IJPIS

WHAT DOES IT MEAN TO SERVE THE CITIZEN IN E-SERVICES?

- TOWARDS A PRACTICAL THEORY FOUNDED IN SOCIO-INSTRUMENTAL PRAGMATISM

GÖRAN GOLDKUHL
Department of Management & Engineering
Linköping University
Sweden
goran.goldkuhl@liu.se

Abstract

In what way is a public e-service a service to citizens? This question has driven a practical inquiry into a planned e-service application for municipal child care. A requirements specification for an e-service application was investigated. The e-service application was found to lack proper information about child care supply options, and rules and regulations concerning the child care. Important changes of social relations between municipality and parents were not communicated. The citizen was mainly seen as an information supplier and not as someone to serve. Results from this practical inquiry have been abstracted into an evolving practical theory. This practical theory consists of a definition of public e-services and abstracted patterns of e-service actions. The practical inquiry has been informed by practical theories all founded in socio-instrumental pragmatism. As basis for the study, a special elaboration of the concepts of practical inquiry and practical theory has been made in the paper.

Keywords: E-government, e-service, practical inquiry, action research, practical theory

1. Introduction

1.1. The Meaning of E-service

There is a rapid growth in the development and launching of new public e-services over the web to citizens. When doing this, government agencies base their work on national and international programs for e-government development. Such programs usually incorporate a 24/7-vision for governmental agencies. Citizens should always be able to reach, through the web, government agencies and also be served by them. The main concept used is public e-service. Such an e-service is a public service mediated electronically through a user interface that is generally available. The concept e-service is used for a great variety of services. This should probably mean that there is some common service component in such services. *What does it mean to serve the citizens in e-services?* This is the key question in this paper. As such, it is a conceptual question. An attendant question is: What do we mean by e-services? These questions are however not restricted to pure conceptual matters. How we conceive e-services (as a general phenomenon) will affect the way we plan and build such e-services. This seems thus to be pending questions of both theoretical and practical concerns.

There are many publications that have given important contributions towards the understanding of public e-services. When reading such publications [e.g. Ancarini, 2005; Asgarkhani, 2005; Layne and Lee, 2001; Lenk, 2002; Wimmer, 2002], an image of a rather heterogeneous phenomena emerge. In the enumerations, made by these authors, of different types of e-services, it is hard to see any conjoining service dimension. *What is the service in e-services?* There are attempts to use the service (quality) notion in order to clarify the concept of public e-services [e.g. Buckley, 2003]. However, when focusing different service quality dimensions, the service concept seems to be taken for granted. More reflective studies on the service dimension in e-services are required. We need also to problematize the concept of service in public e-services. Is a service perspective compatible with all kinds of exercises of public authority? Is it a service to reject an application from a citizen?

1.2. The Research Context

The presented results in this paper are part of a research context which has to be explicated. The research is part of a large e-service endeavour among municipalities in Sweden. There is an initiative to co-develop e-services among municipalities in order to create e-services for co-utilization. Instead of procuring standard applications or each municipality developing its own e-services, this initiative (in Swedish called Sambruk; confer www.sambruk.se) aims at a conjoint development of e-services. The intention is, through this municipal co-operation, to decrease costs for development, procurement and operation of e-services. The intention is also, through sharing of knowledge and experiences among participating municipalities, to create high quality e-services and public administration processes. This co-operative use of e-services is supported by a research project. The over-all purpose of this research is to study and give knowledge support to development, deployment, implementation and evaluation of joint e-services.

This paper is based on a study of a requirements specification for e-services concerning child care. The role of the researcher (i.e. the author), in this small case study, was to investigate and make a quality assurance of an already made requirements specification. This was desired by the practitioners in Sambruk before the spec should be used in procurement of the required e-service application. The spec was evaluated by me and a review report was produced. The result of the evaluation was also presented orally and discussed at two seminars with the practitioners. The evaluation consisted of criticisms and proposals for improvement. There was thus an obvious practical purpose of the researcher endeavour. The researcher was a knowledge resource in the co-development of these specific e-services for child care.

In the review process, different theories, founded in socio-instrumental pragmatism [Goldkuhl, 2005] were used to inform the evaluation. My work did not only result in criticisms of the requirements specification. The study of the empirical material (the spec), made in the light of used socio-pragmatic theories, led to an improved understanding of the e-service notion. This improved understanding can be said to be part of an evolving *practical theory* of public e-services. The *practical inquiry*[1], performed by me, has thus led to concrete knowledge as well as developed practical theories. The espoused criticisms and proposals are thus grounded in used and developed practical theories.

[1] This notion will be thoroughly described in section 2.1 below.

1.3. Purposes and Disposition

The main purpose of this paper is to contribute to an improved understanding of the service notion in public e-service. What does it mean to an information system (IS) when it is said to comprise a public e-service? A fundamental question has been stated: What does it mean to serve the citizens in e-services? The research has been conducted through a practical inquiry introduced above and more deeply described in section 2 below. The improved e-service understanding is not to be restricted as a kind of abstracted and detached knowledge. Its ultimate aim is practical, i.e. to contribute to improved management of public e-services. This entails that the resulting knowledge should be seen as an evolving practical theory. This means that the concepts of practical inquiry and practical theory are fundamental in this research. One sub-purpose of the paper is to elaborate on these notions, which is done in the next section. In section 3 some practical theories, that have informed the practical inquiry, will be briefly presented. Section 4 describes the practical inquiry into the planned e-service for child care including the criticisms on the requirements spec. The findings have been abstracted and described as theory diagrams and thus being part of the evolving practical theory. This is a basis for the conceptualisation on public e-services (also being part of the practical theory) presented in section 5. The paper is concluded in section 6.

2. Research Approach: Practical Inquiry

2.1. The Process of Practical Inquiry

The concept of practical inquiry (PI) gets its main inspiration from John Dewey's [1938] elaboration of the pattern of inquiry. It is characterized "as a natural part of life aimed at improving our condition by adaptation accommodations in the world" [Cronen, 2001, p 20]. This means that an inquiry is an investigation into some part of reality with the purpose of creating knowledge for a controlled change of this part of the reality.

Practical inquiry and action research (AR) resemble to a large degree. There are however some important conceptual differences, which makes it appropriate to compare with action research when clarifying the meaning of practical inquiry. Action research is a fairly well-known approach and it is therefore suitable to use it as a reference point when introducing the approach of practical inquiry. A definition of action research, often referred to, is the one made by [Rapoport, 1970]: "Action research aims to contribute *both* to the practical concerns of people in an immediate problematic situation and to the goals of social science by joint collaboration within a mutually acceptable ethical framework". This definition includes the conjoint goals of action research; that of practical problem solving and contribution to scientific knowledge. There exist many other definitions, for example a more elaborated one, but still in the same spirit, is formulated by [Hult and Lennung 1980]. In this latter definition, the practical goals and procedures in action research are elaborated, but not the ones concerning scientific knowledge.

Practical inquiry acknowledges the interest in concrete practical matters and the interest to contribute to scientific knowledge. However, a slight modification of the respective goals is made in comparison to AR. PI is based on a pragmatic paradigm that sees commonsense as well as scientific knowledge as means to improve human practices [Dewey, 1938). PI emphasizes that the scientific goal is to create knowledge of the practical that is practical to the practical. Another way to state it is to say that

scientific knowledge about human practices needs to be useful for management and improvement of such practices. In the definitions of action research, the practical goal is differentiated from the scientific goals. The goals of science are not formulated as a matter of practical concern. This is however the case in practical inquiry. The main goal is to create *scientific knowledge of practical value*. The way to pursue this is often through interventionist procedures as in action research. But PI does not need to be performed through action research.

To clarify the differences, it is necessary to introduce the concepts of local practice and general practice[2]. A local practice is here defined as a practice studied in a research inquiry. In action research it is compulsory to contribute to the local practice studied. Otherwise it would not be action research. In practical inquiry it is compulsory to contribute to general practice, because within this pragmatic paradigm, it is compulsory to formulate knowledge aimed for practical use.

A local practice is a case of a general practice; i.e. one example of a general practice. When we talk about general practice we mean practices that share many common features. However there will of course be many differences as well due to contingent properties. To take one example from the actual research in this paper: The local practices studied were child care practices described through the requirements spec of the planned e-services[3]. General practice is of course these and other child care practices. General practice can however be further generalized as municipal practices. How far we generalize and abstract is a question (for both researchers and practitioners) of how extendable this knowledge is in its application.

To summarize differences and similarities: Both practical inquiry and action research contribute to the scientific body of knowledge. Practical inquiry *may* contribute to local practice and *must* contribute to general practice. Action research *must* contribute to local practice and *may* contribute to general practice.

Action research is sometimes defined as consisting of several phases. Susman and Evered [1978] have specified the following phases: diagnosis, action planning, action taking, evaluation and specifying learning. They claim that all these phases should be conducted if one should call it a proper action research. However, they also acknowledge, with reference to [Chein et al, 1948], that only some phases may be performed and the inquiry may still be seen as action research. Chein et al [1948] describe four types of action research, which consist of different degrees of intervention and collaboration. One of these types of action research is diagnostic action research, where no specific actions are taken within the research process. Actually, one can differentiate between types of action research (intervention research) following some of the phases[4] given by [Susman and Evered, 1978]:

- Diagnosis intervention (diagnosis)
- Design intervention (diagnosis + action planning)
- Implementation intervention (diagnosis + action planning + action taking)

---

[2] Practice can be defined as "embodied, materially mediated arrays of human activity centrally organized around shared practical understanding" [Schatzki, 2001 p 2]. Confer also [Goldkuhl & Röstlinger, 2003] for discussions of the use of the practice notion in information systems.

[3] This is one way to conceive the local practice; the kind of practice studied in the requirements specification. Another way to specify a local practice in this situation is to conceive the process of requirements specification of municipal e-services. Actually in research like this, it is appropriate to work with such complementary practice views.

[4] The phase of evaluation is here not considered as a separate phase, but rather included in action planning respective action taking. Diagnosis is evaluating existing practice. Specifying learning is also included in other phases.

Practical inquiry can be interventionist in character, but it must not be. PI can be performed as partial action research (diagnosis intervention or design intervention) or full action research (implementation intervention). PI can however also be performed as a diagnosis without intervention, i.e. no contribution to the studied local practices.

To summarize: The purpose of a practical inquiry is, through empirical study on practical matters in local practices, to contribute to general practical knowledge. This practical knowledge will be part of the scientific body of knowledge and it aims to be useful for practical affairs.

Practical inquiry is an inquiry into the practical, i.e. how things work, what works and what does not work. It is also concerned with the prospective of practices; how might things work and how things might be even better. Practical inquiry is pursued with an interest of change and improvement. How can things be bettered? How can the practice function better? Why does not the practice reach its potentialities? How can new more ambitious objectives be stated and how can they be reached? It is an interest for the improvement of the practice. This knowledge interest includes naturally an interest towards the problematic – why do not things work well enough? This critical knowledge of the problematic is necessary in order to move towards something better. To formulate problems is half way to solutions as [Dewey, 1938] has stated. It is necessary to have a good understanding of the problematic in practices in order to formulate adequate change measures. This knowledge interest for good practices does however also include knowledge about the existing good. Why is it the case that a practice reaches its objectives? Why is a practice working well in certain respects? Such knowledge is necessary in order to retain good practices and not to destruct the good in practices when changing them.

Why call it *practical* inquiry? Is it not a scientific endeavour? It is a scientific activity, but with practical intent. It is an investigation into practices for practices. *Practical inquiry is research about the practical and in favour of the practical*.

The research performed and described in this paper has been pursued as a practical inquiry. It has had clear local practical purposes. It has contributed with criticisms and proposals to the local practice (in this case the e-service development process). This can be considered as a design intervention practical inquiry; which is a partial action research (without action taking/implementation as part of the research process) following the discussion above. The research has also contributed with abstracted knowledge aimed as general practice contribution. This will be further discussed in the next section when exploring the concept of practical theory as a result from practical inquiries.

In the conducted PI different types of data were used. The main data source was the requirements specification in its original form and also the revised version. I participated in four project seminars/meetings around the requirements spec and field notes were taken during these meetings which also have been used as empirical data. A review report was produced as an evaluation result. This report contained criticisms and proposals for revision of the requirements spec. The review report is also an important data source for the writing of this paper.

2.2. Practical Theory: Functions and Constituents

Practical theories (PT) may play important roles in practical inquiries. Practical theories can be used as bases to inform the process of a practical inquiry. It can also be one important result of practical inquiries. Different uses of theories in case study research are identified [Eisenhardt, 1989; Walsham, 1995]: as an initial guide to design and data collection; as part of an iterative process of data collection and

analysis; as a final product of research. This corresponds well to the roles of practical theories in practical inquiries. Practical theories can both be used as guides to inform data collection and data analysis, and be one end result from the inquiry evolving through the process of it. Sometimes it can be the same theory that acts as input and as output; the latter as an unchanged version (given more confirmation) or a modified version based on new insights. However, there may be other practical theories that are used as bases than is the end result. A new practical theory can evolve through the practical inquiry, although linked and related to ones used as theoretical instruments in the inquiry. This has been the case in the conducted practical inquiry; more will be said below about this.

The concept of practical theory has been elaborated earlier by [Cronen, 1995; 2001 and Craig and Tracy, 1995]. Cronen [1995 p 231] describes practical theories in the following way: "They are developed in order to make human life better. They provide ways of joining in social action so as to promote (a) socially useful description, explanation, critique, and change in situated human action; and (b) emergence of new abilities for all parties involved." Practical theories should help us to see things, aspects, properties and relations which otherwise would be missed [Cronen, 2001]. "Its use should, to offer a few examples, make one a more sensitive observer of details of action, better at asking useful questions, more capable of seeing the ways actions are patterned, and more adept at forming systemic hypotheses and entertaining alternatives" [ibid, p 30]. This means that a practical theory may be an appropriate instrument for conducting practical inquiries, but also an instrument for practitioners struggling to manage and improve their practices. A practical theory is both a contribution to the scientific body of knowledge and to general practice (as transferable and useful knowledge), as described as the goals of practical inquiry above (section 2.1).

Cronen [1995; 2001] has grounded the idea of a practical theory in pragmatic philosophy and the concept of inquiry according to [Dewey, 1938]. The constituents of a PT are not distinctly elaborated. "Definitions, descriptions, models and case examples all contribute to guiding its use" [Cronen, 2001 p. 30]. In a pragmatic spirit Cronen's emphasis is on its use. However there is also a need to specify its possible constituents in order to help people to develop and evaluate practical theories. After working with (developing, applying) practical theories for several years [e.g. Goldkuhl and Röstlinger, 2003; Goldkuhl and Ågerfalk, 2002; Goldkuhl and Lind, 2004], I want to contribute with the following specification of its possible (partially overlapping) constituents:

- Conceptualisations
- Patterns
- Normative criteria
- Design principles
- Models

By ***conceptualisations*** I mean *what things*[5]*, properties and relations* that exist in practices. We can talk about practice relevant conceptualisations. This constituent of a practical theory includes *concepts* (categories as abstracted phenomena) and *relations* between the concepts. Conceptualisations, as consisting of *definitions* of core

[5] The word "thing" is used in a very broad sense here. Not only as a static external object. It can denote all possible phenomena (actions, processes, actors, thoughts, artifacts, texts, norms etc) in practices.

categories, will have a central place in a practical theory. Sometimes a practical theory may consist of nothing more than this part (conceptualisations). This follows the idea that theory is not restricted to explanation and prediction [Schatzki, 2001]. A theory can be "systems of generalizations", "typologies of social phenomena", "models of social affairs", "accounts of what social things are", "conceptual frameworks" and "descriptions of social life couched in general, abstract terms" [ibid, p 4]. Conceptualisations can of course be described textually but also graphically as conceptual structures (by the aid of theory diagrams of conceptual structures).

By ***patterns*** I mean *how things (may) work*. This implies abstractions of socio-pragmatic processes in practices. Actions play a central role in pattern descriptions [Blumer, 1969; Strauss, 1993]. Actually, pattern descriptions are mainly organized around actions as the central theme. This follows also the main structuring principle of theorizing according to the Grounded Theory approach [Strauss and Corbin, 1998]. An action paradigm is used for axial coding in Grounded Theory. I would like to call this part of theorizing (in a PT) as *pattern coding*. In pattern descriptions we include preconditions, enablers, affordances, obstacles, strategies, tactics, actions, states, transitions, consequences and similar meta-categories. It is important to state that pattern descriptions unfold socio-pragmatic possibilities rather than any strict causality. Most practice patterns are not deterministic; instead they are based on voluntariness, customs and habits. Besides textual descriptions, one can use graphical models to depict action patterns, as e.g. theory diagrams according to [Axelsson and Goldkuhl, 2004]. Such a diagram type has been used for pattern coding in the practical inquiry (Figure 5-8).

By ***normative criteria*** I mean *the goodness of things*. Practices are social phenomena arranged intentionally and as such they inherently include values. Normative criteria state explicitly different values associated with practices and actions and artefacts that are comprised within them. Normative criteria can be used for both evaluation (diagnosis) and design of practices.

By ***design principles*** I mean ways *how to create good things*. This means that design principles can be used for development of practices. Design principles should not be equated with methods which I consider to be concrete procedures and instruments for development. Design principles are formulated on a more general, abstracted and principal level than a method. Of course methods build on and instantiate good design principles. Design principles are clearly related to normative criteria. Design principles describe ways to create certain goals of practices (i.e. normative criteria). This means that design principles are instrumental in relation to normative criteria.

Design processes may be guided by design theories [Walls et al, 1992]. A design theory can be seen as a special case of a practical theory; a design focused practical theory. In such a theory, normative criteria and design principles play central roles. Compared with the definition of a design theory in [Walls et al, 1992], normative criteria correspond to meta-requirements and design principles correspond to the method component[6].

By ***models*** I mean *illustrative crystallizations* of a practical theory aimed as analytic instruments when applying the theory. A model is a graphical or a tabular description of some important aspects of the practical theory. Such a model may guide researchers or practitioners to observe, understand, analyze, evaluate and redesign

[6] It is beyond purpose and scope of this paper to make any in-depth comparison between the notions of practical theory and design theory.

phenomena within practices. In section 3 below examples of practical theories and their model crystallizations are described. These practical theories and models have been used in the practical inquiry.

The practical inquiry has resulted in an emergent practical theory. It consists of *patterns* of e-service actions (in the form of theory diagrams) which are abstracted from the case (section 4). It consists also of a provisional *conceptualisation* (definition) of public e-service based on the performed case study (section 5). The practical inquiry has been guided by a clear goal (normative criterion): to improve the service to citizens through public e-services. This means that the *normative criterion* of served citizen is also one main component of the evolving practical theory.

3. Practical Theories Informing the Practical Inquiry on Public e-Services

In the practical inquiry, I used several practical theories as indicated above. These theories are all founded in socio-instrumental pragmatism. The main theories used will be briefly described in this section. This will mainly be done by showing and commenting on some models from the socio-pragmatic theories. Three models will be presented below:

- the generic exchange model
- the communication model of public e-services
- the cyclic model of human action

These theories/models were used as lenses when examining the planned e-service application. They helped me to understand the e-service application and to raise critical questions. These lenses were not put on from the start of the inquiry. They were instead brought forth, from a "tool-set" of possible lenses (theories/models), when demanded from the doubtfulness of the situation[7]. If the situations had been doubtful in other ways, other more appropriate theories/models would had been used as lenses. The selected practical theories are "tools" in my socio-pragmatic "tool-set".

3.1. The Generic Exchange Model

The generic exchange model (Figure 1) is based on the BAT models [Goldkuhl and Lind, 2004]. The BAT models are generic models describing the business interaction between customers and suppliers. According to the practical theory Business Action Theory (BAT), a business transaction can be divided into four generic phases: 1) proposal phase, 2) commitment (contract) phase, 3) fulfillment phase, 4) assessment phase. The business transaction is a dyadic interaction between one customer and one supplier. This is related to market interaction with several customers and several suppliers. Business Action Theory emphasizes [ibid], with reference to communicative action theories [e.g. Austin, 1962; Habermas, 1984], that business interaction consists of social actions of different characters.

The generic exchange model (GEM) is modified from the BAT models. First, the context has been generalized to cover both commercial and governmental settings. Second, two BAT models[8] have here been integrated into one model. Third, generic

[7] It is the doubtfulness of a situation that drives an inquiry according to [Dewey, 1938]. He writes: "We are doubtful because the situation is inherently doubtful" [ibid p 109].

[8] The two BAT models that have been integrated into one model are "BAT market and dyadic interaction model" and "BAT business transaction model" [Goldkuhl & Lind, 2004].

actions of the inter-actors in the different phases have been explicitly stated. Fourth, environing infrastructure elements have been added to the model. Such infrastructure elements, as e.g. legislation (=norms), are very important in governmental contexts[9]. The generalization of BAT to GEM has been more thoroughly described in [Goldkuhl and Röstlinger, 2007].

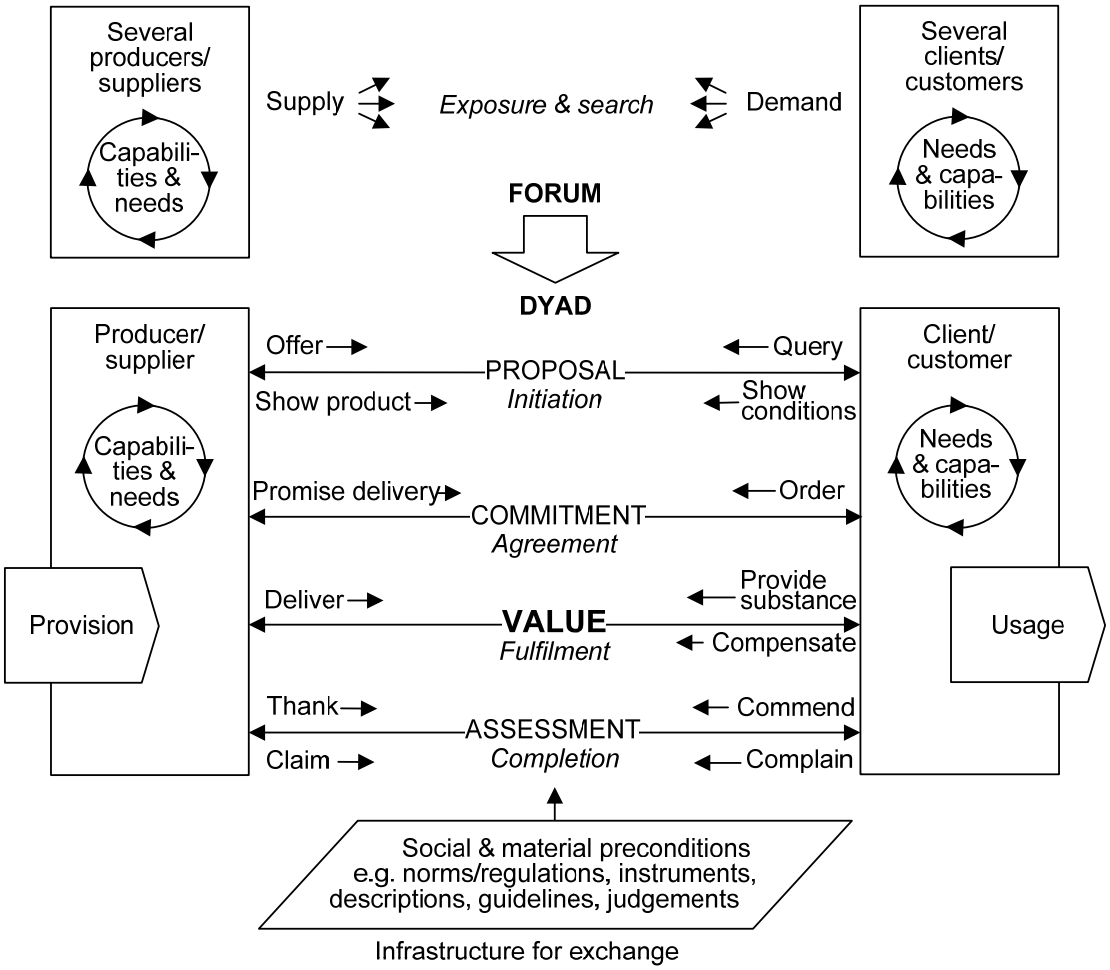

Figure 1. The generic exchange model – GEM from [Goldkuhl and Röstlinger, 2007].

BAT consists of an important concept pair: potential vs. particular customer [Goldkuhl and Lind, 2004]. Potential customers occur on the market. The dyadic interaction occurs between a particular customer and a particular supplier. This conceptual difference corresponds to the difference between the public (all citizens) and a particular citizen. The differentiation between citizens as potential clients vs. citizens as particular clients was used in the practical inquiry together with the phases and actions in the GEM model. The term 'market' (from BAT) has in GEM been replaced by the more general term 'forum' [Goldkuhl and Röstlinger, 2007].

[9] In order not to make the GEM model too complex, symbols (in the BAT models) depicting business relations between customer and supplier have been excluded. Social relations between inter-actors are however shown in the communication model of public e-services (Figure 2).

3.2. The Communication Model of Public E-services

An e-service application is encountered by the citizen through a user interface. A communication model of public e-services is found in Figure 2. This model is part of the practical theory on information systems actability [e.g. Goldkuhl and Ågerfalk, 2002; Sjöström and Goldkuhl, 2004]. In information systems actability theory, information systems are seen as instruments for technology mediated work communication. Communication is performed through a user interface, which thus is conceived to be an action and communication medium. A user interface consists of different communication parts (Figure 2). A user interface contains some descriptions of what action possibilities there are to hand. Sometimes, such action possibilities may be implicit and even concealed. An e-service application consists usually of possibilities for a citizen to read information (i.e. to get information from a governmental agency) and to submit something to the agency. Communication between citizens and a governmental agency is afforded by an e-service application. The action repertoire of the e-service application is its communicative affordances [Gibson, 1979; Hutchby, 2001]. Information systems actability theory is built on communicative action theories [e.g. Austin, 1962; Searle, 1962; Habermas, 1984]. To communicate is seen as a kind of action. Different types of actions may be performed through an e-service application; for example a citizen applying for child care, a municipality offering a place on a day nursery, a citizen accepting or declining such an offer. Such communicative actions are *performative* in function. Something is made, not simply reported about. One important insight in communicative action theory [Habermas, 1984] is that communication makes changes in the "social world", i.e. different social relations are established, maintained and modified through communication. This will surely be the case even if the communication is mediated through an e-service application.

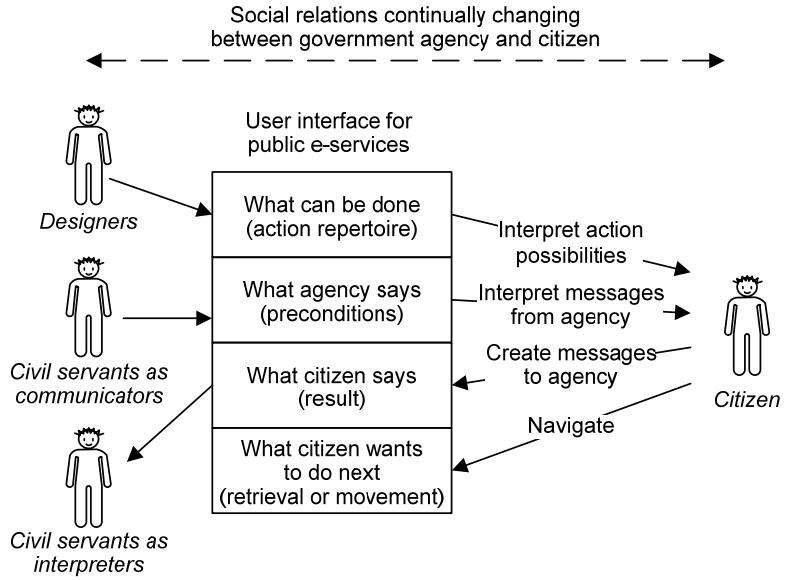

Figure 2. The communication model of public e-services based on [Sjöström and Goldkuhl, 2004] and [Persson and Goldkuhl, 2005][10].

[10] Persson and Goldkuhl [2005] have adapted the original model from [Sjöström and Goldkuhl, 2004] to the context of public e-services. Here, the aspect of social relations has been added.

3.3. The Cyclic Model of Human Action

Besides these two models, a simple model of human action has been used (Figure 3). It is based on Mead's [1938] conceptualisation of human action. He makes division of four stages of an act: the stages of impulse, perception, manipulation and consummation. In [Goldkuhl, 2004] I have transformed these stages into a cyclic model of human action (Figure 3) consisting of three phases. The first two stages from Mead have been integrated into one phase: Pre-assessment. This first phase is associated with trying to work out the possibilities of acting. What are the circumstances in the environments? In what ways is it possible to act? The actor perceives and assesses the action environment before intervening into it. The next phase is the intervention in the environment, and it corresponds to Mead's manipulation. Intervening can be a physical intervention or a communicative intervention. Even during intervention, the actor may monitor the environment [Giddens, 1984], so perception is actually going on in all phases. After the intervention, the actor makes a post-assessment (which corresponds to Mead's consummation stage). The actor observes the results and effects of his interventive action. Did the actor succeed with his intentions? Were there expected results and effects of the performed intervention? If the actor was not content, this post-assessment can shift to a new pre-assessment before the next intervention is made. This is the cyclic nature of action. A post-assessment can evolve into a pre-assessment and be followed by a new intervention.

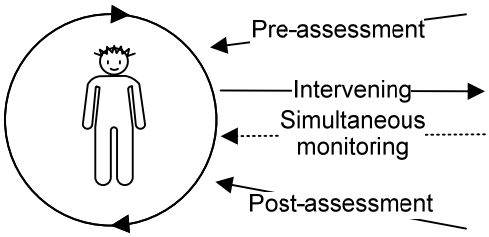

Figure 3. The cyclic model of human action; based on [Goldkuhl, 2004].

4. A Practical Inquiry into Planned e-Services for Child Care

One purpose of the inquiry was to learn more about public e-services. As said above the inquiry had local practical purposes of trying to improve a requirements specification. The inquiry has also contributed to an improved understanding of the e-service notion; of affordances and obstacles for services to the citizens. The case was a requirements spec for e-services for child care. This requirements spec (and its deficiencies) was shown to be valuable for creating a deeper knowledge on the service in e-services. The requirements spec was rather detailed. It consisted of detailed descriptions of functional requirements for six main e-services (in total 39 pages). It was also supplemented by other descriptions (process models, data models, message transfer descriptions, project plans).

The requirements spec was developed by a project group consisting of several child care administrative professionals from several municipalities supported by a systems analyst from a consultancy firm. The systems analyst was responsible for documentation. Several municipalities participated in the project and contributed with their different views and experiences in order to arrive at e-services which should be

conjointly usable in many municipalities. I did not participate at all in this original requirements analysis process. It was performed nearly one year[11] before I got acquainted with the requirements spec.

4.1. Citizen – Municipality Interaction through E-services

The requirements spec describes functions of certain kind of IT artefact, an e-service application. This is a web application that is aimed to be used by external users (parents) and it should function together with other municipal information systems. These IS are seen as internal in the municipality in relation to the e-service application which is an external system that brings external users to interact with municipal actors. The e-service application is clearly an instrument for citizen - agency communication as stated in section 3 above. This web application is intended to comprise several e-services for the citizen. Citizens (external users) are parents who will apply for a place for their child/children in publicly financed and municipally administered child care. In Figure 4 an interaction model describes the context of the child care e-service application. The e-service application shall have functions for parents to get information about charges, to apply for child care, to receive placement offers (through e-mail) and accept/reject such offers, to continually notify any changes in schedules and to give a notice of termination.

Figure 4 specifies the interaction between parents and the child care in the municipality. This model (a co-work diagram) was developed by me and was included in the review report mentioned above. No such diagrams were included in the requirements spec. The interaction model presented in Figure 4 was inspired by the general exchange model (Figure 1) presented in section 3 above. The child care model is actually structured into phases according to GEM. Supply options and information on charges are parts of the proposal phase; application, placement offer and accept/reject message are parts of the contracting phase; leaving and fetching the child is part of the fulfilment phase. Schedule changes and notice of termination is actually also parts of the contracting phase. The agreement between parents and municipality can be seen as a frame contract [Goldkuhl and Lind, 2004] and the schedule changes concern specific requests for sub-transactions (days) within such a frame contract. A notice of termination is a withdrawal of the agreement.

[11] For several reasons (mainly organisational) the requirements spec was dormant for nearly a year and not furthered into a procurement process. It was just before the requirements spec should be activated for procurement that I was assigned a quality assurance task.

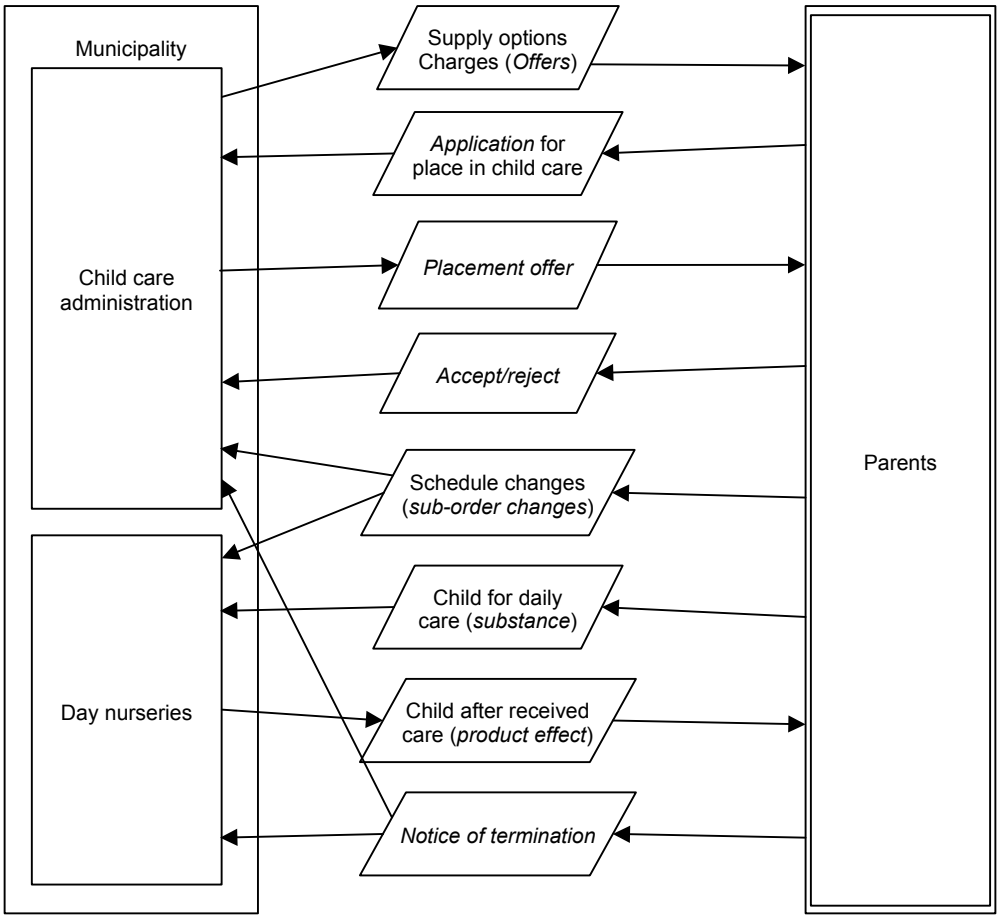

Figure 4. Interaction between the municipality and the parents (co-work diagram).

4.2. Supply Information in E-services

The interaction model is actually an idealized model of the planned web-mediated interaction. Supply options were not as explicit as they are depicted in the diagram. The user had[12] first to log on to the child care e-service application. A secure identification was needed to get access to the e-services. The only thing the user could do without authentication was to view charges for child care. After authentication it was possible to apply for places in the child care. When doing this a list of possible day nurseries was exposed. This was just an enumerated list of names of day nurseries. There was no other information for the user as a support for his/her choice. This circumstance became the basis for my most serious criticism towards the requirements spec. In order to make a proper choice between different supply options of day nurseries in the municipality, there was a need to get a good image of these different options. This criticism was informed by the GEM model and the interaction between a producer and a client (section 3 above). The first interaction phase (proposals) is about getting informed about possible options before the client gives an order (the contracting phase).

[12] Even if this was a planned e-service application (which never became realized according to its original requirements spec), I find it more natural to use past tense when describing it. This was the way it was thought to work.

I stated (in the review report) several issues that might be important for parents to know about the different day nurseries before a proper choice was made: locations (addresses, maps) with information about different roads (motor roads, cycle paths, footpaths) and information about public transport in relation to the day nurseries; number of staff, number of children, estimated time in waiting line; type of authority (municipal, private, co-operative); pictures of the day nurseries (interior, exterior, plan-drawings); educational direction. Nothing of these things was part of the requirements spec.

During the analysis of the requirements spec it became apparent that it was built on a certain view of the users (the parents). The parents were mainly seen as *information suppliers*. The most important seemed to be to get accurate information to the municipal IS through the web application. This view has also been corroborated through the meetings with discussions around the spec. When I presented this criticism, there were 'aha' reactions among participants that they had taken an internal administration perspective at the expense of an external client perspective. This has led to procedures for full authentication when entering the e-service application. This was a way to ensure that proper information was entered into the system and also that the user could check already registered information for accuracy. This led also to the consequence that very little could be done by a potential client in the e-service application. There was no possibility for a curious citizen to get to know about supply options, through the e-service application, before authentication was made. The citizen was very early forced into the role of a known particular client and could not act as an unknown potential client when surfing the e-service application.

The project participants defended their proposed design solution towards my criticism of having no information of child care supply in the web application. They claimed that they had discussed this issue during the requirements analysis process, so they had not totally dismissed it. They had thought that most municipalities had separate (informative) home pages about day nurseries and therefore it was not needed to include such information in the e-service application. When the user was navigating in the e-service application, no such information was however easily available and after my oral and written criticism and the subsequent discussions the participants decided to revise the spec. Different solutions were identified and advantages and disadvantages were identified and evaluated before a consensus decision were taken. The design options can be described in terms of informatives and performatives in e-services[13]. In the original solution, the application for child care was a restricted performative e-service afforded by the municipality for the parent to conduct through the web. It was restricted in the sense that very little information about options was available. The information was separated from the performative e-service. Informed by practical theories/models as the generic exchange model, the cyclic model of human action and the communication model of public e-services (section 3 above), a need for a closer alignment of informatives and performatives was identified. Before a client (a parent) performs an interventive action as ordering (=applying for child care), there is a need for a pre-assessment of available options (the supply to chose among). To be informed is necessary in order to make a deliberate choice (see section 3.3 above). The project participants decided in this new spec not to make a total integration of informatives and performatives. With support

[13] The distinction between performatives and informatives follow the distinction made by [Austin, 1962] between utterance types of performatives and constatives. Confer also [Goldkuhl & Person, 2006ab] about performative and informative e-services.

from me, a compromise[14] was formulated. In the performative e-service of application for child care, the list of day nurseries was changed to contain clickable links to comprehensive descriptions of day nurseries. At these informative home pages for day nurseries clickable links ("Apply for child care") to the e-service application were recommended to be added. Earlier (in the original spec) there were no links between these different web pages. Now, reciprocal links were added on both types of pages, which makes it fairly easy to move between the performative and informative parts.

The description so far has been rather close to the empirical level of the child care e-services. I have described the local practice contribution in the practical inquiry. The analysis has also been used to abstract to descriptions aimed for general practice contribution, i.e. to descriptions beyond the case. Two theory diagrams (Figure 5-6) have been developed for such illustrations.

Figure 5 describes, in abstract terms, a situation in accordance with the original requirements spec. An abstracted socio-pragmatic pattern is described. Preconditions and consequences are described in the theory diagram. Abstraction means that local practice concepts have been left and more abstract ones have been used instead (e.g. from parent to citizen). In the abstraction process, considerations have been made if there are any reasonable obstacles for making such abstractions. Are they adequate to make and not far-fetched?

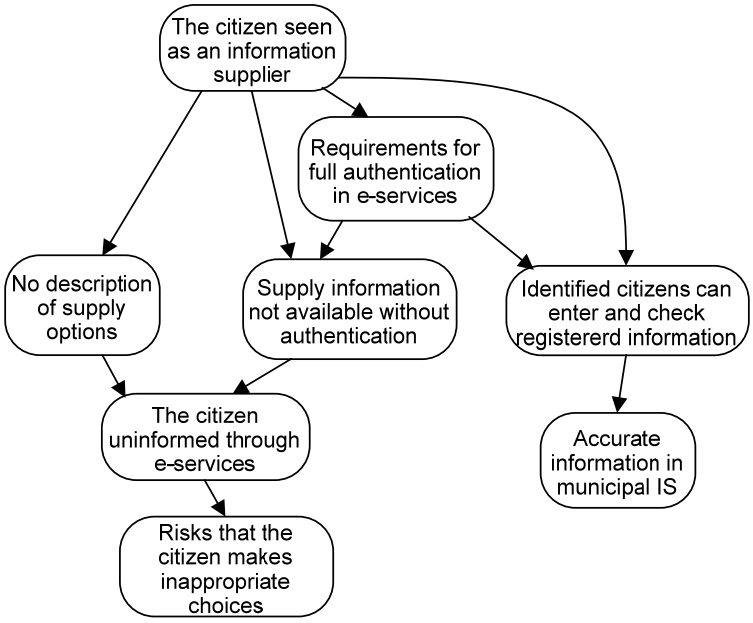

Figure 5. Insufficient supply information in e-services (Theory diagram).

The theory diagram (Figure 5) describes that e-service applications which do include supply options may lead to uninformed citizens and hence risks for inappropriate choices made by the citizens. "No descriptions of supply options" and "supply information not available without authentication" are (negative) affordances of e-service application. These IS traits are dependent on certain conceptions held by the IS designers. In this case, "the citizen seen as an information supplier" is such a dominant conception. It is however important to acknowledge the rationale of this

[14] I argued still for a tighter integration of performatives and informatives since such a solution seems to give the client more easy access to supply options.

conception. As can be seen from Figure 5, such a conception may lead to proper authentication and IS functionalities (affordances) to obtain accurate information in IS, which of course is one important goal (=normative criteria).

Figure 5 has shown the problematic; the lack of citizen-centric view and possible consequences of this. Figure 6 shows another view; a view that emerged through the critical analysis of the original requirements spec leading later to a revised spec. This theory diagram describes positive affordances of e-service application as "exhaustive description of supply options" and "supply information available without authentication". These affordances may contribute to informed and empowered citizens with capabilities to make deliberate choices in their own interests. This design of e-services is based on an alternative conception of the citizen; someone to be served through the e-services. This would perhaps be seen as self-evident from the word e-*service*. However, the service dimension seems not always to be emphasized in e-service development. This case study is one example of this. In the original design, the emphasis was on the citizen as an information supplier and not one to serve and empower. However, the conception of the citizen as an information supplier is not totally inadequate. In certain situations it is of course important. It must however be subordinated in certain parts of the e-service application. In other parts it is still valid; as a rationale for obtaining accurate information in IS.

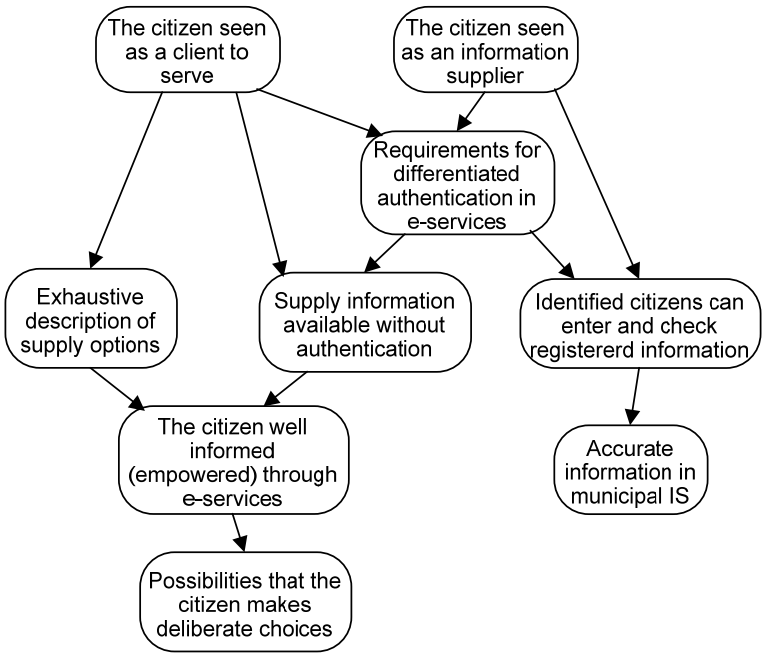

Figure 6. Exhaustive supply information in e-services (Theory diagram).

4.3. Relational Changes through E-services

There were other features in the requirements spec which were criticized by me in the review process. In the application for child care, the parent may give three ranked alternatives of day nurseries. Due to the availability of places at different day nurseries, the municipality may give a placement offer of the second or third alternative to the parent. An e-mail is sent to the parent in waiting line with offer information and a link to a web page (in the e-service application) where the parent can give an answer, i.e. to accept the offer or decline it. The answer can lead to

different consequences dependent on different rules and routines in municipalities. The diversity of rules was identified in the original requirements analysis process.

If the parents accepted a second or third offered alternative, they perhaps want to be kept in waiting line for a higher ranked alternative when the child has a place in the offered day nursery. There exist municipalities that do not keep applications in waiting line for those parents who have accepted a place. Higher ranked desires are cancelled. The e-service application did not contain any response to the parents with this information. Internal municipal IS with waiting line register were changed, but no information was sent to the parents. This means that the municipality made a change in the relation to the parents without communicating this. There was no proper notification of the change in status of an application. The citizen becomes uninformed about the relational changes and this may affect their future interaction with the municipality in negative ways.

This is another example that the e-service application lacked proper communication to the parents. In this case it is an important performative from the municipality that is lacking; a change of waiting line relations is not communicated. This design solution in the original requirements spec may also be a result of seeing the citizen as an information supplier. In this case, the important thing is to get an answer from the parent to the placement offer. After this answer has been given, internal IS are changed to contain accurate information (about relational changes). Since the citizens are seen as information suppliers, there is no need to inform them about changed relations.

This situation has been abstracted into a theory diagram (Figure 7). Criticism from me against the solution in the original requirements spec led to a revised spec where relational changes were communicated. This positive situation is abstracted in a theory diagram (Figure 8).

The theory diagrams are abstractions from this accounted situation and also from two other similar situations, which will be briefly described. If there was a rejection from the parent to a low ranked place, this could in some municipalities mean that the whole application for child care was cancelled. The application was cancelled without any communication through the e-service application. This was of course serious, since the parents did not become aware of the consequences of their rejection. These important rules and regulations were not explicit stated in the e-service application. A more serving e-service application should contain such important information to the citizens (Figure 8). It is important that an external user has proper information (e.g. municipal rules) as a pre-assessed basis for future action. This follows the cyclic model of human action (section 3 above). This model contains also a claimed need for post-assessment of conducted actions. This was however not enforced in the original design solution. The parents were never informed about the consequences of the actions (accept or decline to the placement offer). A proper response from municipality to the citizen notifying the relational changes that had occurred was well needed.

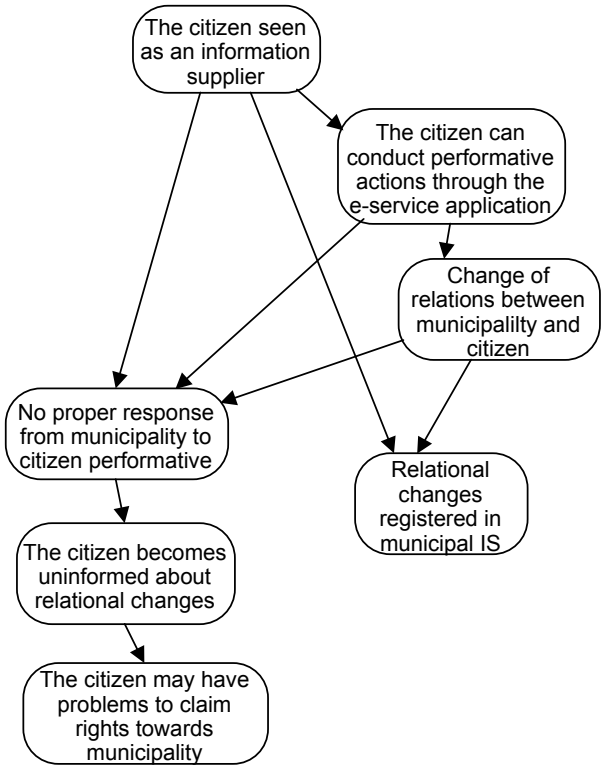

Figure 7. Inappropriate management of relational changes through e-services (Theory diagram).

In the original requirements spec, the concept of a place holder was described. When a single parent or two parents had accepted a placement offer, this information will be registered in the municipal IS. The parent(s) who has accepted the nursery place become place holder in the IS and within municipal child care practice. There follow certain rights and liabilities with the role of a place holder, which means that it is not only an internal concept; i.e. something that only arises through an execution in an IS. Place holder is role of parent(s) given by the municipality. This should not be done in an implicit way as in the original requirements spec (Figure 7). The e-service application should be used to explicitly communicating this role assignment and also by informing about rights and liabilities in mediating the rules and regulations (Figure 8).

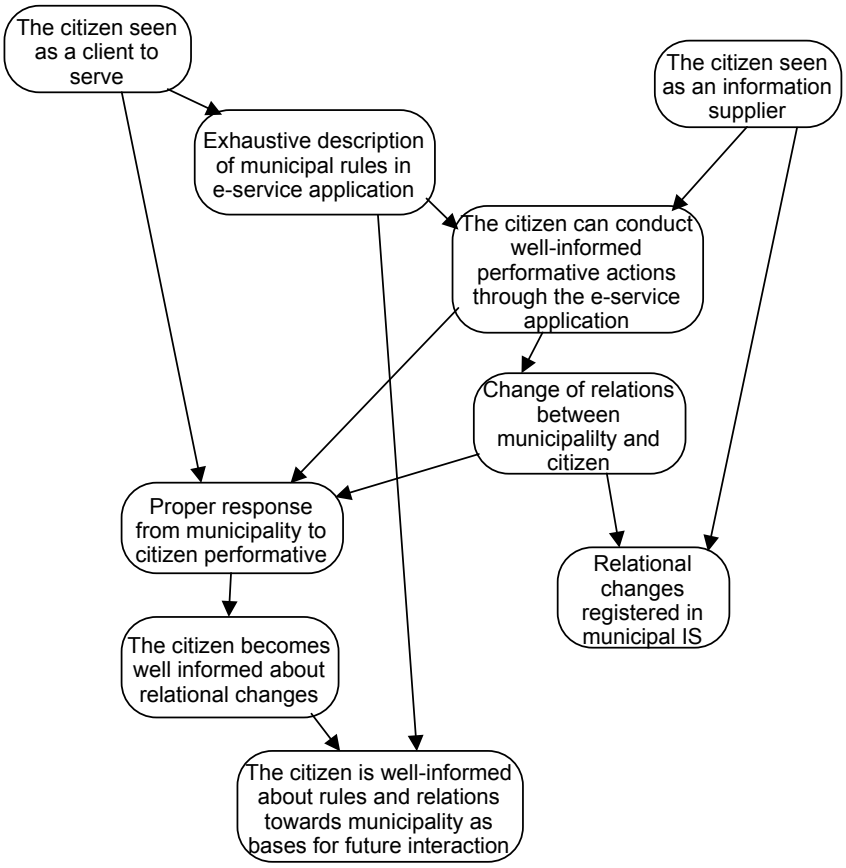

Figure 8. Appropriate management of relational changes through e-services (Theory diagram).

This identification of communicative deficiencies in the e-services was made through the use of socio-pragmatic theories (section 3). Communication is not only a matter of information transfer. Through communicative actions interpersonal relations are created [Habermas, 1984; Heritage, 1984][15]. If those relations are changed by one party but not properly communicated, then this will lead to lack of clarity in the social relations. It is like inviting someone for dinner, and after an acceptance from the guest, then one changes one's mind without informing the guest about the cancelled dinner. Most people would probably claim that an invitation that is not explicitly withdrawn still counts as an invitation.

5. Towards a Socio-pragmatic Conceptualisation of Public E-services

In the text above an important distinction has been made between e-service and e-service application. An e-service application is an information system that consists of e-services aimed for external users and supported by appropriate technology (preferably web technology, sometimes combined with e-mail and text messaging).

[15] This is surely the case even if the communication is mediated through IT artefacts; confer e.g. [Sjöström & Goldkuhl, 2004].

The crucial question has been: In what ways is a public e-service a service to the citizen? A service is here associated with some benefit or utility for the client[16] [Grönroos, 1990]. Otherwise it should not be seen as a service. The criticisms against the planned e-services for child care, presented in section 4 above, included claims for more communication service to the citizens. Seeing the citizen mainly as an information supplier is not especially service-oriented.

E-service applications are seen as instruments for two-way communication between citizens and one or more governmental agencies. In Figure 9 I have made a characterization of the different communicative actions in the studied e-service application. Each communicative action can be seen as a separate e-service, although the different e-services form together a coherent service package. There are two communicative actions directed from municipality (M) to parents (P); supply option and placement offer. This can be called a G2C e-service; pivotal is the communication from government agency to citizen. There are four communicative actions directed from parents to municipality; application, offer response (accept/reject), schedule change and notice of termination. This can be called a C2G e-service; pivotal is the communication from citizen to government agency[17]. The different communicative actions (and their directions) can be seen from the co-work diagram above (Figure 4). In order to clarify meanings of e-services, I have distinguished in Figure 9 between the municipality (e-)services and the value to the clients. The values to clients (parents) are described in terms of client knowledge and possible actions following the e-service. The service is described as what the municipality *does* in relation to the citizens.

The two types of G2C e-service are of different characters. Supply options are general offers directed to anyone concerned. There is no individualisation in this e-service. Placement offer is an offer directed to specific parents. This e-service is individualised[18]. One important value of the communicative action (e-service) of supply option, argued above, is that the parents should be well-informed before they make applications for child care. This is a general offer e-service and its benefit for the citizen is the possibility of better informed subsequent actions.

The personal offer is a governmental response to an earlier made client application. In this case it is a placement offer, where the municipality has selected one of several requested options from the parents. This gives the parents an opportunity to assess the proposed placement and respond to it (accept/reject).

A placement offer is an example of an application response from government agency to citizen. If such a response is a positive answer to an application it will sure be considered as something valuable. But governmental agencies do not always bring positive messages to citizens. If there is a refusal to an application, what is the value for the citizen? The value can hardly be seen to lie in the content of the negative message. What is the service value in such performative e-services to citizens besides any possible positive content in messages? The value can be in the *manner* the performative message is delivered (technical value). It is delivered in some way that

[16] Much more can be said about services. It is beyond the scope of this paper to go into a general depth concerning the service notion. An earlier critical analysis can be found in [Goldkuhl & Röstlinger, 2000].

[17] There is of course communication from agency to citizen preceding the communicative action of a citizen. The action possibility for the citizen to communicate must first be afforded by the agency as part of the web application. More about this will be said below.

[18] Goldkuhl & Persson [2006ab] describe degree of individualisation as a key feature for e-services. They distinguish between general and individualised e-services within this dimension.

makes it easier for the citizen. This is a matter of availability and comfort. The value can also be related to the *interaction* between agency and citizen (social value). If the citizen makes an application and the government rejects the application, there is valuable for the citizen to get this *response* explicitly. A non-action (an omitted response) keeps the citizen in a state of uncertainty. I criticized the original requirements spec for not explicitly stating the changed social relations to parents (section 4.3 above). Even if the municipality had deleted a higher ranked day nursery place in an application, it is of clear value for the parent to be informed about this. The change in social relations will be explicitly made through this kind of performative communication. This is an example of a responded e-service from governmental agency to citizen.

Communicative action	**Action mode**	**Direc-tion**	**Degree of individu-alisation**	**Municipality service**	**Value to client (possible actions)**
Supply option	General offer	M→P	General	Expressed options in informative way	To know and assess different alternatives
Application	Request	P→M	Personal	Application affordance	To apply for child care
Placement offer	Personal offer	M→P	Personal	Delivered personal offer	To receive a placement offer and assess it
Accept/reject	Offer response	P→M	Personal	Response affordance	To respond to placement offer
Notification of status change	Declarative change	M→P	Personal	Clear expressions of status change	To know current state of application
Schedule change	Suborder change	P→M	Personal	Change affordance	To change schedules continuously
Notice of termination	Withdrawal	P→M	Personal	Withdrawal affordance	To make a notice of termination

Figure 9. A characterization of different e-services in the child care case.

From the discussion concerning the different G2C e-services, certain conceptual implications can be seen. There is an important distinction in speech act theory [e.g. Austin, 1962; Searle, 1969] between illocutionary force (here called performative function or action mode) and propositional contents (here called information content). One can formulate certain general requirements for these e-services. They need to be *clear in performative function* and *rich in information content*. In the original requirements spec, the supply options were not sufficiently rich in information content. The placement offer was not clear concerning its performative functions (it changed relations without notifying). This leads to articulation of two important normative criteria for e-services:

- Performative clarity
- Information richness

What kind of service is there in communication from citizen to governmental agency (C2G)? How are citizens served when they send messages to governmental

agencies? The service exists in the *affordances* of communication possibilities. An e-service application launched by a governmental agency may comprise possibilities for a citizen to send messages to the agency. The e-service application for child care included for example possibilities to apply for child care and to accept/reject an offer for a place in a day nursery. This means afforded communicative actions. Such affordances are parts of the action repertoire of the e-service application; confer Figure 2 above and e.g. [Sjöström and Goldkuhl, 2004].

This leads to a differentiation of two types of e-services depending on communication direction:

- Communication service; i.e. something communicated (G2C)
- Communication affordance; i.e. a possibility to communicate something (C2G)

This distinction of public e-service is empirically grounded in the child care case. As has been showed (e.g. Figure 9 above), these types of e-service can be found in the case. The distinction is theoretically grounded in the information systems actability theory [e.g. Goldkuhl and Ågerfalk, 2002; Sjöström and Goldkuhl, 2004] and its related e-diamond model [Goldkuhl and Persson, 2006ab] with an emphasis on two-way communication in information systems and e-services. Confer also [Ancarini, 2005] and [Wimmer, 2002] for two-way communication conceptualisations on public e-services. This differentiation can be used as a basis to formulate a provisional definition of a public e-service: *A public e-service is, through appropriate information technology, delivered useful messages from governmental agency to citizens, or affordances of communication from citizens to governmental agencies.*

6. Conclusions

This practical inquiry has been about how to understand the service dimension in public e-services. Why do we call public e-services '*services*'? Are they really services? The study was to a large degree triggered by observations in the child care case that citizens could be served in better ways if the e-services were modified in certain ways.

Are e-services mainly seen as a smart way to get information from the citizens? The citizens are the ones to enter information into governmental systems. If this will be the dominant thought in e-service development, there is a great risk for failures. E-services should be ways to serve the citizens, not only to tap information from them. One slogan could be: *Towards an empowered citizen through e-services*.

The case study has been concerned with e-services for municipal child care. It has been a practical inquiry that has resulted in both *local practice contribution* (criticisms and proposals for changes) and *general practice contribution* (emergent formulations of a practical theory consisting of 1) a normative criterion of 'served citizens' guiding 2) an e-service conceptualisation (definition) and 3) abstracted pattern descriptions that goes beyond the case). The practical inquiry has been informed by selected practical theories. This means also that the resulting theoretical constructs are grounded in the used socio-pragmatic theories. The result is seen as an evolving practical theory. This means that it is not complete and finalized[19]. Much remains still to be done. The constructs, as being elements of an evolving *practical*

[19] The pragmatic view on theories is that they will never be finalized [Dewey, 1938; Cronen, 2001]. They are in a continual state of evolution.

theory, are however intended to be used to inform practical design and evaluation of public e-services. It is also intended to be used in future practical inquiries and thereby be further developed.

Acknowledgements

This research has been financially supported by the Swedish Governmental Agency for Innovation Systems (VINNOVA). The research is performed in close collaboration with Sambruk (The Platform for Co-operative use). I thank the anonymous reviewers for valuable comments on the paper.

References

Ancarini, A. (2005). "Towards quality e-service in the public sector: The evolution of web sites in the local public service sector", in *Managing Service Quality*, vol. 15, no. 1, pp. 6-23.

Asgarkhani, M. (2005). "The Effectiveness of e-Service in Local Government: A Case Study", in *The Electronic Journal of e-Government*, vol. 3, no. 4, pp 157-166, www.ejeg.com.

Austin, J. L. (1962). *How to do things with words*, Oxford University press.

Axelsson, K. and Goldkuhl, G. (2004). "Theory Modelling - Action Focus when Building a Multi-Grounded Theory", in *Proceedings of the 3rd European Conference on Research Methodology for Business and Management Studies*, Reading, UK.

Blumer, H. (1969). *Symbolic interactionism: perspective and method*, University of California Press, Berkeley.

Buckley, J. (2003). "E-service quality and the public sector", in *Managing Service Quality*, vol. 13, no. 6, pp. 453-462.

Chein, I., Cook, S. W., and Harding, J. (1948). "The field of action research", in *American Psychologist*, no. 3, pp. 43-50.

Craig, R. T. and Tracy, K. (1995). "Grounded practical theory: the case of intellectual discussion", in *Communication Theory*, vol. 5, no. 3, pp. 248-272.

Cronen, V. (1995). "Practical theory and the tasks ahead for social approaches to communication", in Leeds-Hurwitz, W. (Eds, 1995) *Social approaches to communication*, Guildford Press, New York.

Cronen, V. (2001). "Practical theory, practical art, and the pragmatic-systemic account of inquiry", in *Communication theory*, vol. 11, no. 1.

Dewey, J. (1938). *Logic: The theory of inquiry*, Henry Holt, New York.

Eisenhardt, K. M. (1989). "Building theories from case study research", in *Academy of Management Review*, vol. 14, no. 4, pp. 532-550.

Gibson, J. J. (1979). *The ecological approach to visual perception*, Houghton Mifflin, Boston.

Giddens, A. (1984). *The constitution of society. Outline of the theory of structuration*, Polity Press, Cambridge.

Goldkuhl, G. (2004). "The socio-pragmatics of organisational knowledge: An inquiry of managing eldercare knowledge", accepted to *the First Scandinavian Workshop on e-Government*, Örebro University.

Goldkuhl, G. (2005). "Socio-Instrumental Pragmatism: A Theoretical Synthesis for Pragmatic Conceptualisation in Information Systems", in *Proceedings of the 3rd Intl Conf on Action in Language, Organisations and Information Systems* (ALOIS), University of Limerick.

Goldkuhl, G. and Lind, M. (2004). "The generics of business interaction - emphasizing dynamic features through the BAT model", in *Proceedings of the 9th Intl Conference on the Language Action Perspective* (LAP2004), Rutgers University.

Goldkuhl, G. and Persson, A. (2006a). "From e-ladder to e-diamond – re-conceptualising models for public e-services", in *Proceedings of the 14th European Conference on Information Systems* (ECIS2006), Göteborg.

Goldkuhl, G. and Persson, A. (2006b). "Characteristics of public e-services: Investigating the e-diamond model", in *Proceedings of the First International Pragmatic Web Conference*, Stuttgart.

Goldkuhl, G. and Röstlinger, A. (2000). "Beyond goods and services - an elaborate product classification on pragmatic grounds", in *Proc of Quality in Services* (QUIS 7), Karlstad university.

Goldkuhl, G. and Röstlinger, A. (2003). "The significance of workpractice diagnosis: Socio-pragmatic ontology and epistemology of change analysis", in *Proc of the International workshop on Action in Language, Organisations and Information Systems* (ALOIS-2003), Linköping University.

Goldkuhl, G. and Röstlinger, A. (2007). "Clarifying Government – Citizen Interaction: From Business Action to Generic Exchange", in *Proceedings of the 4th Scandinavian Workshop on eGovernment*, Örebro.

Goldkuhl, G. and Ågerfalk, P. J. (2002). "Actability: A way to understand information systems pragmatics", in Liu, K. et al. (Eds. 2002), *Coordination and Communication Using Signs: Studies in Organisational Semiotics – 2*, Kluwer Academic Publishers, Boston.

Grönroos, C. (1990). *Service marketing and management. Managing the moments of truths in service marketing*, Lexington Books, Lexington.

Habermas, J. (1984). *The theory of communicative action 1. Reason and the rationalization of society*, Polity Press, Cambridge.

Heritage, J. (1984). *Garfinkel and ethnomethodology*, Polity Press, Cambridge.

Hult, M. and Lennung, S.-Å. (1980). "Towards a definition of action research: a note and bibliography", in *Journal of Management Studies*, vol. 17, pp. 241-250.

Hutchby, I. (2001). *Conversation and technology. From the Telephone to the Internet*, Polity, Cambridge.

Layne, K. and Lee, J. (2001). "Developing Fully Functional E-government: A four-stage model", in *Government information quarterly,* vol. 18, no. 2, pp. 122-136.

Lenk, K. (2002). "Electronic Service Delivery – A driver of public sector modernisation", in *Information Polity*, vol. 7, pp. 87-96.

Mead, G. H. (1938). *Philosophy of the act*, University of Chicago Press.

Persson, A. and Goldkuhl, G. (2005). "Stage-models for public e-services - investigating conceptual foundations", accepted to *the 2nd Scandinavian Workshop on e-Government*, Copenhagen.

Rapoport, R. N. (1970). "Three dilemmas in action research", in *Human Relations*, vol. 23, no. 6, pp. 499-513.

Schatzki, T. R. (2001). "Introduction: Practice theory", in Schatzki, T. R., Knorr Cetina, K., and von Savigny, E. (Eds, 2001), *The practice turn in contemporary theory*, Routledge, London.

Searle, J. R. (1969). *Speech acts. An essay in the philosophy of language*, Cambridge University Press, London.

Sjöström, J. and Goldkuhl, G. (2004). "The semiotics of user interfaces – a socio-pragmatic perspective", in Liu, K. (Ed., 2004) *Virtual, distributed and flexible organisations. Studies in organisational semiotics*, Kluwer, Dordrecht.

Strauss, A. (1993). *Continual permutations of action*, Aldine de Gruyter, New York.

Strauss, A. and Corbin, J. (1998). *Basics of qualitative research. Techniques and procedures for developing Grounded Theory*, 2nd edition, Sage, Newbury Park.

Susman, G. I. and Evered, R. D. (1978). "An assessment of the scientific merits of action research", in *Administrative Science Quarterly*, vol. 23, no. 4, pp. 582-603.

Walls, J. G., Widmeyer, G. R., and El Sawy, O. A. (1992). "Building an information systems design theory for vigilant EIS", in *Information Systems Research*, vol. 3, no. 1, pp 36-59.

Walsham, G. (1995). "Interpretive case studies in IS research: nature and method", in *European Journal of information systems*, vol. 4, pp. 74-81.

Wimmer, M. A. (2002). "Integrated Service Modelling for Online One-stop Government", in *Electronic Markets*, vol. 12, no. 3, pp. 149-156.