996.

⁷⁵ See Naur 1985.

6. Who is 'we'?

¹ Sissi Ingman and Jörn Nilsson shared the work of reading through my manuscript and giving me valuable critique, as well as inspiring feedback and suggestions, at my final seminar in Lund.

² Now Kajsa Cadwell Brimdyr.

³ Choreography is used analogously, here in the sense that, as I watch, I am at-tempting to decompose what I see and translate it into symbolic (but very figurative) representations of situated actions in their setting. Choreography is about the art of symbolically representing dancing, not only about 'designing ballet' (Webster's, 1971). That is, I'm not attempting to design front office work practice. I'm trying to understand what gives coherence to the work for those performing it by mapping what they actually do to get it done.

⁴ These, here, are rhetorical questions, used to show, in an over-simplified way, the kind of reasoning I believe I was using at the time, as I sat going through video-tapes from Sölvesborg. They have, however, been basic questions for me throughout the research project. In this thesis, they tend to surface constantly, but above all, they are introduced in chapter 1 and discussed in depth in chapter 5.

⁵ See Perkins 1993. The 'people-plus' concept, as a way of catching sight of, understanding, and making use of available resources in an information system, is also discussed in section 4.1.1. *The information system in use*, in this thesis.

⁶ I'm aware of the machine-metaphorical language, here, but I'm using it deliberately, in this case, to underscore that much of what is normally perceived as being taken care of 'automatically' through the use of modern information technology, is actually being accomplished by people.

⁷ 'And hence also 'obeying a rule' is a practice.' Wittgenstein, *Philosophical Investigations* §202. In Swedish, 'obeying a rule' is translated as 'att följa en regel', which means to follow a rule, i.e. rule-following.

⁸ These three themes are presented more extensively in the first chapter, section 1.2.

⁹ For a comprehensive, condensed account, see for example Ehn 1993.

¹⁰ Along the lines of methods and theories used in a grounded theory approach as described by for instance Strauss and Corbin 1990.

¹¹ This generalization would be precarious, to say the least, if based only, or even primarily, on material from our three longitudinal case studies. However, similar observations have been made during visits to other one-stop shops in Sweden, and in discussions and interviews with Swedish as well as Danish managers and consultants involved in developing one-stop shops. The annual conference held by the Nordic Network for One-Stop Shops, which I have attended four times during the past five years, has been one of the main sources for this broader network of contacts on the managerial level. The Danish study of shifting boundaries between different trade unions within public administration (Bild, Christensen and Hoff 1992), which is summarily presented in chapter 1, also discusses the highly subjective definitions of work roles and work role boundaries which the authors observed in practice, and how work roles and work content are a result of local power circumstances. Their study indicates that, at least in Denmark, traditional bureaucratic professionalism in certain ways does present obstacles to extensive change of public service work organization. My reasoning in the following, although not focusing on the concept of professionalism but rather on various ways of perceiving work and division of work, is partly along the same lines as theirs, and is, I feel, supported rather than contradicted by their findings.

¹² See section 1.3.1 through 1.3.5 for a discussion of the mix of different models and metaphors in use in popular management culture, and the constantly choppy waters where managers in the public sector have to navigate and handle change.

¹³ As described by Brehmer, page 120, here in my translation from Swedish. I have not read the original report by de Montmollin and De Keyser 1986, Expert logic vs. operator logic, but it may be found in Johanssen, G., G. Mancini and L. Maartensson (eds.), *Analysis, design and evaluation of man-machine systems*. Oxford and New York: Pergamon Press.

¹⁴ This is a book I have not read myself. Nuar's reference is Ryle, G., 1963, *The Concept of Mind*. Harmondsworth, England: Penguin Books.

¹⁵ Concerning Human Understanding, Section III, Of the Association of Ideas.

¹⁶ Lacey 1996, p.177.

¹⁷ Lacey 1996, p. 176

¹⁸ At a course I took while I was working as a consultant for Kommundata. I'm still not much of a public speaker, but it makes talking in public more interesting and rewarding – at least for me.

- ¹⁹ See Eriksén 1995.
- ²⁰ Strauss and Corbin 1990, p. 104.
- ²¹ See Glaser and Stauss, *The Discovery of Grounded Theory* 1967. Grounded theory is described in chapter 2. It is one of the approaches which has influenced my research methods as well as my thinking.
- ²² Strauss and Corbin 1990, p. 112.
- ²³ See Addelson 1995, p. 33.
- ²⁴ See Soeffner 1995, p. 30.
- ²⁵ See Suchman 1987, p. 51.
- ²⁶ See Star 1995, p. 13.
- ²⁷ See section 5.1.2.
- ²⁸ See Addelson 1995, p. 36. Addelson in turn gives the reference Blumer 1969, p. 148, for the quotation.
- ²⁹ See Donmoyer 1990, p. 180.
- ³⁰ See Donmoyer 1990, p. 180. Donmoyer in turn gives the reference Blumer 1969, p. 98, for the quotation.
- ³¹ Suchman 1987.
- ³² Suchman 1987, p. 50.
- ³³ Suchman 1987, p. 54 and p. 66.
- ³⁴ Kenzaburo Oe was awarded the Nobel prize in literature in 1994. The book quoted here is called *M/T och berättelsen om skogens under* in Swedish. I have not been able to find an English version of it, so the title as well as the quotation are given here in my own translation from Swedish.
- ³⁵ Perhaps it could be likened to the turning of a kaleidoscope, which, beyond the chaos of prisms shifting positions, reveals a new pattern. The pattern is made visible by looking towards the light, but 'seeing the light' is not the ultimate issue, except as it is filtered and recast *through* the many-colored prisms. The spell-bound child, in accepting the ambiguities and contradictions, and listening to them, is taking the step beyond the self – the subjective – towards the alternative interpretations – the intersubjective. So it is, perhaps, both a step back, out of the self, and a step forwards, towards a shared, intersubjective, understanding.
- ³⁶ Johannessen 1994, pp. 223 (although here I have used my own free translation from a Swedish version of his article).
- ³⁷ Ginzburg 1989, p. xii.
- ³⁸ See Kjell S. Johannessen 1994.
- ³⁹ Ibid.

⁴⁰ Ibid p. 7,8.

⁴¹ Wittgenstein, *Zettel*, 228.

⁴² 'Meaning in this sense – let us call it experiential meaning – thus is for a subject, of something, in a field. [...] There is thus a quite legitimate notion of meaning which we use when we speak of the meaning of a situation for an agent.' Taylor 1971, p. 12.

⁴³ There is a Swedish word, 'sammanhang', literally 'hanging-togetherness', for which I have not found an English equivalent. I have used the word *context*, here, and see it as inclusive of that which is focused, all part of a weave of connectedness.

⁴⁴ Wittgenstein, *Philosophical Investigations*, Ilxi p. 227e.

⁴⁵ Ekdahl 1997.

⁴⁶ Michael Polany writes in *Personal Knowledge* 1964: '*Those who listen with sympathy will discover for themselves what they would otherwise never have understood*' (p. 151). The quote is secondary, and here translated by me from Norwegian, from Kjell S. Johannessen's article Polanyi och den tysta kunskapen in *Dialoger* no 22-23, 1992 (p. 99). For my own part, I don't feel that *sympathy* is really what motivates me when I speak of listening and wanting to understand. Rather, it is a question of humility when faced with the diversity and ambiguity of a world which I realize can only exist for me thanks to the fact that I in my everyday life share it with others, for whom it also exists, in an equally personal sense. And that, in turn, fills me with curiosity about the intersubjective nature of this shared, lived-in world!

⁴⁷ Note that I was shaken mainly by my own failure to see any alternative interpretations of the observed scene from the start. As for the actual event, and whether the generalist involved was, in fact, exhibiting helpfulness or exasperation, that is, of course, a matter of interpretation, and basically unsettled.

⁴⁸ The sociologist Eva Hedman.

⁴⁹ Sweden is a parliamentary democracy, with a Constitution, acquired 1974, based on the principle of popular sovereignty. The Constitution comprises three enactments: the Instrument of Government, the Freedom of the Press Act and the Act of Succession. The first article of the Instrument of Government reads as follows: *All public power in Sweden emanates from the people. The Swedish democracy is founded on freedom of opinion and on universal and equal suffrage and shall be realized through a representative and parliamentary polity and through local self-government. Public power shall be exercised under the laws.* (Gustafsson 1988, p. 13).

⁵⁰ When I started looking for ways to bring 'people' back into the picture, as in *People, Computers and Work*, it wasn't as a basic unit of democracy, like

this. Still, it's interesting that, in the attempt to resurrect people as active subjects, this partially conflicting use of the concept surfaced, too.

⁵¹ Philip E. Agre teaches communication at the University of California, San Diego. He has his background in systems engineering focusing on AI.

⁵² Agre 1997, p. 314.

7. What difference does it make?

¹ To my surprise, because Wittgenstein, somehow, in popular discourse seems to have come to represent *Philosophy* in a rather awesome way, rather than the practical philosophical reasoning which I discovered in his writings.

² Wittgenstein, *Philosophical Investigations*, §199.

³ Wittgenstein, *Philosophical Investigations*, §202.

⁴ Wittgenstein, *Philosophical Investigations*, §202.

⁵ I have deliberately chosen not to try to define the boundaries between these different concepts, or give detailed definitions of what they may be understood as in relationship to each other. Issues such as these have been written about in depth and at length by people who are much more of experts in the discourse in this field than I am. See for instance Lundquist 1988, Ahrne [ed.] 1998. See also my reasoning about my methods, and the deliberate choice of vagueness as a way of approaching living systems, section 2.2.7.

⁶ Concerning what may constitute mainstream managerial views on routine work, see also for instance Blomberg, Suchman and Trigg 1996.

⁷ Here: something that takes on one shape at one moment, and another at another, or looks different to two different onlookers. See Wittgenstein *Philosophical Investigations*, pp.194-96.

⁸ Whalen 1993, p. 25.

⁹ Wittgenstein, *Tractatus Logico-Philosophicus*, 6.421.– as pointed out by Johannessen 1994, p. 218. Here, Wittgenstein writes; 'Ofcourse ethics can not be spoken Ethics are transcendental. (Ethics and aesthetics are one and the same).' My translation from Anders Wedberg's Swedish version.

¹⁰ This is my attempt to bring together what I see as optimistic American individualism (sometimes perceived by Europeans as naive and superficial) as in making a personal mantra of Aristotle according to Covey 1989, in *The 7 Habits of Highly Effective People*: 'We are what we repeatedly do. Excellence, then, is not an act, but a habit'. (p. 46), – to bring this together, I was getting to – with one of the positive aspects of the Scandinavian 'all power emanates from the people' approach (see section 6.2.5 of this thesis), i.e. a strong sense of community (sometimes perceived by Americans as a lack of individual

initiative and responsibility). (American pragmatism and European critical theory?) Merged here with a slight twist of irony at my own present situation: dead-lines long past and self-imposed isolation at a chaotic desk in a chaotic home, trying to finish my thesis. But I'm serious, too. Especially about the importance of 'here and now', of presence of self, no matter how academic or bureaucratic or technological your environment may appear to be. You are, in my world-view, an active, constitutive part of it

¹¹ See ECSCW'91 proceedings, pp. 113-115. Note that the example given was an expertly put together panel which was probably one of the high-lights of the conference. I, as a non-community member and new-comer, simply was shocked that, although I felt I had years of valuable experience from ambitious systems development projects with user participation, could not speak or understand the language being used here. It didn't reference anything I recognized.

¹² Eriksén 1991.

¹³ 'Problemformuleringskriteriet', the problem-formulation criteria, is how this is usually referred to in Swedish.

¹⁴ See for instance Beck 1996, Bjerknes and Bratteteig 1995.

¹⁵ Sometimes the materials used offer unintended affordances, as was the case with the glass paneled shelters British Rail set up for passengers. The reinforced glass panels kept getting smashed, until they were replaced by plywood. Norman 1990, pp. 9-12.

¹⁶ See for instance Churchman 1971.

¹⁷ See section 1.3.4.

¹⁸ See figure 1, section 1.3.4.

¹⁹ Zuboff 1988.

²⁰ Helgeson, Bo and Sara Eriksén 1997a. *"Dröj lite ska jag se efter ..." – om användning och design av teknikstöd för medborgarservice* ('Hold on a moment and I'll check...' – About Use and Design of Technical Support for Citizens' Service.) Project application to the Swedish Work Environment Fund. Ronneby: Department of Computer Science and Business Administration, University of Karlskrona/Ronneby (stencil). Funding has been granted from the Swedish Council of Work Life Research, and we expect to start this project in August 1998 (project number 97-0973).

²¹ The Swedish word 'gestaltning' is, for some reason, a richer concept, but I know no good English translation for it.

²² Compare Bowers 1994.

²³ This is a gross exaggeration, of course, for the purpose of making my point. A great number of people believe they know what IT management looks like.

Many of these world-views probably do contain some of the every-day shop-floor functionality of IT management which I am propagating for, for instance in the form of help desk functions. See for example Christiansen, 1996a. My point is, that these seemingly mundane aspects of IT management should be high-lighted and seen as the very core of this organizational function, as where design becomes a truly meaningful concept for users.

²⁴ Both these areas have established international conferences, the conference proceedings of which contain many contributions which are useful for learning from experiences of cooperative design processes in different settings. See also for instance Greenbaum and Kyng [eds.] (1991), *Design at Work: Cooperative Design of Computer systems*, and Schuler and Namioka [eds.] (1993), *Participatory Design. Principles and Practices*. Both printed by Lawrence Erlbaum Associates, Hillsdale, New Jersey.

²⁵ See for instance Kensing and Halskov Madsen 1991.

²⁶ Compare, for instance, how in Pajala, even without any development at all at the front desk, the organizations which moved in together into the same building, 'Söderbergskans', came to share information and information technology insights with each other in productive and creative ways (see section 3.1 *Cooperation at the back*).

²⁷ See for instance Naur 1985.

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- Är kommunerna bra på websidor? (Are the municipalities good at making and taking care of web pages?) In *Computer Sweden* number 39, 1997. Unsigned article.

Appendix

Student reports based on observations made at the one-stop shop in Sölvesborg in March, 1996:

Abrahamsson, Julia, Carolin Cornelius, Henrik Johansson and Andreas Lång,

Projekt Sölvesborgs medborgarkontor. Vision och verklighet.

(The Sölvesborg one-stop shop project. Vision and reality.)

Based on observations made Monday morning, March 18th.

Agardh, Johannes, Monika Alriksson, Maria Karlsson and Mia Lundberg,

Arbetet på ett medborgarkontor.

(Work at a one-stop shop)

Based on observations made Thursday afternoon, March 14th.

Andersson, Peter, Christian Dörenius, Karin Stark and Ola Zettervall, *Medborgarkontoret. "Från nybörjare till generalist"*.

(The one-stop shop. 'From beginner to generalist').

Based on observations made Tuesday afternoon, March 12th.

Andersson, Rosita, Kerstin Persson Ådahl, Lena-Marie Pääkönen and Magnus Reinholtz

Medborgarkontoret i Sölvesborg. En rapport i två delar.

Del 1. Metodik. Våra etnografiska forskningsmetoder.

Del 2. Vad är MBK? Visioner och verklighet.

(The one-stop shop in Sölvesborg. A report in two parts.

Part 1. Methodology. Our ethnographic field study methods.

Part 2. What is a one-stop shop? Visions and reality.)

Based on observations made Wednesday afternoon, March 13th.

Bäckbro, Gunilla, Maria Carlsson, Annevi Ekdahl and Monica Lindqvist,

Frontfolket. Gör dom det vi tror dom gör? Med andra ord: Vad gör personalen i fronten på medborgarkontoret i Sölvesborg en tisdag förmiddag i själva verket?

(The people at the front. Are they doing what we think they're doing? In other words: What do the personnel at the front in the one-stop shop in Sölvesborg really do on a Tuesday morning?)

Based on observations made Tuesday morning, March 12th.

Hamidsales, Rahim, Glenn Karlsson, Hans Kylbäck, Rolf Larsson and Kari Rönkkö,

Medborgarkontor Sölvesborg – myndighetens ansikte eller folkets informationscentrum?

(The Sölvesborg one-stop shop – the face of authority or the people's central point of information?)

Based on observations made Friday morning, March 15th.

- Hultqvist, Erik, Christel Jonsson, Jessica Svensson and Anders Wiberg,
"Att springa ett maraton medan man sköter ett arbete"
 (Running a marathon while doing one's job.)
 Based on observations made Monday afternoon, March 11th.
- Johansson, Martin, Kristina Jönsson, Britta Kilander and Paul Nilsson
Att vikariera för en generalist. Rapport från en empirisk undersökning av medborgarkontoret i Sölvesborg
 (Substituting for a generalist. Report from an empirical study of the one-stop shop in Sölvesborg)
 Based on observations made Thursday morning, March 14th.
- Jonsson, Christian, Mårten Pettersson and Daniel Sand,
Medborgarkontoret i Sölvesborg. Tillit till datorstödet och situationsbetingat lärande.
 (The one-stop shop in Sölvesborg. Trust in the computer support and situational learning).
 Based on observations made Monday morning, March 11th.
- Jonsson, Tommy, Jörgen Nilsson and Stefan Persson,
Medborgarkontoret i Sölvesborg. En studie av medborgarkontoret.
 (The one-stop shop in Sölvesborg. A studie of the one-stop shop.)
 Based on observations made Wednesday morning, March 13th.
- Juhlin, Annica, Mia Lehti, Lena Lindberg and Sebastian Zander,
Studenter studerar samhällets service i Sölvesborg.
"Medborgarkontor, kan de' va' nå't?"
 (Students study the municipal services in Sölvesborg.
 'One-stop shops, can that be worth-while?')
 Based on observations made Monday afternoon, March 18th.

Reports written by students who chose to do their projects within my research area in the spring of 1995:

- Kalpazidis, Theo and Bosse Svensson, *Slut-PM. Medborgarkontoret i Sölvesborg*
 (Collected field notes and impressions from the one-stop shop in Sölvesborg). Project report for the course Computers and Learning, second half of the second year on the MDA program.
- Adelsbo, Thomaz, Robert Dygant and Marcus Nyh, *Medborgarkontor – något för Bromölla?* (A one-stop shop – something for Bromölla?) Project report for the final examination on the two-year ADB (Administrative data processing) program.