Relevance and clarity in information systems research – The pragmatist agenda of multi-grounded practice research

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Table of content

1 General purpose

This is a description of a long-term research project. In a traditional sense the term "project" might be misleading here, since the discussed activities do not have any fixation in time, which is usual for a research project. There is neither a strict delimitation of project activities, rather a sketch of a research orientation that might include several possible (not yet stated) research activities. In this sense the term "research program" might be more adequate, with a meaning of something broader (and not fully defined) including different possible research activities. However, the term "project" is preferred based on its etymological meaning: from Latin proiectum "something thrown forth". This description of research made by me is something *thrown forward* with the intent to be followed in the coming years.

I started my research career in 1973, which is more than 44 years ago. I have been a professor since 1996, which is more than 20 years. In 2016 I altered to emeritus professor. In a sense it is "business as usual", since I plan to continue my research work, but it is also a change since I will now work more dedicated with some demarcated (but broad) research topics. Less time will (hopefully) be spent on educational and administrative matters and I intend to work more concentrated with some research tasks. I have realized that it is now time to reflect on what to do in this part of my research career. I have felt it urgent to avoid jumping around on interesting but possibly very diverse activities. My intention is to address research issues that I consider as important and fun. There are thus certain things I want to address and it is important to state such research orientations in order to act in a more purposeful way. I have therefore formulated two broad emeritus projects that I plan to work with on a long-term basis:

- Clarifying and improving the digitization of practices – The research agenda of socio-instrumental practice knowledge
- Relevance and clarity in information systems research – The pragmatist agenda of multi-grounded practice research

The second of these two projects is described in this account. The first project description can be found in Goldkuhl (2017).

My purpose is here to present and outline this long-term research project. This is however not something suddenly thrown forth. It is definitely a continuation of research orientations previously pursued. In section 2 below I will put this research project in a historical context describing issues that I have been working on, partially on my own but often in collaboration with research colleagues. In section 2 I have also described parts of the knowledge base for the project. I have in section 3 tried give a focused account of research issues that should be addressed within the project. This is however an open list that will be refined in coming years. In section 4 I present what has been done in the recent past and what I work on at the moment. This is continued in section 5 where I describe plans for 2017-2018.

This research project description should be seen and regarded as communicative actions, as both a ***declarative*** and an ***invitation***. It is a declarative since I make clear to myself and others what I intend to work with during the coming years. This involves personal commitments and clarification of scope and content of this long-term research project. However, it should also be interpreted as an invitation to other scholars to join me in these endeavors. This research orientation might work as an inspiration for the reader to engage in.

Joint work including the writing of joint publications might be one possible outcome. I welcome initiatives for collaborations on stated research issues and concerns.

2 Theoretical orientation and historical achievements

During my research career I have addressed research topics in information systems (IS) that are appropriate to address through qualitative research methods. There have been research issues of complex and diverse characters that need methods and approaches that are meaning-sensitive. This research orientation has, in a positive sense, driven me to work with development of research methodology within a qualitative tradition. There exist some early papers from my hand that address challenges in IS research methodology; e.g. Goldkuhl (1979; 1981).

2.1 Multi-grounding

I became early interested in IS development (ISD) methods and I wrote my Ph D dissertation (Goldkuhl, 1980) on requirement analysis and information models. This included development and empirical testing of ISD methods, which led me to try to elaborate on what it means to do research on ISD methods. Seen in retrospect, this was an early effort to clarify method development as research (a kind of design science to use a modern terminology). Several years later this approach to ISD methods research was articulated in terms of multi-grounded method development (Goldkuhl, 1993; 1999). The idea of multi-grounded knowledge development is to combine three forms of grounding for validation of a method or some other kind of knowledge object:

- Empirical grounding (through empirical sources)
- Theoretical grounding (through the use of extant theory)
- Internal grounding (searching for cohesion within the knowledge object itself)

This work clearly relates to the qualitative research approach of grounded theory (GT); e.g. Glaser & Strauss (1967) and Corbin & Strauss (2008). A fundamental difference is that GT aims primarily at empirically grounded knowledge/theory (through building inductively from empirical data). The multi-grounded approach uses, besides empirical grounding, theoretical and internal grounding as a combined methodological strategy. The multi-grounded approach (with the label multi-grounded theory - MGT) has been positioned as an alternative qualitative research method to GT in several publications; e.g. Goldkuhl & Cronholm (2010) and Cronholm (2004; 2005).

There have been numerous of applications of MGT; e.g. Lind & Goldkuhl (2002; 2006), Axelsson & Goldkuhl (2004), Karlsson & Ågerfalk (2007), Hedström (2007), Rittgen (2007), Hultgren & Goldkuhl (2013).

The multi-grounded approach has been developed to be especially adapted to design science (Goldkuhl & Lind, 2010) and the development of design theories (Goldkuhl, 2004a). See section 2.3 below.

2.2 Action research

During my research career I have worked extensively with action research (AR). On my very first day at work (as a young a research assistant 1973) I was "thrown out" into an AR project in industry. Even if I have conducted several projects with AR character it took some time before I started to write separate papers on AR as a research approach. In Cronholm & Goldkuhl (2004) we elaborated conceptually on the relations between theorizing and empirical involvement and studies of change. This work continued in Goldkuhl (2008a) where I started to elaborate on a partially similar and partially different research approach; at that time called practical inquiry. Later this alternative approach was re-labeled practice research (see section 2.5 below). Further investigations concerning similarities and differences between action research and practice research can be found in Goldkuhl (2012b).

A main criticism against classical AR approaches (e.g. Susman & Evered, 1978) is that the relations between empirical change work and theorizing is not properly conceptualized. Theorizing needs to be conducted in continuous parallel to empirical change work and not just as something made in a conclusive stage.

I have also made contributions to the discussion on relations (differences and similarities) between action research and design research/design science in Goldkuhl (2012a; 2013a).

2.3 Design research/design science

I have, through my entire research career, had a great interest in methods and other ways to design information systems and workpractices of high quality. With the research terminology of today, this implies a design science orientation (Hevner et al, 2004). As indicated above (section 2.1), my early attempts to enounce methods development as research can be seen as a kind of design science articulation. After the explicit introduction of concepts as design science and design theory, I have been working with development of this kind of research approach. My first steps were to explicitly relate my earlier work on multi-grounding to design science. In Goldkuhl (2004a) I described the development of a design theory through a multi-grounded approach. In Goldkuhl & Lind (2010), we described the design research process as multi-grounded process. Further developments of this multi-grounded design research process are described in Goldkuhl et al (2015). With inspiration from practice research (as described in Goldkuhl, 2011a; see below section 2.6) a detailed process description of design research has been made in Goldkuhl & Sjöström (2015) using the label "Practice design research". In a similar spirit, a specific approach to design research in e-government has been put forth in Goldkuhl (2016a).

Different aspects of design science have been elaborated. I have put forth a view of acknowledging the designed artifacts as key empirical data (Goldkuhl, 2013b) as a contrast to views held by Hevner & Chatterjee (2010). Hevner (2007) has described design science as an application of three research cycles; a design cycle, a rigor cycle and a relevance cycle. This kind of interaction cycle reasoning has been further developed in Goldkuhl (2013c) where I describe seven different cycles between interrelated practices. An inquiry of what design science would mean to IS education has been conducted in Goldkuhl et al (2017).

There are several scholars that emphasize a broad and socially sensitive view of designed artifacts in contrast to more techno-centric views. One prominent example is the Action Design Research of Sein et al (2011). They put forth a so called ensemble artifact view based on earlier works by Orlikowski & Iacono (2001). This ensemble view (as a kind of socio-technical view) has been investigated in Goldkuhl (2013de). These papers of mine acknowledge the importance of the ensemble view, but add to this the importance of a communicative tool view. This has also been further elaborated in Goldkuhl (2015).

I have conducted several paradigmatically oriented inquiries concerning design science. There have been debates how to paradigmatically position design science (e.g. Iivari, 2007; Niehaves, 2007). I have offered a paradigmatic view of design science founded in pragmatism (Goldkuhl, 2012ac). In this spirit (based on a practice research view), I have made a comparison between design science and action research (Goldkuhl, 2013a). Design science is often contrasted with traditional IS research (labeled "behavioral science") as made by Hevner et al (2004). This sharp separation into different paradigms has been challenged in Goldkuhl (2016b).

2.4 Evaluation research

Embedded in my interest for developing workpractices and information systems is an orientation for evaluation. Within methods for change analysis (Goldkuhl & Röstlinger, 2003) there has been a strong emphasis for evaluation of workpractices. Methods for problem and goal analysis have played important roles here (ibid; Goldkuhl & Röstlinger, 1993).

During late 90'ies, I started a development work together with colleagues concerning an action oriented view of IS. This approach was labelled IS actability (cf e.g. Ågerfalk et al, 2002; Ågerfalk, 2003; Goldkuhl, 2009). As an important part of this approach, we developed a method for evaluation of IS based on the actability perspective (e.g. Ågerfalk et al, 2002; Ågerfalk, 2003). Based on the work of actability evaluation, an evaluation framework was developed consisting six generic types (Cronholm & Goldkuhl, 2003). There was a differentiation between three ways to evaluate (goal-based evaluation, goal-free evaluation, criteria-based evaluation) and between evaluating information systems as such and information systems in use.

Further development of IS evaluation frameworks was made in Lagsten & Goldkuhl (2008) and Goldkuhl & Lagsten (2012b). Lagsten & Goldkuhl (2008) elaborates on how evaluation influences the evaluated workpractice through 1) a formal evaluation report and 2) a continuous knowledge flow from the evaluation process. Goldkuhl & Lagsten (2012b) elaborates an evaluation framework consisting of the following aspects: evaluation object, purpose, conceptual base, criteria, (types of) data, procedure and roles (evaluators, recipients). In this paper, there is also a description of different roles of evaluation in IS research: 1) research about evaluation, 2) research through evaluation and 3) research about evaluation research.

2.5 Practice research

With a clear inspiration from pragmatist philosophy and the inquiry notion (Dewey, 1938; Cronen, 2001) and based on personal experiences from action research and design research, I started (in Goldkuhl, 2008a) to elaborate an approach first labelled "practical inquiry". This approach was contrasted to action research. The main difference was defined as action research is primarily aiming for improving local practice while practical inquiry is primarily aiming at improving general practice and potentially local practice. Practical inquiry was later further developed and re-labeled to "practice research" (Goldkuhl, 2011a). This follows earlier publications of practice-oriented research; e.g. Nowotny et al (2001); Mathiassen (2002); Van de Ven (2007); Pain (2011); Salisbury Forum Group (2011); Uggerhøj (2011).

An important differentiation is made this practice research approach between situational inquiry (as empirical work with a local practice) and theorizing as work with abstract knowledge; see figure 1.
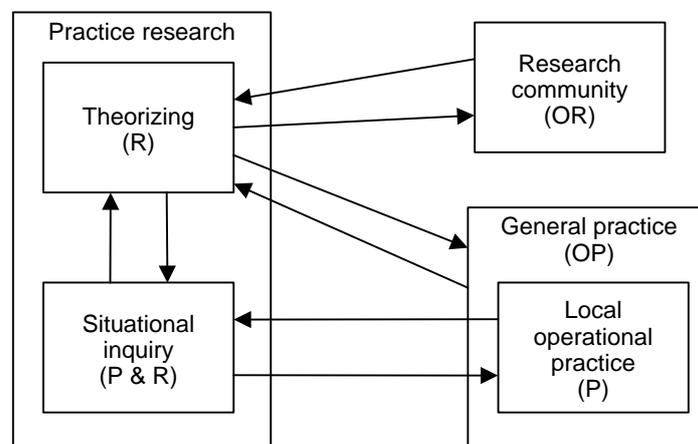

Figure 1. The anatomy of practice research (from Goldkuhl, 2011a)[1]

One main idea of practice research is to see it as an encompassing pragmatic research approach covering other research approaches such as action research, design research and evaluation research. Action research and design research is investigated and compared using practice research as a lens in Goldkuhl (2013a). Relations between practice research and action research are investigated in Goldkuhl (2012b); confer also the forerunner Goldkuhl (2008a). Articulating design research as a special kind of practice research is made in Goldkuhl & Sjöström (2015).

Hultgren & Goldkuhl (2013) comprises a description of combining practice research and multi-grounding. A clarification of different relations between research and practice in practice research is made in Goldkuhl & Lagsten (2012a).

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[1] Abbreviations in the figure: R = researchers (active in the research process); P = practitioners (belonging to the local practice); OR = other researchers (not participating in the focused research; belonging to research communities with relevance for the focused research); OP = other practitioners (in practices outside the studied local practice; i.e. belonging to "general practice").

2.6 Practical theory and design theory

An interest into the notion of practical theory (Cronen, 2001) accompanied the development of practice research. A practical theory is seen as a cognitive instrument guiding an inquirer in observation, when formulating questions and hypotheses and for creation of knowledge for understanding and improvement of practices. Based on Cronen's views of a practical theory, a clarification of its constituents was made in Goldkuhl (2007; 2008a). A practical theory was defined to consist of conceptualizations, patterns, normative criteria, design principles and models.

A practical theory is defined by its purpose and functions of being practical. This type of theory may be contrasted to practice theory, i.e. a theory about practices. A practice theory is labeled in this way through its referential function (about-ness). An analysis of relations between practical theory and practice theory is made in Goldkuhl (2006). A practical theory should in most cases be an action and practice oriented theory, since it should give support to inquire and manage some social practice and its action constituents. An action oriented view of theories in IS is described in Axelsson & Goldkuhl (2004; 2010) when using theory modeling.

In IS research there has been a growing interest in the concept of design theory (originating from Walls et al, 1992). A design theory can be seen as special kind of practical theory with the specific aim of improving design. As mentioned above (section 2.3), I have made contributions to the epistemology of design theory through suggesting a multi-grounded approach (Goldkuhl, 2004a).

2.7 Research planning and conceptual determination

Back in 1986 I started to develop a research planning method (called "knowledge projecting"). This has been a support for planning thesis work at various levels (bachelor, master, Ph Lic, Ph D), and also for the planning of research projects. It was originally published in Goldkuhl (1986), later refined in Goldkuhl (2011b)[1].

One main idea of this research planning approach is to be careful concerning conceptualization of the study domain. An approach to conceptual determination was developed in Goldkuhl (2002). This consisted of two parts; one ontological part with a base in socio-instrumental pragmatism; and one linguistic part with inspiration from the language philosophy of Wittgenstein (1958ab). This approach to conceptual determination was later refined in Goldkuhl (2004b). Besides ontological and linguistic determination of concepts, a couple of more analysis steps were added: content determination, contextual determination, functional determination and determination of origin and emergence.

2.8 Pragmatism as paradigmatic foundation

As mentioned above (in the introduction to chapter 2), my interest in research methodology has a clear focus on qualitative research. My early research training in IS was mainly based on systems theory. Based on experiences from several action research projects during my Ph D work I moved away from a systems-theoretical view towards an interpretive-qualitative

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[1] Unfortunately, these publications that are written in Swedish have never been translated into English.

research view. I became interested in hermeneutic perspectives. Since that time, I have always embraced important traits of an interpretive-qualitative research tradition. However, there have been some elements in such a tradition that I never have felt fully comfortable with. Walsham (1995) describes an ontological position appropriate for interpretive researchers as "subjective idealism where each person is considered to construct his or her own reality" (ibid p 75). To me such a subjectivistic position is far too extreme. I cannot abandon from a realist position, where external objects of material and semiotic character are perceived to exist. A strict hermeneutic stance with a primary interest in human actors' beliefs has not been my main research position. Rather, a strong orientation towards subjective and intersubjective meanings in internal and external reality has been my guiding star in research. Eventually, after working many years with action research, design research and evaluation research, I became more aware of my paradigmatic research position. It was not to be seen as a plain interpretive perspective. It was definitely interpretive, but the main foundation was rather to be characterized as pragmatist. Confer Goles & Hirschheim (2000) about a possible movement in IS towards pragmatism.

An established view in IS is to describe three competing research paradigms; positivism, interpretivism and critical research (Orlikowski & Baroudi, 1991; Myers, 2016). However, in other disciplines there exist alternative paradigm overviews. There are scholars that describe different rivaling research paradigms as positivist, interpretivist and pragmatist (Wicks & Freeman, 1998; Fishman, 1999). I found out that a pragmatist position harmonized very well with adopted research approaches in my performed research work. I began to articulate such a pragmatist position and continually I developed a number of related publications (e.g. Goldkuhl, 2004c; 2005; 2006; 2008ab; 2012ac). This articulation of a pragmatist paradigm in IS can be seen as a foundation of the different more concrete research-methodological publications described above in sections 2.1 – 2.7. Especially the development of practice research (see section 2.5) is to be seen as a clear application of pragmatist thinking.

One important part of this pragmatist articulation is the identification of different kinds of pragmatism; i.e. a kind of pragmatist repertoire. Three kinds of pragmatism have been described (Goldkuhl, 2006; 2008c; 2012a):
• Functional pragmatism (knowledge for action)
• Referential pragmatism (knowledge about actions)
• Methodological pragmatism (knowledge through action)

Functional pragmatism means to develop knowledge that is considered as useful in practice; can be either a local practice contribution or a general practice contribution; these are concepts described in Goldkuhl (2008a; 2011a; 2012b).

Referential pragmatism means to take an action view of the study field (information systems and their practice contexts). The basic articulation of this is made through what has been called socio-instrumental pragmatism (Goldkuhl, 2002; 2005). This can be seen as the basic and joining theory of what is theorized concerning information systems and business practices described in my other parallel emeritus project (Goldkuhl, 2017).

Methodological pragmatism means ways to develop knowledge through active engagement of the researcher in practical development endeavors, as for example through action research and design research.

These different kinds of pragmatism taken together implies a specific view of IS as a scientific discipline. In Goldkuhl (2008b), I have developed this disciplinary view in terms of "information systems as a science of the practical". This paradigmatic articulation is partially made in opposition to the view of IS as a science of artifacts.

As indicated above, I have gone through a gradual shift from an interpretive view to a pragmatist view. I needed to clarify these two paradigmatic views in relation to each other, which is done in Goldkuhl (2012a). In that paper I investigated these two views of qualitative research in IS in an ideal-typical way contrasting their differences. However, I also adopted a dialectical view, which means that I, after such an ideal-typical contrasting, also described elements of a possible synthesis of interpretivism and pragmatism.

3 Issues to address: a long term orientation

The long term orientation of this research agenda is to further sharpen and develop *pragmatist and qualitative research methodology*. This is not to be seen as an aim in itself. To my view, such an approach is the best way to bring *more clarity and relevance to IS research*, which is much needed. Central in this conceptual and methodological development is the notion of *practice research*, which is seen as encompassing research approach for action research, design research/design science and evaluation research. I want to work with further integration of different threads as described above separately in the different sections $2.1 - 2.8$.

One important issue is a further clarification of *pragmatist epistemology*. The concepts of *practical theory* and *design theory* need to be further refined. One important part, in such a refinement, is to clarify the relations between these two kinds of theory.

A general aim is a further articulation of pragmatism as a foundation for qualitative research in IS. One important aspect of this is a further *integration of pragmatism and interpretivism* as a combined research approach.

4 Recent and on-going work

During the last years, I have had a clear focus on issues in design research/design science. Recent publications in this area are:
- A formulation of a distinct design research approach in e-government (Goldkuhl, 2016a)
- A critical investigation of presumed differences between design science and "behavioral science" (Goldkuhl, 2016b)
- An investigation of what a design science approach would mean to IS education (Goldkuhl et al, 2017)

At the moment I am working with multi-grounding in two paper writing projects. I am looking into multi-grounding in action research together with research colleagues Stefan Cronholm and Mikael Lind. Together with research colleague Fredrik Karlsson, I am looking into multi-grounding in method engineering.

5 Plans for 2017-2018

The study of a DS approach to IS education (Goldkuhl et al, 2017) will be continued. An empirical study is initiated of how described DS principles (ibid) are applied in existing education.

A comparative study of different empirical methods for generation/collection of qualitative data has been initiated.

Further work with pragmatist epistemology is high on the agenda. This comprises work on practical theory and design theory.

There exist several workshop papers (e.g. Goldkuhl, 2008b; 2013a; 2013b; 2016b) that need to be further refined and submitted to appropriate outlets.

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