WHAT KIND OF PRAGMATISM IN INFORMATION SYSTEMS RESEARCH?

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Abstract
This paper investigates what pragmatism can mean to information systems research. It makes a division into three types of pragmatism: Functional, referential and methodological pragmatism. These three kinds of pragmatisms are explained through their different knowledge – action relations. Functional pragmatism is described as “knowledge for action”. Referential pragmatism is described as “knowledge about action”. Methodological pragmatism is described as “knowledge through action”. The paper identifies briefly how different trends in information systems research are related to these three kinds of pragmatism; as e.g. method development, design research, use of action theories, action research.

Introduction
There are different research paradigms operating in information systems (IS) research. One well-known differentiation is made by Orlikowski & Baroudi (1991). They describe three different “research epistemologies” in IS research: Positivist, interpretive and critical approaches. They follow an earlier division made by Chua (1986). This division of IS research approaches has been acknowledged by several other scholars; e.g. Myers & Avison (2002) in their introduction to an anthology of qualitative IS research. Several scholars have written about interpretive research and made this in contrast to positivist research; e.g. Klein & Myers (2004) and Walsham (1995). The main competing research paradigms in IS seem to be positivism and interpretivism.

This paradigm discussion is not unique for IS. In organisation sciences there are corresponding debates. The above mentioned paper by Chua (1986) is written within accounting. Wicks & Freeman (1998) have also recognized this debate between positivism and interpretivism. They claim however that pragmatism should be seen as an independent and viable alternative to positivism and interpretivism. This discussion of pragmatism as a third research paradigm has been brought into IS research by Goles & Hirschheim (2000). The importance of a pragmatic approach in IS research has been acknowledged by several scholars; e.g. Baskerville & Myers (2004) and Goldkuhl (2004). This identification of positivism, interpretivism and pragmatism as three competing paradigms has also been done in psychology (Fishman, 1999).

There does however not seem to exist a clear and joint picture of what pragmatism should mean in IS research. The contribution of this short paper is to make a conceptualisation of different approaches to pragmatic IS research. Three different kinds of pragmatisms are recognized and described:

- Functional pragmatism
- Referential pragmatism
- Methodological pragmatism

1 Chua (1986) uses the terms interpretive and critical research. She does not however use the term ‘positivist’. Instead she talks about ‘mainstream research’.
Three kinds of pragmatisms

This division into three kinds of pragmatism is made through the concept pair of knowledge and action; these are probably the most central notions in pragmatism. What kind of relations can be recognized between knowledge and action? One obvious relation is that knowledge is created and used for action. The main idea is here that knowledge should improve action; the purpose of scientific knowledge is that it should make a practical difference. This relation can be summarized as knowledge for action. This is however not the only interpretation of the role of knowledge in relation to action. Another important strand of thinking is that knowledge should be about actions. This had led to the development of many theories on actions, activities and practices. This relation is thus knowledge about action. A third relation can be identified: Action as the source of knowledge. In order to reach knowledge, actions need to be arranged, conducted and studied. This relation can be described as knowledge through action.

These three relations between action and knowledge are seen as the basis for division into the three types of pragmatisms. It is argued below that these three types of pragmatisms are all needed in IS research. Examples of these types of pragmatism research will be given and some of their philosophical underpinnings in pragmatic philosophies and theories will be identified. These three types of pragmatisms are labelled in the following way:

- Functional pragmatism (knowledge for action)
- Referential pragmatism (knowledge about action)
- Methodological pragmatism (knowledge through action)

These three types of pragmatisms are related to three foundational questions:

- Why knowledge? Action is the purpose!
- What knowledge? Action is the object!
- How knowledge? Action is the source and medium!

Functional pragmatism

In pragmatism knowledge is seen as a means to improve the world. Dewey (1931) writes, with reference to William James, that “reason has a creative function … which helps to make the world other than it would have been without it”. This is based on a view of the world still in a state of becoming. Knowledge should be useful for action and change. Functional means that knowledge should useful and applicable in action. The principal relation between knowledge and action, within functional pragmatism, is depicted in figure 1.

![Figure 1 Knowledge – action relation in functional pragmatism](image)

This means that knowledge that has a prescriptive character, as e.g. models and methods, is important in functional pragmatism. In information systems research there are many examples of models, frameworks, methods and other prescriptive knowledge products. Knowledge that is functional gives humans guidance in their practical endeavours. Prescriptive knowledge (in methods) is often formulated with a clear reference to proposed types of actions.

A pragmatically functional view on knowledge does however not entail that such knowledge always should be formulated in an explicit prescriptive fashion. Dewey (1931) writes, once more with reference to James, that theories should be seen as instruments. There are several scholars, following this line of thought, who have been working with the notion of practical theory in order to emphasise the instrumentality of theories; e.g. Craig & Tracy (1995) and Cronen (2001). In a practical theory, there is not always a clear link between formulations and subsequent actions. Practical theories have a function of directing actors’ attention towards certain types of phenomena. Cronen (2001, p 30) describes practical theories in the following way: “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”. Goldkuhl (2008) describes explicitly the use of this notion of practical theory in IS research; confer also e.g. Dobson (2002).
There exist however many theories in information systems which should be seen characterized as practical theories although not labelled in this way by their originators.

Within functional pragmatism, it is also possible to add the growing interest in design science and design theories (e.g. March & Smith, 1995; Hevner et al, 2004). This kind of research aims at developing knowledge useful for the design of information systems and other related phenomena. It is certainly about knowledge for action.

Should not action research also be seen as functional pragmatism since it aims at practical problem solving besides creation of scientific knowledge (e.g. Davison et al, 2004)? The main idea behind action research is contribute to local problem solving (ibid; Rapoport, 1970). In this way, one can talk about knowledge that is a locally functional. This is thus seen as special kind of functional pragmatism. Models, methods, practical theories and design theories (discussed above) aim at functional knowledge that goes beyond a narrow local practice. Action research will be further discussed below in ‘methodological pragmatism’.

**Referential pragmatism**

This kind of pragmatism is concerned with describing the world (in theories etc) in action-oriented ways. Herbert Blumer; one of the founders of symbolic interactionism (a pragmatic approach within social psychology and sociology), claims that “the essence of society lies in an ongoing process of action - not in a posited structure of relations. Without action, any structure of relations between people is meaningless. To be understood, a society must be seen and grasped in terms of the action that comprises it” (Blumer, 1969 p 71). A proper understanding of social issues entails thus action-oriented conceptualizations. The scientific knowledge (theories etc) should be explicit about actions and also its context in terms of actors and conditions for and results of actions. An action-oriented view of reality includes also acknowledging larger action items as activities and practices. The principal relation between knowledge and action, within referential pragmatism, is depicted in figure 2.

![Figure 2 Knowledge – action relation in referential pragmatism](image)

There are many action theories which have influenced research in IS. There are pragmatic theories on language, e.g. speech act theory (Searle, 1969) and conversation analysis (Sacks, 1992) which have had influence on theorizing in IS. The language-action approach in IS with its focus on communicative actions and structures of them into conversation patterns is an obvious example (e.g. Goldkuhl & Lyytinen, 1982; Winograd & Flores, 1986). There are also sociological theories on action that have great influence on IS research; e.g. theories of Weber (1978), Berger & Luckmann (1966) and Giddens (1984). Especially structuration theory of Giddens (ibid) have influenced IS research to a large extent; e.g. Orlikowsky (1992). Also activity theory (e.g. Engeström, 1987) and practice theory (e.g. Schatzki et al, 2001) should be included in referential action theories. This list of action-oriented theories should not be seen as exhaustive.

There are methodological approaches, like e.g. Action Workflow (Medina-Mora et al, 1992) and DEMO (Dietz, 1991), which build on action theories; in this case mainly speech act theory. This means that such approaches (when comprising action conceptualisations and prescriptions for action) combine functional and referential pragmatism.

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1 Confer the discussion concerning local practice contribution (in action research) vs general practice contribution (in practical inquiry) in Goldkuhl (2008).

2 There is a breadth of different pragmatic theories. There is no limitation to theories explicitly founded on American Pragmatism. Arens (1994) and Thayer (1981) present overviews of theories emanating from American and European scholars.
Methodological pragmatism

We learn about the world through action (Kolb, 1984). Methodological pragmatism is based on this basic fact. The development of knowledge is based on continual interaction between knowing and acting. Knowledge is based on actions, experiences and reflections on actions. Methodological pragmatism goes one step beyond pure observation for capture of empirical data. Intervention in the world with the particular intent to apply and test different strategies and tactics is essential in this kind of pragmatism. This involves also reflexivity (Giddens, 1984); that is an attention to conducted actions and their effects (success and/or failure). Inductive articulation of tacit tactics is important in this kind of reflexivity in order to arrive at new knowledge on actions. Acting in the world is seen as a primary source of knowledge. Methodological pragmatism is knowledge through action. The principal relation between knowledge and action, within methodological pragmatism, is depicted in figure 3.

Figure 3 Knowledge – action relation in methodological pragmatism

Methodological pragmatism builds on the idea of a planned intervention in the world in order to gain knowledge as described by Dewey (1938) through his notion of inquiry; confer also Cronen (2001). Experimentation and exploration are pivotal in inquiry processes. Methodological pragmatism is adopted in action research. One key issue in action research is of course the contribution to a local practice (cf. discussion on functional pragmatism). Another key issue is the intervention and learning cycle: action planning, action taking and evaluation (e.g. Davison et al, 2004). Different measures are prepared and realised in order to value their effectiveness. Action research involves an exploration of new strategies and tactics and evaluation of their possible success or failure. One fundamental insight in action research is that the “true” nature of phenomena is shown first when try to change them. It is not sufficient to just observe them; we need to try to change them in order to arrive at deeper knowledge of their character.

In IS research there is a growing interest and recognition of action research; confer e.g. Baskerville & Myers (2004) and Davison et al (2004). The researchers’ involvement in real change and development processes are good opportunities for exploring new methods and approaches. The continual shift between action and reflection enables an appropriation and evaluation of new procedures. In IS research there is also a growing interest in how to combine action research and design research; e.g. Lindgren et al (2004) and Cole et al (2005).

Concluding reflections

The formulation of the three kinds of pragmatisms has been made through continual reflections on IS research from a pragmatic perspective. Different readings of and reflections on classical pragmatic texts (cf e.g. Goldkuhl, 2004) have led to the formulation of these three kinds. A differentiation into functional and referential pragmatism has earlier been made in Goldkuhl (2006). The formulation process can be characterized as abductive. The process has thus not been deductive starting from existing formulations of different kinds of pragmatisms. Lovejoy (1908) presented 13 kinds of pragmatisms in a classical article. Rescher (2000) has discussed this classical division and also contributed with other classifications. My ambition has not been to contribute to general pragmatic epistemology. My concern has, in a pragmatic vein, been to investigate functional divisions related to IS research. The division has so far had the role to sort different types of IS research into these three categories as indicated above. Further research can deepen this classification of different IS research contributions. Further research can also make more explicit connections with established divisions of different pragmatisms, as e.g. Lovejoy (1908) and Rescher (2000).

This paper should be interpreted as a call for full pragmatism, i.e. to apply and combine all three kinds of pragmatism in IS research (figure 4). Based on the notion of inquiry in pragmatism (cf. Dewey, 1938 and Cronen, 2001) I have elaborated on a research approach in IS called practical inquiry (Goldkuhl, 2008). As described (ibid), a practical inquiry can include principles and procedures from action research. In such a case there will possibilities for full pragmatism:

- An interest to describe, explain and theorize on actions in local practices (referential pragmatism)
• Both local and general practice contributions (functional pragmatism)
• Active participation in testing and exploring new ways of working (methodological pragmatism)

![Diagram](image)

Figure 4 Knowledge – action relations in full pragmatism

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