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Individual Emergence in Contextual Analysis

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Abstract

Located within the tradition of Hermeneutic Dialectics (HD) this paper offers an approach which can further an analysis of a fit between information and organizational systems. Drawn upon Information Systems Development projects a relationship between theory and practice is aided through a multi-disciplinary approach to sense making activity. Using a contemporary version of contextual analysis to understand a way in which individuals construct adapt and create meaning from their environment offers a route to improve a systems analysis process. This type of enquiry into contextual dependencies of knowledge creation can help direct a development of systems that have the intention to serve specific organizational actors and their needs. Combining methods outside of a traditional polar divide, sense making research undertaken within a systems thinking arena can enrich understanding by complementing qualitative and / or quantitative analysis with reflective depth. Drawing together interdisciplinary strands through a critical systems thinking approach offers new levels of professionalism for computer- and management-, practitioners or researchers in the 21st Century.

Keywords: Contextual Dependencies, Sense making, Systems Thinking.

Introduction

Research in the development of support for information systems analysis generally aims to explore different theoretical and methodological approaches to the analysis of the fit between information systems and organizational systems. Contextual analysis might be considered as an approach with a particular focus on the way in which complexification and uncertainty pose apparently insuperable epistemological problems to foundational approaches to knowledge and implications of this for research in information systems. Having considered a relativity of knowledge, an analyst might have to look critically at a series of exemplary approaches, which might use different ontologies. The area of Informatics has continued to evolve and some of the recent efforts in research into a development of approaches for information systems analysis have targeted following problematic issues (see for example Bednar, 1999; 2000):

- To make relation and acquaintance with different ways in which individual and organizational identities, structures and cultures emerge and develop.
- To develop and evolve conceptual and empirical understandings of selected issues such as informational vs. organizational systems, subjectivity and objectivity, and to place these issues in a multidisciplinary perspective.
- Through relations between multiple levels of contextual dependencies research in Information Systems aim is to develop analytical and intellectual ability to apply these aspects to selected substantive issues connected to Information and Communication Technology implementations.

If one of the defining features of (understanding) a contemporary world is (a combination of) contingency and uncertainty it might make perfect sense to support efforts which try to intertwine the research content and context of computer science with a great number of other research areas. There might also be a need to consider radical shifts in the nature of information systems implementations, tradition and de traditionalisation and their effects on professional knowledge.

Information systems research on contextual dependencies attempts among others, to build on previous core research in information systems and by exploring how, for example, contemporary open systems thinking can be applied to specific critical issues. Particular stress is on a multiplicity of sense making processes and ways these are played out within the frameworks of learning organizations and information systems. A focus is then to be centred on several major problematic themes currently debated in diverse information systems research communities: 'new' individual and organizational identities and organizational politics, aspects of new information and communication technology and the nature of its implementation.

Background

The main purpose of this section is to introduce the reader to industrial project contexts. The following descriptions of project characteristics are simplified and generalized, drawn upon previous IS research and industrial experiences by the author. Research, which partly is based upon inquiries into a number of Information Systems Development (ISD) project in a European multinational corporation. Some of which was done over a period of approximately two years and the analysis was based upon semi-structured interviews, participatory observation and project documentation (e.g. Bednar & Wang, 1994).

There are a great number of ideas, recommendations and theories regarding project management, some of which are for example discussed by Yeates and Cadle (1996) or more 'post-modern' theories as presented by Boje et al (1996). There are also 'standards' like PRINCE2 (Projects in Controlled Environment) which was developed in 1989 by the CCTA (Central Computer and Telecommunications Agency, UK). But even if these and similar (structured, semi-structured, formal or formalized) descriptions of project management are widely distributed, contain theory, practice (narratives) and advice - which at first might look very promising - their applicability might be questioned. The experiences from ISD projects (e.g. Bednar & Wang, 1994) even though they were related to ISO9000, TQM and other quality assurance programs, suggests that (these kind of) projects are not necessarily themselves formalized and managed according to any specific project management 'strategy' (e.g. 'label'). Of course, such a conclusion does not mean that projects have been 'mismanaged'. On the contrary, projects could be seen as both flexible and adaptable in a 'struggle' to respond to ongoing changes in organizational contexts. The 'lack' of specific (formalized) project management was justified by the managers and participants with reflections over organizational culture and previous experiences (Bednar & Wang, 1994). Thus a project could be characterized by continually re-occurring negotiations and re-evaluations of (contingency) 'plans'. Another way to describe such a phenomena is as processes of practiced distributed decision making regarding project participation and activity.

Major ISD projects had (officially) been initiated following corporate meetings (at different levels within the organizational hierarchy) where decisions about which areas of a (specific) business might be enhanced by the support of Information and Communication Technology (ICT). According to their own description at least, managers in the organization would thus make efforts to refocus their business and management strategy to expand business capacity in growth areas (for example - quality assurance in both product development and process development were seen as key business growth areas). Identified changes in business might have been seen as putting a much stronger emphasis on promoting and enabling enterprise and business process development (e.g. Bednar & Wang, 1994). Decisions of changes affecting an organization under those circumstances, might have been taken in a wider context of:

- Responding to new business circumstances.
- Repositioning the organization and its learning opportunities.
- Strengthening professionalism with staff development.
- Opening new opportunities for business excellence and specialisms, as opposed to generic and mainstream production.
- Developing new approaches in the efforts to meet clients and partners present and future needs.
- Investing in research and consulting more directly linked to the organizational know-how.
- Concentrating organizational resources and activities to promote organizational regeneration.

With such objectives in view, recommendations about a contribution of different and various areas of current activities within a specific organization would be made. Following a business and risk analysis by a specific management group in charge. In all these areas however, measures ought to be put in place to ensure that current organizational agents would be able to continue to contribute on a basis of their contextually dependent framework of competence and skills (e.g. Bednar & Wang, 1994).

It might be deemed as obvious which part of an organization is intended to be most affected by a business-process revitalization and an intended ICT supported business enhancement. This means that a definition of areas that initially are intended to be involved on a basis of assumptions of existing business and business 'pre-analysis' (assertions of existing business process made by 'managers'), might be necessary to extend after a more in-depth and thorough business analysis (e.g. Bednar & Wang, 1994). Throughout a process of change and development (it can be reasonable to assume) a project group would be seen as committed to provide maximum support for other organizational staff members. This would include counselling where appropriate. Over the duration of a project (at least within the timeframe of a 'system' development) every possible effort by a project group would be expected to influence redeployment of resources and staff retraining as appropriate. Especially professional and support staff from specific areas that are seen as being affected. Once such a process is initiated it would be hoped that the number of compulsory staff retraining might be kept to a minimum. It might be valuable to note here that projects in the study were actually not officially 'ended' - a more appropriate description would be that projects 'faded' away... The involved managers in general described projects as successful, especially as they

also were described as great organizational learning experiences (Bednar & Wang, 1994).

An organization (as described by its 'members' and / or 'actors') might be committed to ensure a continued quality of business activities for all major organizational agents. A reason would be to safeguard standards and value of business relationships. All relevant customers would have to be considered as soon as possible, to reassure that business processes would not be interrupted and that any queries and concerns that organizational customers may have would be properly dealt with. Such issues have also been targeted with 'strategic contingency' by researchers in organization theory like Child (1984).

Business and management development might also include a goal to remain totally committed to business and staff development. If this is seen as being a continuing core part of a business everyday activities and relevant provision, a further step might be to pursue the idea of learning organization (see for example Argyris & Schon, 1978; 1996). Forthcoming organizational developments as a result of a refocusing of existing efforts on emerging enterprises agendas would offer opportunities for both management and other organizational agents (e.g. Argyris, 1990; Schon 1999). To reiterate it very briefly, expected developments would be in areas including:

- Promoting organizational competitiveness.
- Promoting customer and staff experience.
- Enabling business process development and expansion.

Further positive developments would be expected as resulting from wide ranging spin-of effects provided by a business change which had been initiated by organizational and project management boards. Of course just because there might be opportunities there is no reason to believe that these would realize themselves or become anything else except a possibly 'marketing' exercises. Such phenomena of organizational 'self-handicapping' activities have been thoroughly presented by Chris Argyris in his work on 'organizational defences' (Argyris, 1990).

Individual Focus

The major purpose of this section is to introduce the reader to academic contexts and reflections. There is a strong tradition in IS research to look into different versions of contextual dependencies. As for example Andersen et al (1990) points out it is important to consider that there is no obvious or necessary consensus over requirements or objectives for an information system and therefore they go on to suggest user oriented (participatory) managerial approaches. Not only individual focus in a managerial perspective (where a business manager is a 'user', e.g. Carlsson, 1993) but even national, cultural and political contexts has slightly been touched upon (e.g. Baark, 1986). A breakthrough for the individual focus had already been initiated in the sixties when Borje Langefors started to develop the 'infological equation' (e.g. Langefors, 1966). This work as it is presented in the 'Theoretical Analysis of Information Systems' did identify some of the significance of those interpretations made by unique individuals within specific organizational contexts (e.g. Langefors, 1995). Even if it could be argued that the significance of it might not have been realized at the time.

While some IS research in the early eighties (e.g. Olerup, 1982) focused on organizational contingencies and contexts, other research (e.g. Sandstrom, 1985;

Flensburgs, 1986) related to ideas of interpretations in local contexts (individuals and groups). However in research on continuous development ideas surrounding contextual analysis and its relations to individuals, groups and teams would become even more pronounced (see for example Agner-Sigbo & Ingman, 1992; Agner-Sigbo et al, 1993). Other examples with individual and group focus are visible in research on prototyping (e.g. Friis, 1991), individual and team learning in participative design of information systems (Hagerfors, 1994). Efforts have also been made to target intra-individual contexts like sense-making and ethical aspects in information systems design (Ingman, 1997; Eriksen, 1998; Zhang).

The aim with a contemporary version of Contextual Analysis (e.g. Bednar, 2000) is to, through application and use of specifically adapted methods, study how people construct understanding and meaning, and how information needs and information use are created within this process (by individuals). A reason why a notion of contextual dependency is of interest is because it supports a focus of inquiry on unique individuals, individual beliefs, thoughts and actions in specific situations and contexts. This kind of inquiry is intended to support a contextually dependent creation of necessary knowledge, for successful communication, IS analysis and eventually IS development to occur.

Contextual Analysis (the way it is described in this paper) as such does not by default revert all traditional approaches of IS development. There is however sometimes a conflict related to unproblematic assumptions of ontological beliefs and logical empiricism (for example unquestioned beliefs of unproblematic objectivity and truths). Other issues have to do with assumptions, comparable to some of the traditional communicational theories, that focus on a 'sender-receiver' perspective while contextual analysis instead is intended to focus on a user oriented perspective. An oversimplified example is when an inquiry instead of focusing on what company A wants to achieve with their information and communication system, would ask what the users want to achieve and what roles and specific purposes their activities in organizational contexts might have. What makes their unique situation recognizable? What specific role do they give information (and the organizational business)? The inquiry is therefore to be seen as an inquiry into user assumptions and needs within the space of an open information system (an 'organization'). This could also be described as a bottom up perspective on information and communication systems. Systems, which are shaped with the intention to serve specific organizational actors and their needs.

Approaches like Contextual Analysis which try to take contextual dependencies into consideration on systems (projects) might be seen as strategies to cope with escalation in complexity when it becomes recognized that ('projects'):

- 1) Are not (easily) concerned with production of products.
- 2) There is no known way to clarify or predefine a specific set of activities to produce these 'products'.
- 3) Since if it is not seen as viable (or meaningful) to predetermine a finite lifespan of a particular project neither will there be an exact specification of possible resources consumed.
- 4) Are not under a (formalized) control of an organizational (hierarchical) structure.

Framing a Problem Space

It could be argued that IS analysis and IS development is dependent on how a problem space is framed, and by whom. Soft Systems Methodology (SSM) is Peter Checkland's main contribution to IS and organizational analysis and problem solving (see for example Checkland, 1991). SSM has a quite distinguished character in that it criticizes a phenomena in IS analysis which results in problem spaces being taken for granted (or for example assumed to be predefined and 'understood' by 'clients' and 'users' and 'only' in need to be interpreted by analysts). Researchers have also recognized that even if technical problems can be of great significance, behavioral issues can be of even greater importance (Avison & Fitzgerald, 1995; Checkland & Holwell, 1998; Kling, 1999). It is not necessary to (only) discuss a dichotomy which suggests a relationship between IS analyst and user (individuals or groups). Some researchers have presented approaches which open up possibilities for studies of more complex frameworks of relationships (see for example Jayaratna, 1994; Bednar, 1999; 2000). Relationships can thus with the help of analysis regarding (narratives of) 'mental constructs' be discussed within a more context dependent framework of a rationality. One example is that problem spaces can be discussed within a relation between a) 'clients', b) 'users' and c) IS 'analysts' etc. This type of difference is quite relevant since a framing activity itself contributes to an understanding of a problem space in specific contexts.

If, for explanatory purposes, a look is thrown at a simplified version of framing a problem space (from 'every day life') with one mother, one daughter and a need of a bicycle. The daughter in this case does not have a bicycle. If the need of having a bicycle is a problem who 'owns' that problem? Suppose that the daughter wants to have a bicycle - is this problem owned by the mother, the daughter or maybe a salesman ('IS analyst'). In this particular case it is suggested that the mother is the 'client' of our example (metaphorical) relationship and the daughter is the 'user'. Since in this initial phase of our example a salesman has not even been contacted (yet) so the need of bicycle is (in this example) not owned by that salesman. If the mother thinks that her daughter needs a bicycle the problem of the daughter needing a bicycle is owned by the mother. It is also quite possible that the daughter does not want a bicycle at all. If on the other hand the mother does not think that the daughter has to have access to a bicycle but the daughter wants one anyway. The problem of needing the bicycle would be owned by the daughter. Of course if the daughter wants a bicycle the mother might still assume ownership of the problem (act as if the problem was owned by her) since the daughter might become unruly. However the point with the story is that the problem is not the same anymore. Now we have two problems, a) the need of bicycle and b) the possible unruly daughter. In our example problem a) is owned by the daughter but problem b) is owned by the mother.

An imaginary triangle can be used to visualize a relation (as exemplified above) between a) the IS analysts, b) the client and c) the user. Such a triangle can be useful when efforts are made to frame a problem space from different perspectives. Framing activities can as such be assisted through discussions surrounding mental constructs (as they are described by Jayaratna, 1994). A problem changes character when its ownership is juggled between different parties (a, b, c). All of these parties can be represented as being members of different 'communities' (or systems). Focus is, with the use of an imaginary triangle, put on different classes of mental constructs. Each of which significantly influences not only an understanding of a problem space, but also an understanding of a problem character and changing boundaries. An 'analyst', 'client' and

'user' can be different individuals or groups of individuals (but they do not have to be different individuals since they could for example all three be the same person).

However, use of different classes of mental constructs might still be supportive in a search for properties of individual emergence (at a composite level).

In an Information Systems project environment, it is reasonable to target both individuals and specific groups of agents. The three exemplified above are more formally described as follows:

- a) a client, e.g. 'manager' or 'executive' - someone who has the mandate to take budget decisions (mandate to 'run' a project). This is to be seen as control and responsibility over a distribution of financial resources.
- b) a user, 'business-specialist' or 'expert user' e.g. someone who has the advanced contextual knowledge related to activities which are supposed to influence and be supported by a successful use of Information and Communication Technology.
- c) an IS-analyst, e.g. 'consultant' (often a representative of a supplier). Someone who is a specialist related to organizational analysis, design and implementation of ICT.

Sometimes this set-up could be seen as unsatisfactory. One reason could be related to a 'missing role phenomena'. If the three 'roles' presented would be related to a 'law' system the roles presented could be transformed to the following. a) a 'client' for upholding a law system is a 'judge'. b) a 'user' could be related as to the one targeted with the efforts of the system, an 'accused'. c) an 'analyst' is in this case equalled with a 'persecutor' ('problem specification').

In this example, one problem is that two not represented missing groups can be described. One as a specialist supporting and working on behalf of the interest of a 'user'. Second as a specialist supporting and working on behalf of the interest of a 'client'. A closer look at this problem reveals that even if a 'client' is possibly well aware of their business contexts, it does not by default mean that that 'client' would have a clear view of possible impacts of technological implementations on their business activities or their business model. This situation does give an impression that the only one with a (supposed) expertise and competence in (IS) analysis and design is the 'specialist' representing a supplier and that supplier's interest (this description is not intended to imply that an analysts would understand a specific business better than a 'client'). In the law system metaphor it would be equalled with the fact that the only one who would have expertise and competence of the law system would be a persecutor (note that there is a difference between expertise of a law system and understanding a specific crime). It could be argued that such a miss-representation of expertise would affect mental constructs of participants in ways that might be inappropriate or questionable. At least from both a 'client' and 'user' perspective. So the question - who are IS designed for? is very valid indeed. Are information systems by default (unknowingly?) designed to (mainly?) support suppliers (financial?) interests?

Contextual Analysis

Analysis can be viewed as an exploration into the nature of open systems thinking and how systemic identities are maintained and generated within a specific context. Analysis can also be explained as involving a professional analysts activities and specific use of methodologies, rhetoric's and strategies to construct local arguments and findings. By the end of an initial analysis an analyst might for example be familiar with some of the

major strategies currently available (within a targeted organization) for further inquiries into contextual dependencies.

Individual emergence in contextual analysis is furthermore possible to equal with inquiries into systems organized around processes individuals are likely to go through in devising, carrying out efforts to maintain a professional personality. Such an analysis might include representing a recreation of identities within an organizational context. Individuals viewed, as open systems are not framed atomic entities, even if they pragmatically might be temporarily presented as a collection of closed systems. Rather, contextual analysis is to be seen as an 'as if' ad hoc creation of closed systems where boundaries are related to chosen contextual dependencies (which might be temporal). Such contextual dependencies are here represented as assumptions of networks of interactions relating an individual with her or his biological, socio-cultural and technological environment.

Information Systems has become one of the most debated concepts in Computer Science in relation to information and communication technology, managerial efficiency, sociology and social anthropology. One reason for an ongoing refocusing of a debate around information systems might be found in a sense of loss in a contemporary life-world (see for example Berger, Berger & Kellner 1981). A loss of assumptions of old certainties of modernity. We (IS and IT professionals in the western world) can see ourselves as living in a global village. Gone are ideas of seemingly fixed and clearly defined identities, academic fields and scientific truths (for a similar discussion see Lyotard, 1984). Accompanying us in this notion of socio-cultural breakdown is a sense of fragmentation (an example of a more in-depth discussion on fragmentation can be found in Gibbons et al, 1994). It seems as if we no longer are single, unified groups of professionals (assuming we ever were) but instead we seem to excel in living out multiple identities and subjectivities. We may even experience ourselves to be alienated from our immediate organizational surroundings but at the same time still linked with communities of practice living all around the global village. Our world can thus be described as a multicultural one where world-citizens and isolationists intermingle, where science and culture is constantly reinvented, hybridised and mixed, where 'new' scientific movements assert the salience of changing professional and academic identities.

Aims to provide an overview of a logic of information systems analysis within computer science in terms of interpretative and positivist modes of enquiry might have been drawing upon notions of hypothesis-testing, experimentation, sampling, measurement and sense-making. Research in IS methodologies does include discussions of these issues by for example outlining sets of key methods for a conduct of technological and organizational research, including surveys, questionnaires, prototypes, observations or unobtrusive measures and ethnographies. On this basis it is also possible to go on to outline a series of controversies in information systems research, drawing upon key debates in philosophy, psychology and sociology.

An analyst's efforts to explore an undefined problem space includes deciding a broad topic of interest; locating and reviewing relevant background material; focusing on more specific topics of analysis; producing an analysis strategy; negotiating access to a research setting or subjects; producing, analysing and interpreting data; writing up system documentation or research reports. There might even be a definite emphasis on

ethnographic fieldwork. A theoretical and methodological content of information systems analysis includes an analyst relation to research as a practical activity: this might for example include use of diverse forms of documentation, awareness of different research paradigms (e.g. positivist, interpretive, quantitative and /or qualitative). Such an approach would consider issues raised in a design of an analysis: access, sampling, ethical issues, selecting appropriate methods, reliability and validity of data, coping with changes in direction of analysis. Focus on multiple contexts, work and practices might thus comprise both individual inputs and team work around particular tasks.

Ideal individual emergence

The classical saying 'Too many cooks spoil the broth', describes a situation where the emphasis is put on phenomena where an observer comes to the conclusion that the emergent properties of one individual might be valued more than the emergent properties of a group of individuals. It is however not intended to imply that a cook works best in isolation. A cook might for example in many situations work in cooperation with a collective of kitchen staff. What it does imply is that the role of the cook is 'leadership'. In a way this relates to other sayings, which suggest that a ship only ought to have one captain. This of course has many dimensions. While it might be seen as if the role of the cook both includes a capability to coordinate work with staff ('non-cooks') but excludes the (efficient) ability to coordinate work with other cooks. This at the same time while the cook might be seen (by others as well as by him or herself) as a good cook because he or she belongs to a community of practice (of cooks).

The combination of roles (or alter egos) can be described as complementary phenomena. In this example the complementary phenomena would if used in a context of a restaurant, mean that the organization of the kitchen-team (inclusive the cook) is efficient due to a diversification of roles. The diversification is complementary and involves specialization. The specialization on the other hand is efficient because each specialist is a member of a community of practice. Each community of practice can be viewed as being organized around the phenomena of specialism, which allows a higher level of professional competence within a relevant area. In this very example it is also possible that the cook is a great fisherman. Thus this fisherman might belong to a community of fishermen and this might in turn influence the professionalism as a cook and specialization in cooking habits. This situation might result in that other fishermen get inspiration to become better at cooking in general and start to experiment with new ideas and reinvent fish-dishes. Our cooks participation in these adventures might eventually lead to that the cook becomes a master at seafood. In our restaurant example this complementary phenomena could also be expressed such, that the restaurant in turn becomes famous for its new and contemporary fish-dishes.

Each individual can thus have many alter egos, where each alter ego belongs to a different 'organization' or community. In other words the emergent properties of the individuals (the cook) in this (collection of) community (-ies) (e.g. the restaurant. the fishermen group, the community of cooks profession) permits the parts to become more than any (one) whole constituted of these parts. This effect is idealistically described to show an example of when individuals while being part of many communities at the same time can develop qualities which are complementary and positive for several of the involved communities. Of course the opposite (e.g. conflictual and detrimental development) is quite possible too. As stories goes the one above might have been very

nice, but from an analyst perspective the interesting point is: if such complexities surrounds organizational problem spaces - what sense making approaches might be meaningful for an analyst working on behalf of a 'client' and 'user' interests?

Sense Making

A concept of sense making as it has been defined by Dervin (1989a) is seen as both an internal (cognition) as an external (action) behaviour which allow an individual to construct and shape his or hers own movement through time and space. In other words it is a contextually dependent communicative behaviour where a search and use of information is a core factor. Brenda Dervin (1989b) also developed a theory of Sense-Making which is described as supposedly free from being tied down to a specific research paradigm. The theory of Sense-Making is also described as being outside the cages of traditional polarities such as positivism - hermeneutics, quantitative - qualitative methods (e.g. Dervin, 1983). Research based on Sense-Making uses concepts and methods, which are basically quantitative and analytical, but at the same time these methods are complemented, filled and coloured by enriching material from diverse in-depth qualitative studies.

The Sense Making theory has been built up in close relationship to other research within the area of cognition. Where, within the field of cognition, for example particularly Piaget did suggest meaning and knowledge as being individually created through interactions with the environment of an individual and unique contextual dependencies influencing these sense-making efforts (e.g. Flavell, 1968). This means that knowledge is neither to be viewed as given, nor derived from experiences. Sense making can also be seen in a relation to work by philosophers and researchers such as Habermas (1984), Kuhn (1970) and others who also point out some of the limitations within more 'traditional' academic approaches. Though, experienced limitations of 'traditional' research approaches are not new as (for example) already C. Wright Mills (1959) did propose 'abstract empiricism' as a term to attack the (as he presented it) atheoretical nature of quantitative social survey research. Of course it might be unfair to suggest that quantitative approaches (as those criticized by Mills) are being practiced without any theoretical assumptions. However, it would be appropriate to refer to an (unfortunate) habit of denial of theoretical inclusion of interpretative justification of the pre-assumptions that such an approach is build upon. Qualitative research in Computer Science was inspired by phenomenology and interpretative research in the social sciences (Avison & Fitzgerald, 1988; Checkland & Holwell, 1998). Blumer (1968) was derisive of how attempts (in social science) to draw correlations between variables required that at least little attention paid as to how such variables were defined by those under study. It is however important to recognize that both quantitative and qualitative methods can be founded from within the 'same' (meta-scientific) school of 'thought'. As such, there is no 'natural' or automatic 'escape' from hinted problems with choice of methods only.

In the Computer Science field, researchers such as Hans-Erik Nissen (1998; Nissen & Jayaratna, 1998) with a research focus on information systems research, have expressed that their experience of research concepts and methods of communication, developed out from a perspective of Logical Empiricism (LE), would suggest such concepts and approaches to methods as being not by default always satisfactory. Instead their work is often relying on individual instances and re-interpretations of open systems thinking, versions of critical theory and Hermeneutic-Dialectic (HD). It is not to be seen only as

an academic exercise surrounding an existence of several research traditions. But also how these traditions might delimit questions, which can be asked within a tradition and that in turn narrows down possible answers that can be given (Nissen, 1998). Hans-Erik Nissen points out that the dividing line between (the two sets of schools of meta-science) LE and HD does not go between the methods of inquiry (such as quantitative vs. qualitative) developed within each of them. Instead the dividing line goes between those studies in which (as part of the used research framework) no objects of study are human beings and those in which also human beings are studied (Nissen, 1998). So far we (as researchers or analysts) are interested to (within our framework of inquiry) raise questions on for whom we undertake research or if we do not want to strictly separate theory and practice, we ought to choose to work within the HD school of meta-science (Nissen, 1998).

Werner Ulrich (1997a, 1997b, 2000), while pursuing research in Critical Systems Thinking, also tries to apply contextual and constructive perspectives in his efforts to understand why individuals on occasions give the impression to behave irrationally and unprofessionally. Critical Systems Thinking as presented by Werner Ulrich draws in many perspectives upon the work on Systems Science by West Churchman (1979). Gregory Bateson (1972) can also be seen as having a strong relationship to System Science with the very recognizable feature of intertwining human beings into his research frameworks. Another example are efforts in research on information systems analysis, development and communicative behaviour of IS analysts which points out that individuals (re-) create ideas to (re-) construct bridges over perceived 'gaps' in a continuously changing (understanding of) reality (e.g. Bednar, 1999; 2000). Arguably therefore such a discussion surrounding research on contextual analysis stresses the importance of a concept of contextual dependency, by which is meant a relationship with changing situation boundedness inclusive a re-evaluative perspective (Bednar, 2000).

The sound kernel of a revived version of contextual analysis with a pronounced focus on contextual dependencies is related to HD and boils down to the following. Much IS analysis and IS research exhibit a counterproductive bias towards a Cartesian mind-body split and an ensuing disembodiment of living people. In Western culture and academia this is shared with large parts of other disciplines - and as a whole this can be seen as in a way influencing popular beliefs - as commonly found in descriptions not only on mathematics and engineering but also in field like economics, psychology and sociology. Why counterproductive? Because it builds on a belief in perfect separability of theory and practice. This belief researchers of LE traditions might use as a good reason not to bring in disturbing factors like power into their theories. However, attempts at practical applications of their theories (or those of others at that) occur in practical situations where power relations and lots of other complex complications abound. Theories that are founded on presupposition counter to experience can only offer very partial explanation at best. That organizational change related to information systems development both has influence on and is influenced by organizational contexts has among others been suggested by Geoff Walsham (1993). He also comments on the (major) importance to consider organizational culture and political behaviour (Walsham, 1993; Walsham & Sahay, 1999). Therefore a need to further develop and pursue a HD influenced version of contextual analysis might become more and more obvious to IS analysts and researchers.

Conclusion

Contemporary research in IS related to Contextual Analysis is a truly interdisciplinary area which includes a wide range of thematic options which go far beyond Software Engineering combined with Sociology and Social Anthropology. The area embraces not only issues like interpretative approaches and (soft) systems thinking but also issues such as strategies for inquiries into contextual dependencies, individual and organizational identity and an evolved open systems thinking which includes several levels of learning and reflection. Influenced by the HD school of meta-science a developed version of Contextual Analysis could be used to complement (not to exclude) the widespread LE influenced approaches to analysis. Summarized these efforts aim to help the analyst (or researcher) to:

- a) avoid a (by default) delimiting separation of theory and practice (e.g. Nissen, 1998).
- b) remember that no analysis or evaluation is 'neutral', 'objective' or made without judgmental decision-making activities (Bednar, 2000).

For anyone interested in understanding the recently surfaced 21st century society, contextual analysis might provide new insights. The whole complex issue worthwhile further investigation could be presented as a relation between ontogenesis as distinguished from phylogenesis. Where ontogenesis represents a development (and 'origin') of an individual living professional being. Phylogenesis, on the other hand, represents a development (or 'evolution') of a specific 'organization' or 'community'. The question of origin (genesis), is all about creation, re-creation, generation and regeneration of systemic entities (at both micro- and macro-levels) in a social, cultural and technical world. For those wanting ultimately to pursue a new level of professionalism within Computer and Management Sciences as practitioners or researchers Contextual Analysis could provide an invaluable grounding.

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