

Action in action research: Elaborating the concepts of action, roles and dilemmas in a public e-service development project

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Action in Action Research – Elaborating the Concepts of Action, Roles and Dilemmas in a Public e-service Development Project¹

Structured abstract

Purpose

The main ambition with action research is being able to solve organisational problems through intervention and to contribute to scientific knowledge. The main emphasis has so far been on the “research part”. Here we focus on the “action part” of action research in order to generate rigorous research, to solve local problems and to deal with evident dilemmas in action research. The purpose of the article is to elaborate on the concept of action by addressing actions and roles in the practice of action research, illustrated by dilemmas in an action research project on information systems development in public sector.

Design/methodology/approach

This is a qualitative case study. The empirical illustrations of this article originate from an action research project that focused the two e-service development initiatives analysed below. The analysis is structured using key aspects and phases proposed by Avison et al. (2001). As a result of the analysis the concept of action is elaborated. The action elements action, actor, motive, space, and time are analysed together with different roles. This goes beyond the existing action research literature.

Findings

The conclusions show that there is a need to understand actions and roles within action research projects – not separating action from research. Research is also seen as action. The practice of action research is also discussed as context bounded interactive social action: action research as a recurrent, interactive, and dynamic activity. It is also identified that the understanding of roles, actions and interaction can help us to handle dilemmas in action research.

Research limitations/implications

We contribute to the body of knowledge concerning action research in the information systems research field and in general by exploring the need to study the concept of action (e.g. situations and elements), to be explicit concerning the different phases, roles and responsibilities and management of different dilemmas in action research. The inter-organizational development character in this study adds an extra dimension into the practice of actions research only partially highlighted. This one limitation. Another limitation is focus on public agencies. However, this is not critical for the results on action elements and the AR dilemmas that are studied.

Practical implications

The understanding of roles, actions and interaction can solve the dilemmas and challenges linked to the practice of action research in the information systems field, but such understanding can help us to discover and handle dilemmas in action research.

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Originality/value

The originality in this research is an illustration of and a perspective on action research as a context bounded interactive social action: action research as a recurrent, interactive, and dynamic activity. The value is that this knowledge can help us to handle dilemmas in action research.

Keywords: action research, engaged scholarship, information systems development, research methodology, e-government.

1. Introduction

Action research (AR) is an orientation to inquiry often used in the information systems (IS) research discipline together with qualitative research ideals, in e.g. case study research and ethnographic research methods (Baskerville and Myers, 2004; Baskerville and Wood-Harper, 1998; Mathiassen et al., 2009; Myers, 2009). The main ambition with AR is often described as being able to solve organisational problems and issues through intervention *and* contributing to scientific knowledge. A well cited definition of AR is that it: “[...] aims to contribute both to the practical concerns of people in an immediate problematic situation and to the goals of social science [...]” (Rapoport, 1970, p. 499). In AR researchers are intervening in social systems (Susman, 1983) using a scientific approach to solve organisational problems together with people who normally experience them (Elden and Chisholm, 1993). AR rests on a participatory worldview and democratic values (Reason and Bradbury, 2001) and is frequently used within the IS field (Baskerville, 1999; Baskerville and Wood-Harper, 1996; Mumford, 2001; Chiasson et al., 2009; Conboy et al., 2012). IS researchers have been encouraged to consider AR as a suitable research approach (McKay and Marshall, 2001) in order to develop knowledge, achieve organizational change and design IS. In general, AR is accepted as a valid research approach in fields with applied research such as e.g. management, organizational change and development as well as education (Baskerville and Myers, 2004). At its best AR contains situations where researchers (theory) inform practitioners and practitioners (practice) inform researchers in an equal and synergistic way (Avison and Wood-Harper, 1991). One relevant question is, however, how we achieve this ideal situation when several dilemmas are present when we practice AR. This is relevant from a theoretical and practical point of view.

The main emphasis when discussing and analysing AR in existing literature has so far been on the “research part” of AR (Avison et al., 2001). The *content* and *context* of AR are well reported (McKay and Marshall, 2001) as well as parts of the *methodology*, e.g. the problem-solving methodology (Mathiassen, 2009; illustrated by Henfridsson and Lindgren, 2005). This is also

the case in classical IS approaches such as ETHICS² (Mumford, 2001) that rests on a participatory worldview and democratic values (cf. Reason and Bradbury, 2001). In the case of the *practice of AR* there is more of an emergent set of literature (e.g. Chiasson et al., 2009; Cronholm and Goldkuhl, 2004b; McKay and Marshall, 2001). As an example Chiasson et al. (2009) review the IS literature and explore how IS researchers practice AR and how different approaches are mixed in use while managing risks related to research and practice. Our study also explores the practice of AR, but from a case study approach and with a distinct and theoretically informed analytical focus on actions.

A short quote from Avison et al. (2001, p. 28) reflects the core content of AR: “Action and research”. However, the separation of action and research can be complicated and problematic both practically and analytically as it represents a dilemma. The challenge with a separation is that research is not considered as action per se and that the action concept seems to be used exclusively for actions directed towards a part of a domain (the social system below) located outside the “original” research arena. Maybe it is more suitable to talk about the dual purpose and combination in terms of a: “dual agenda – with practical and scientific dimensions” (cf. Rapoport, 1970, p. 506). In order to realize the opportunity with AR to “bridge the gap between theory and practice” (Mathiassen et al, 2009, p. 5) within the IS field, and using AR in social science in general, we need to elaborate analytically more on the separation between action and research and investigate the action dimension of AR.

In recent years the bridging between theory (research) and practice has been discussed in terms of “engaged scholarship” (Van de Ven, 2007), based on observations that many professionals in practice *fail to adopt relevant research output* within their research discipline and that much of published research findings (ibid.; Mathiassen and Nielsen, 2008; Weick, 2001) “[...] is not contributing in intended ways to either science or practice” (Van de Ven 2007, p. 2). The approach is considered to be demanding and challenging for researchers practicing it in general (Rapoport, 1970) in the IS area (Simonsen, 2009) and also in the public sector IS (e-government area) (Berger and Rose, 2015). These aspects of AR in practice represent dilemmas that we need to handle to be successful action researchers. In this article we use these dilemmas from the recent discussion of engaged scholarship as a motive to be explicit concerning *action* within AR situations in order to improve the understanding of the practice of AR.

² ETHICS (Effective Technical and Human Implementation of Computer-based Systems) is a classical approach to socio-technical design of information systems widely recognized within the IS area (Mumford, 2000).

In this article we analyse actions performed by researchers and practitioners and their interaction within an AR setting using a case within the IS research field. We focus both joint and separated actions; e.g. directed towards the research arena or an organization. We like to bring forward a pragmatic conception of the notion of action in AR, elaborated in the following section. An important point of departure in this article is that action as in researchers' action as such, and in relation to practitioners, is not highlighted enough in previous literature, as stated above. Action is often exclusively used for action in practice ("real life") and as a dichotomy compared to research; but research also contains actions and researchers perform actions, as discussed above. This implicates that we understand research *as* action. In this article we therefore focus on *action* as an important aspect when practicing AR. The practice of AR and actions performed in an AR setting imply that a research and researcher point of view is in the foreground of the analysis in this article. This is done in order to contribute to fill the gap in research identified above concerning the lack of emphasis on the "and" in action *and* research. The purpose of this research is to investigate and elaborate on the concept of action by addressing actions and roles in the practice of AR, illustrated by dilemmas in an AR project on IS development in public sector, and informed by previous studies and literature.

The research questions we focus based on the purpose above is: 1) How is researchers' and practitioners' actions, interaction and roles formed in the practice of AR within the IS field? 2) How are actions, interactions and roles linked to dilemmas within different situations in AR settings (in this case an IS [public e-service] development project)? One important contribution from this piece of research is an understanding of how action researchers can deal with the dilemmas in order to act as engaged scholars achieving relevant and rigorous research. The intention with the present research is to contribute to the existing body of knowledge concerning the practice of AR, focusing action and the dilemmas connected to those situations.

The empirical data that is analysed in this article comes from an AR project in the public sector focusing the development of two inter-organisational (IO) e-services. We revisit the AR project in order to deal with the research question outlined above. Therefore we put the results from the AR project as such in the background. The aim of the project is described in Section Four. The two IO e-service applications are examples of the Swedish government's ambition to develop public e-services (Government Offices of Sweden, 2008, 2011).

After this introduction, the article is organised in the following way: In Section Two AR is theoretically described and discussed. In Section Three the research design is presented, followed by the introduction of the AR project setting in Section Four. The empirical findings

and results from the studied AR project are presented in Section Five. The article is concluded in Section Six. In Section Seven we make some statements about this study's limitations and the need for further research efforts.

2. Action Research

In the literature review below we focus on core characteristics of AR, dilemmas of AR, the process of AR and interactivity in social action within AR contexts.

When discussing AR both in IS research and general method literature, *action* often seems to be associated with or directed to a phenomena that takes place in practice (in terms of e.g. an organisation that through AR are supported in their problem solving). This can be illustrated by the following citation: "Authors must demonstrate a contribution or potential contribution to practice (the *action*). Second, the authors must demonstrate a clear contribution to research (the *theory*)." (Baskerville and Myers, 2004, p. 330). Action in organisations is also called *practical action* (ibid.) following basic assumptions from Kurt Lewin (Baskerville and Myers, 2004; Myers, 2009). In the present article we elaborate on the concept of action as an important element of the practice of AR as well as a part of research and contribution to practice. Research is also action, but on another arena; a social context of action, using Mead's (1913) terms.

Core Characteristics of Action Research

Solving practical problems, issues and concerns, using a scientific approach and at the same time developing scientific knowledge is the core of AR (Avison et al., 2001; Elden and Chisholm, 1993). Because of the problem solving part in AR, researcher intervention in social systems (e.g. client organisation) is obvious (Susman, 1983). Another core characteristic in AR is the intention to develop a comprehensive view of the social systems that are studied (Mumford, 2001). The intervention means that researchers observe and participate in the studied phenomena (Baskerville, 1999); i.e. "being-in-the" situation (Simonsen, 2009, p. 114). Because of this "inside perspective" AR provides crucial first-hand experiences valuable when developing models, methods, and other normative constructions aiming to be relevant and operational when used in practice (ibid.). In other words, AR ideally develops theory-in-practice based knowledge that is truly usable for practitioners, e.g. in the IS field. In AR projects the engaged researcher undertakes a responsibility for managing some or all activities during the project (e.g. related to different stages in an AR cycle, discussed below in Figure 2).

American Pragmatism as an Underlying Philosophy

The key intentions within AR discussed in this article often entail research methods such as (longitudinal) case studies, participation and observation. American pragmatism is considered to be an underlying philosophy (Baskerville and Myers, 2004). Several key AR premises arise from pragmatist philosophy (ibid.) and link to fundamental issues formulated by Dewey (1938), James (1890), Mead (1913) and Peirce (1905) concerning e.g. consequences that define human concepts, practical outcome that embodies truth, the logic of controlled inquiry, and the social context of action (Baskerville and Myers, 2004). Pragmatism as an underlying philosophy implies that it is important to ask the right questions, and getting empirical answers. In this article, the pragmatic point of departure is important in order to analyse the practice of AR.

Dilemmas and Challenges in Action Research

Several dilemmas and challenges are reported in research investigating AR. An overview summarizing identified dilemmas and challenges from literature are reported in *Table 1*.

Table 1 Identified dilemmas and challenges in Action Research

Challenge/dilemma	Description	Illustrative articles
Ethics	Client acceptable or not from a researcher point of view Work in the same value framework Lack of impartiality Ethics challenges related to consultation practices	Rapoport (1970) Baskerville and Wood-Harper (1996) Baskerville (1997)
Goals	Goal dilemmas between the client system and the scientific community – unbalanced relation	Rapoport (1970)
Authority and power	Control structure of AR Determination of action warrants, power concerning the structure of the project, and processes (e.g. cancelling activities in projects or whole projects)	Avison et al. (2001) Rapoport (1970)
Management and formalization	Degree of formalisation specifying e.g. commitments, researcher engagement and team composition	Avison et al. (2001) McKey and Marshall (2001) Chiasson et al. (2009)
Initiatives	Service oriented AR initiatives or (internal) researcher oriented - non anchored -- initiatives Ambiguousness vs. consultancy Problem driven vs. researcher driven	Rapoport (1970) Baskerville and Wood-Harper (1996) Kock (1997)
Quality	Lack of rigour A double challenge – relevance and rigour An iterative approach making AR more rigorous	Rapoport (1970) Baskerville and Wood-Harper (1996) Avison et al. (2001) Kock et al. (1997)
Context-bound	“Consulting masquerading as research”, context-bound, and not context-free Failing to extend beyond a local context	Mumford (2001) Brydon-Miller et al. (2003)

Resource demanding	Time consuming and risky approach that might be heavy to manage	Simonsen (2009)
Cycle/process	Enter, staying and exit	Susman and Evered (1978) Baskerville (1999) Mumford (2001) McKey and Marshall (2001) Chiasson et al. (2009) Davison et al. (2012)
Evaluation	The quality/learning of a process and a result	(Susman, 1983) Davison et al. (2012)

The general dilemmas of AR posed by Rapoport (1970) (1) ethics, (2) goals, and (3) initiatives are echoed also in IS literature covering AR.

Ethical dilemmas (1) are for example if a client is acceptable or not from the researchers' point of view. Of course this is not only a one way relation – two parties must be able to work in the same value framework (ibid.). Rapoport (1970) also discusses the issue of the researcher becoming a captive in one organisation and issues of exclusivity when for example dealing with trade secrets. Goal dilemmas (2) can contain relations between the client system and the scientific community. On the other hand we can have an extreme situation where the researcher uses an environment to generate empirical data “[...] for purposes unrelated to any concerns of the organization or those in similar situations [...]” (ibid.). In the latter extreme position, the “ivory tower” position, a researcher can be viewed as “parasitical” and “highbrow smash-and-grab types” (ibid.). Rapoport (1970, p. 506) also elaborates on the “time zones” of research and practice and points at the dilemmas of trying to solve practical situations (e.g. decision making) and careful research trying to avoid “quick and dirty research”.

In service oriented AR initiatives (3), clients state the initial problem that should be dealt with and the researcher provides methods and concepts to deal with the problem. This can be contrasted with a situation where initiatives “[...] emerge purely from the internal logics of a discipline” (Rapoport, 1970, p. 508).

Several challenges reported by IS researchers follow the general description of dilemmas in AR above (see e.g. Baskerville and Wood-Harper, 1996; Baskerville, 1997), e.g. lack of rigour, lack of impartiality, ambiguousness vs. consultancy (“consulting masquerading as research” [cf. also Baskerville, 1997; Mumford, 2001]), and AR as context-bound, and not context-free are reported (ibid., p. 241). Another challenge is reported by Simonsen (2009), who consider AR to be a time consuming and risky approach that also might be heavy to manage. Brydon-Miller et al. (2003) point to the weakness of AR being so locally oriented, meaning that many AR

projects create improvements at the case level but fail to extend beyond that. Mumford (2001) identifies several challenges related to different phases in the AR process such as: “(1) getting in; (2) staying in; and (3) getting out of the research situation” (ibid, p. 20). The AR process as such is discussed further below.

Davison et al. (2012) also discuss challenges of AR; (1) Diagnosing the current situation, (2) Planning interventions and organizational changes, (3) Evaluating the impact of an intervention, and (4) The nature and role of theory in AR. They show how theorizing the relationship between focal and instrumental theories might be a way to overcome these challenges and suggest that we should go beyond the cyclical process model of Susman and Evered. We follow this line of thinking below by relating interactivity in social action to AR.

Using AR in an e-government setting has recently been explored by Berger and Rose (2015). They focus on canonical action research and elaborate on nine challenges for e-government action researchers. Some of the challenges echoes previous studies in the IS area, but they also pinpoint challenges that are more crucial in a public sector setting. These challenges include e.g. internal knowledge transfer and learning, a multiple interests situation, decision making capability, change management, fast-moving (political) agendas, and the addressing of end-users vs. citizens as stakeholders.

The “double challenge”, introduced above, combining action and research is a true challenge – and many failures are reported in AR project when not handling this challenge in a feasible way. Avison et al. (2001) elaborate on key alternatives and a control structure in order to overcome the challenges and dilemmas in combining action and research (cf. Rapoport, 1970) in the IS field. The key aspects of an AR situation according to Avison et al. (2001) are:

- 1) The initiation of the AR project (addressing a situation where problems exist);
- 2) the determination of authority for action in the research project; and finally
- 3) the degree of formalisation of the project.

When initiating an AR project (1) there are two main approaches: The action researcher “discovers” the problems and issues – a research driven initiation or the problems and the issues “discover” the action researcher – a problem driven initiation. When we have a research or researcher driven initiation, Kock (1997) has shown different forms of failure. The first is the case of “iceberg subjects” (opportunities for improvement are not understood by practitioners). Secondly, we have the case of irrelevant subjects (there is no obvious practical problem solving

involved). Third, there is no client leading to the situation that: “No problem setting can be found that matches the theoretical frames of the action researcher.” (Avison et al., 2001, p. 30).

The second key aspect, determining the authority for AR project (2), is also important. The mechanisms (e.g. determination of action warrants, power concerning the structure of the project, and processes for e.g. cancelling activities in projects or whole projects) need to be defined early in an AR project. The characteristics of the action warrants have implications for the AR project (ibid.); see also Mumford (2001). Only on rare occasions, an organisation will renounce ultimate authority for action to an external researcher. This is highly reasonable since the researcher’s motives normally are divided between research oriented points of departure and goals, and organisational points of departure and (local) problem-solving oriented goals (Avison et al., 2001; Rapoport, 1970).

The last key aspect of an AR situation (Avison et al., 2001) is the degree of formalisation (3). Agreements concerning the degree of formalisation of an AR project are recommended in order to specify e.g. commitments, researcher engagement and team composition (ibid.). Mechanisms (formal or informal) to formalise can concern the ability to renegotiate AR structures, e.g. to permit changes in team memberships and AR project scope. According to Avison et al. (ibid., p. 31): “Most AR projects begin with a fairly concrete conceptualisation of the determination of their conclusion: a goal state in which an immediate organisational problem or set of problems has been alleviated.” Below we use the key aspects of an AR situation according to Avison et al. (2001) as a way of structuring and understanding the case that is focused.

Even though there is a body of literature covering different dimensions of AR there are: “[...] comparatively few guidelines for would-be action researchers to follow. While much of the AR literature is replete with discussions and argumentation about origins, philosophical and conceptual underpinnings, there are relatively few AR exemplars available, and little direct guidance on ‘how-to-do’ AR” within the IS area (McKay and Marshall, 2001, p. 49).

Chiasson et al. (2009) investigate how IS researchers mix different approaches within AR. Through their analysis they conclude and suggest that IS researchers should manage the dual goals of AR by the enactment of problem-solving and research activities. They found different ways of mixing these two activities; research, (practical) problem-solving, and interactive approaches. Chiasson et al (2009) also found that mixing methods in AR are based on dominant or sequential approaches. In dominant approaches AR is used from the beginning – as a primary research method – combined with other research methods to investigate research questions. In

a sequential approach, AR is used more as a complement that supports examination of a research phenomenon in a larger research programme.

We consider Mumford (2001) as another illustrative exception. In her paper from 2001 she discusses several “how-to” aspects using illustrations from empirical AR projects. Bridging this gap – illustrating dilemmas – and trying to identify strategies to handle them are important issues in this article. Even if the discussion above – trying to avoid two opposite directions based on Rapoport (1970) – can help us to practice AR, there is a risk of separating action and research. This also calls for the elaboration of different types of actions in AR.

An Action Research Process

An AR process is typically iterative (cf. Kock et al., 1997) and makes use of learning from practitioners and researchers. It is a kind of a clinical approach as it puts IS researchers in a helping role towards practitioners (Baskerville and Myers, 2004) within a dual agenda reported in general AR literature (Rapoport, 1970). The action research cycle is often described as follows (Baskerville, 1999, p. 14; based on Susman and Evered, 1978); (1) diagnosing, (2) action planning, (3) action taking, (4) evaluating, and (5) specifying learning (*Figure 2*).

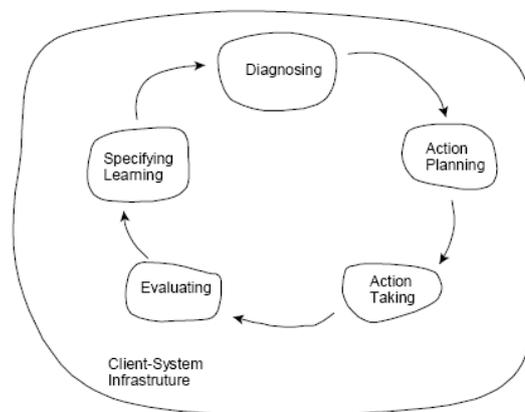


Figure 1 Action Research Cycle (Baskerville, 1999, p. 14; based on Susman and Evered, 1978)

(1) Diagnosing contains the identification of the problems that are the underlying causes of an organization’s change. A part of this is a self-interpretation of an organizational problem. In the next phase, (2) action planning, researchers and practitioners work together. Organizational actions reducing the problems identified above are included, so are objectives for planned actions. A theoretical framework is used to guide the actions. (3) Action taking is then the next phase, implementing the planned action above. Practitioners and research collaborate also in this phase. The researchers can have different forms of intervening here, direct or indirect. In

the next phase, (4) evaluation takes place as a collaborative effort. Theoretical effects as well as effects in changing an organization can be in focus. (5) Specifying learning is an activity formally described as undertaken last (Baskerville, 1999). It can be an on-going process containing knowledge gained of successful or unsuccessful actions. A more thorough description of the different phases can be found in e.g. Baskerville (1999, p. 14). Davison et al. (2012) identify two roles that theory might have in AR; focal and instrumental. Focal theories are e.g. adaptive structuration theory (AST) while instrumental theories are used to explain a phenomenon. Instrumental theories include processes and tools that are used to create focal theories. Instrumental theories play a mediating role between researchers and practitioners in AR projects. They include tools, models and processes that theorize how work is conducted and what the outcome will be. Instrumental theories are vital in AR projects but very seldom mentioned in AR research. Davison et al. (ibid.) only found three papers published during 30 years which explicitly acknowledge the existence of instrumental theories in AR. Instrumental theories are important for supporting research actions and, thus, relate to this article's focus. The fact that instrumental theories are very peripheral in AR literature indicates the knowledge gap that we address here; the lack of emphasis on the "and" in action *and* research, and will be further explored in the analysis below.

Interactivity in Social Action – an Action Research Context

If we take a further look at the concept of action from an AR perspective, Goldkuhl (2005) describes action, and social action in particular, together with interactivity (Figure 3). Keywords used in that discussion can be fruitful in order to understand AR as an example of social action where actors have relations, intervene, interpret, make initiatives and responses, etc.

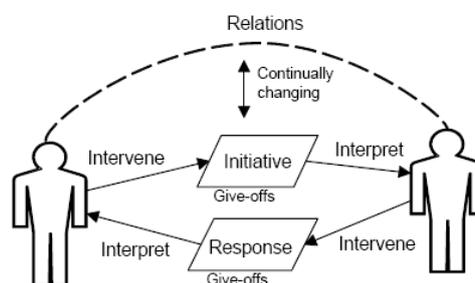


Figure 2 Interactivity in social action (Goldkuhl, 2005, p. 14)

Goldkuhl's (2005) model should be interpreted in the light of American pragmatism (cf. Dewey, 1938) as an underlying philosophy for social action (cf. Mead, 1934), and AR as discussed above; viewing human action as socially contextualized, and human

conceptualization as social reflection (cf. Baskerville and Myers, 2004). The need for pragmatism in IS research is also emphasized by for example Goles and Hirschheim (2000) and Ågerfalk (2010). Using a pragmatic perspective has certain consequences for IS research and the practice of AR. Goldkuhl (2004) suggests six aspects that characterise pragmatic research; an interest for actions, an interest for actions in a practice context, an acknowledgement of action permeation on knowledge, an interest for practical implications of knowledge, an interest in “what works” and “what does not work”, and an acknowledgement of the dialectics between knowledge and action; i.e., proper action is knowledgeable action and proper knowledge is actable knowledge (ibid.). We interpret these aspects based on a pragmatic perspective as favourable also for AR and frame the analysis below using a pragmatic point of departure when discussing dilemmas, actions and roles.

3. Research Design

From a research design and methodology point of view we describe the empirical setting that we analyse (revisit) in order to elaborate on the concept of action, roles and dilemmas in AR. This section is followed by notes on the design and methodology of the retrospective study of actions within the AR setting and the use of literature.

Empirical Illustrations from an AR Project

The empirical illustrations of this article originate from an AR project that focused the two e-service development initiatives analysed below. Myers (2009) distinguishes between positivist, interpretive and critical philosophical assumptions that are possible to apply to a qualitative study. The possibility to choose between several philosophical assumptions when designing a research study can be traced back to several sources. In the IS area Orlikowski and Baroudi (1991) argue that IS research needs a plurality of research perspectives. This AR project was performed with an interpretive approach (Goldkuhl, 2012; Myers, 2009; Walsham, 1993) implying that the project is seen as an emergent process in which local circumstances and occurrences during the project influence the process and its outcome. Such an interpretive approach is based on the notion of the social construction of reality (Berger and Luckmann, 1967). Interpretive research methods focus on how to make sense of the world and how to understand this socially constructed reality (Walsham, 1993). Related to the notion of engaged scholarship, Van de Ven (2007, p. 27) characterises AR as a project aiming at designing or controlling a situation for a client with an attached, inside research perspective.

The AR project was conducted from 2005 to 2008. It was initiated by the researchers with the purpose to solve practical problems regarding inter-organisational e-service development and, based on these practical experiences, develop a method for inter-organisational e-services development in the public sector and contribute to the theoretical knowledge on e-service development. The AR project was funded by The Swedish Governmental Agency for Innovation Systems (Vinnova), within a research program on inter-organisational public e-services. All funded projects were organised as AR projects.

The AR project members were three IS researchers and more than 15 practitioners representing several of the 21 County Administrations in Sweden as well as the Swedish Road Administration. The practitioners had different roles in the project and positions in the organisations; project leaders in the two development initiatives (called “the licence handling application” and “the driving licence web portal”), system developers, IT strategist, case handling officers, information managers, legal experts, etc. The first initiative involved Sweden’s County Administrations (SCoA), which organises 21 county administrative boards (CoA), and was managed by the CoA of Stockholm. The second initiative involved the CoA’s and was managed by the Swedish Road Administration (SRoA³). The IO character (several actors involved) of the development projects adds even more complexity to the AR settings studied in this article. The AR project was led by one of the researchers but the development initiatives were managed by application development project leaders from practice.

Tasks that have been performed in the AR project consist of project meetings, semi-structured interviews with persons in the projects as well as other persons in the involved organisations and external consultants involved in the development initiatives, business modelling seminars, document reviews and evaluations of prototypes and requirements specifications, formulation of design proposals, and other kinds of both formal and informal interaction between researchers and practitioners. Interviews were performed in the beginning of the project, during the project and at the end of the project. These tasks are similar to the data collection techniques that are suggested by Myers (2009) as usual in interpretive AR. Empirical data was gathered during all phases of the AR project setting. It was documented in different ways depending on circumstances; interviews were recorded, modelling activities resulted in graphical models, reviews and evaluations were documented in reports, etc. All together the three years of work

³ Since 2009 merged into the Swedish Transport Agency. The descriptions of the license handling processes and actors in the following text are described as it was organized before 2009. The overall processes are the same after 2009, but the organizational actors, division of labour, and organizational boundaries have changed.

within the AR project resulted in a wide range of empirical data. Results from the project have also been analysed and reported in scientific articles both during and after the project. More than 15 research articles have been published based on empirical data from the AR project, supporting e.g. Myers' (ibid.) statement that AR should make a clear contribution to research (theory), besides making a contribution to practice.

A Retrospective Analysis of the AR Project

In this section we describe a retrospective analysis of the AR project investigating AR in a project setting and elaborating the concept of action per se. When revisiting empirical data project descriptions, previous publications from the project and empirical material (such as interview data, interpretations, etc.) were used. This empirical data in the AR project has been analysed in a qualitative, interpretive way (Walsham, 1995), searching for patterns within a content focused analysis. Interpreting the empirical data from the project has resulted in e.g. three types of project activities⁴ conducted in the project. These activities (presented in the AR project setting section below) are used in order to illustrate AR actions focused in this article. This is done by discussing the actions related to what is done, who acts, why the action is taken, where it is done, as well as when in the project. This means that we have used an explorative approach in this part of the research. We also use our rich empirical material in order to reflect upon the researcher role in the project and how it influenced the results. The analysis of the AR situations is structured based on the key aspects of an AR situation by Avison et al. (2001). In this part of the analysis theories *guide* our analysis of the empirical material (Walsham, 1995). This implies that we analyse the empirical material by emphasising three distinct project activities, structuring the focused project activities according to a theoretical construct and reflecting upon performed actions by researchers and practitioners in these situations. The analysis of dilemmas (cf. Rapoport, 1970) is guided by theories in the same way (cf. Walsham, 1995) also using a pragmatic point of departure (cf. Dewey, 1938) as discussed above.

Revisiting data from a project where we as researchers have been involved is not unproblematic and can be criticized. Several challenges are present. Partially we are studying situations where our own actions are present. There is also a time difference between the execution of the project and the time for revisiting the data. Our intention, however, is to be aware of the challenges and to provide a comprehensive and transparent analysis. The project as such can also be classified

⁴ We use the term "activity" to define a set or type of actions linked to each other within a particular situation addressed in the analysis of the AR project setting below.

using Sein et al.'s (2011) label action design research (ADR). We do not claim that we have conducted ADR, but we acknowledge the underlying perspective in ADR regarding the explicit patterns of the reciprocal shaping of the artefact developed, the significance of the organizational context and the actions that we focus (ibid.; Orlikowski and Iacono, 2001) in our analysis.

4. The Action Research Project Setting

The AR project setting, introduced above, consists of the development of two e-services: a licence handling application and a driving licence web portal. The initiatives concerned IO e-service development in the public sector in Sweden. The aim of the initiatives was to develop public e-services for driving license matters as well as a web portal with e-services and information about the driving license process.

The overall process and background to the project was that everyone in Sweden who wants to get a driving license, first has to apply for a provisional driving license from the regional CoA he or she belongs to. The provisional driving license is approved if the applicant is judged by the regional CoA to be able to drive a vehicle in a safe way, thus, the permit is an important aspect of traffic security. The permit application was, until the e-service was implemented, a paper-based form that was filled in, signed and sent by mail to the regional agency. The application has to be complemented with a health declaration, a certificate of good eyesight, and maybe also an application that e.g. a parent will be allowed to serve as a private instructor. These documents were received and reviewed by a case officer at the agency. The case officer also checked if the applicant had been convicted of any crimes. When the provisional driving license had been granted, the CoA reported this to SRoA through the IO IT system. When the applicant has completed the driving and the theoretical tests successfully he or she receives the driving license from the SRoA. This mix of different responsibilities and contacts in the whole driving licence life cycle was seen as a good reason for constructing an e-service.

The licence handling application project (called the "licence handling project", below) aimed at developing an e-service that should make an automated decision in "green cases" (cases that do not call for extensive handling processes) and support case officers handling such cases faster. By doing this the agency should save and reallocate resources from handling "green cases" to more complex errands. An e-service like this also provides an opportunity to standardise the application handling processes across the nation and the 21 CoAs. The agencies also had high expectations concerning the quality of data provided by citizens. Using an e-

service when filling in the driving licence application form would make it possible to automatically check the quality and the completeness of the data directly. Another advantage with an e-service is that the underlying IT system now directs the citizen to the appropriate CoA – instead of having citizens wondering which board that would be the right one for them. The handling of provisional driving licences and the development of e-services to support this is one outcome from the AR project analysed in this article.

The driving licence web portal development (called the “portal project” below) is the other outcome within the AR project. The background of the web portal development is that driving license issues in Sweden are divided between several government agencies. It is difficult for citizens to locate information fast and easy and get in contact with the appropriate agency regarding this kind of errands. In order to make it easier for citizens to locate information and interact with the appropriate agency a national web portal was developed. The portal covers the relevant citizen/user needs along the driving licence life cycle. The web portal (a one stop e-government solution) provides the citizen with access to e-services and serves as a bridge between the involved government agencies and organisations.

In the forthcoming analysis and discussion when revisiting the AR project and the two development initiatives we will use empirical examples from three different activities:

- 1) The first activity is a *communication analysis* performed during the driving licence application e-service development. The health declaration is an important document when applying for a provisional driving licence. The communicative acts in such a document must be clear and easy to understand in order to fill in the form in a sincere way. This is an issue independent of the media chosen (paper-based or electronic form). The task in the development process was to add a communication channel; implementing an electronic form on Internet as a part of an e-service.
- 2) The second activity is the *development of a driving licence web portal maintenance model* that addresses questions of e.g. responsibility and roles for web portals, defining types of corrections, priority handling, and governance models. The model was developed as a response to a direct assignment from the practitioners. The task was to formulate a maintenance model that handled the IO issues of the web portal.
- 3) The third activity chosen is a *process modelling crash course* in the driving licence application e-service development process. One part of the basis when designing the e-service was to map existing and future processes. The agency lacked experience of

performing process modelling. As researchers we identified this lack and conducted a crash course in principles and techniques for process modelling.

From a methodological point of view, the activities are chosen because they illustrate actions, interaction, roles and dilemmas connected to the practice of AR. Other important prerequisites for the AR project as such were formulated by the project sponsor Vinnova. These prerequisites had an influence on the AR situations (the following themes, e.g. the action elements) analysed below. The prerequisites are also important in order to understand the empirical setting and the activities in the AR project. The sponsor expected benefits from the AR projects that can be highlighted as follows: the projects should increase the cooperation between universities, enterprises and government agencies. The research should be motivated by explicit user needs. The funded projects should also generate measurable effects. The results from the projects should also put into practice results from different subject areas when developing public e-services as expressed by the project sponsor.

5. Analysis and Results

The situations (important activities containing actions or series of actions bounded in a situation of time and/or space) analysed below are structured based on the key aspects of an AR situation introduced by Avison et al. (2001). The key aspects (ibid) are: (1) the initiation of the AR project, (2) the determination of authority for action in the research project, and (3) the degree of formalisation of the project. The AR situation when initiating action in the project is analysed as the first theme, below, labelled “Action Research Situation – theme 1 ‘Initiating Action in the Project’”. Key aspect 2 and 3 (from Avison et al., 2001) are integrated in the analysis below as a second theme labelled “Action Research Situation – theme 2 ‘Authority for Action and Degree of Formalisation’”. We have chosen to integrate the two themes under the same section because of their integrated nature in the empirical material. A characterization of the action elements, the focused aspects in this article, is the third theme in the analysis below. This theme is included in the presentation of the two other themes. The elements: what, who, why, where, and when are classified based on empirical data from the AR project and indicated by using square brackets, e.g. “[who]”. The empirical findings are also compared to AR literature. The themes illustrated below also express different researcher roles and dilemmas.

The analysis below uses a pragmatic point of departure as introduced in the literature section above. This follows Goldkuhl’s (2005) line of thinking viewing human action as socially

contextualized, and human conceptualization as social reflection and interaction (cf. Baskerville and Myers, 2004). The focus on these aspects below as an expression of the pragmatic focus.

Action Research Situation – theme 1 “Initiating Action in the Project”

The analysis of the AR situation will be illustrated by three different activities (communication analysis, driving licence web portal maintenance model, and process modelling crash course) from the two IS development initiatives focused in this article – the licence handling project and the portal project. This particular AR situation and the initiation of action is an example of an activity linked to the action planning phase in Susman and Evered’s (1978) cyclic model of AR (in Figure 2) taking place as actions and interaction in a social context (Goldkuhl, 2005; Baskerville and Myers, 2004).

Performing a Communication Analysis in the Driving Licence Application e-Service Development Process

In the case of initiating a communication analysis this aspect was addressed by us as researchers (a research-driven initiation, cf. Avison et al., 2001) [who]. Or to be more precise: a researcher “discovered” a governmental problem. We argue that it is important to analytically separate the *actor* (the researcher) from the *activity* (the action and the interaction). Avison et al. (2001, p. 30) for example seem to mix the terms of “research-driven” and “researcher-driven” initiation. Research can be interpreted as a more general theme, a subject, an area or even a broader research context. Researcher driven can be interpreted as the specific researcher or research team (a group of researchers) in a particular, contextually bounded, project. In this context we as researchers identified a considerable risk that the existing form for health declaration, among others, with its in-built communicative weaknesses should be implemented without changes in an e-service – not taking the potential in the new media (IT) into account [why]. We communicated this (the interaction) within the project and recommended further action to the project leader. Here we interpreted a situation, acted, and intervened (Goldkuhl, 2005). A research based communication analysis (Cronholm and Goldkuhl, 2004a) [what] was therefore performed by us as researchers [who], using research based tools. This communication analysis generated both benefits for practice (better e-services) [why] and research (experiences from using communication analysis and contributions to a method for e-service development) [why]. The actions were taken as a part of the e-service design phase [when] and in interaction with several members of the e-service development team [who]. The communication analysis was performed at the university and reported to the SCoA [where] (and possible further

interpretation and intervention from SCoA staff) and later at a research conference and afterward in a journal [when, where] by the researchers [who].

This particular AR situation is an example of an activity mainly linked to the action taking phase in Susman and Evered's (1978) cyclic model of AR (in Figure 2), but in the analysis of this situation we reflect upon action planning, evaluation and the phase including diagnosis.

The researchers' roles when performing this activity has been as the *initiator*, as discussed above, as *reviewer* (performing the communication analysis), as direct supporting *consultant* (presenting alternative communicative acts and alternative terminology) and as an *action researcher* (analysing experiences from using communication analysis when developing e-services, and reporting to the scientific community based on that). The overall *initiative* in this interactive social action (cf. Goldkuhl, 2005; a social context of action, using Mead's [1913] terms) was in the hands of the researchers – the practitioners merely made *responses*. Or using Chiasson et al.'s (2009) terminology the initiative were initially research dominant; using theoretical ideas intended to inform one or more problem-solving situations, but emerged into an interactive approach during the project. The research conference and journal publication above are examples of researchers' interactive actions towards a research audience. The interaction in this AR setting did not strengthen the relation between researchers and practitioners, since the practitioners did not interpret the results as usable to a larger extent. However, the research output from this setting and the general initiative were identified as successful, but the potential in the communication analysis to work as an instrumental theory, playing a mediating role between researchers and practitioners (Davison et al., 2012) was not realized resulting in a weaker link and action outcome than one can expect in a more solid interactive approach (Chiasson et al., 2009).

Developing a Maintenance Model in the Driving Licence Web Portal Development Initiative

The web portal for driving licence information and e-services is a joint venture between the SRoA and the SCoA. In this joint venture the project leader (the driving licence web portal application development manager) at SRoA took the initial steps (a government problem driven *initiation*, cf. Avison et al., 2001) [who] approaching the researchers). Using Chiasson et al.'s (2009) categorisation this was a research dominant approach, supporting a real-life problem solving using existing knowledge in the area. The initiation was based on the interpretation of a situation that there were several roles and responsibilities that needed to be addressed to operate and maintain this IO artefact. The agencies had no IS maintenance model [why] that

took IO aspects into account and asked for suggestions from us as researchers. They needed drafts of different maintenance models that took the IO aspects (roles of ownership, editing, administration, etc.) into account [what]. As researchers [who] we took an initiative (Goldkuhl, 2005) and created three different drafts of a maintenance model [what] (Nordström and Welander, 2005), as a response to the needs interpreted and interactively communicated by the practitioners (cf. Goldkuhl, 2005). These drafts (based on the research intervention) served as a basis for an interpretation, and practitioner action (a decision for the joint development group with members from both SROA and SCoA [who] on how to maintain the web portal).

The development of a maintenance model (the researchers' intervention) generated benefits for practice (better maintained e-services) and research (contributions to an emergent method for e-service development). The action was taken as a part of the e-service maintenance design phase [when]. The development of the model was performed at the university and reported by the researchers [who] at a project group meeting organised by the SROA [who, where].

The researchers' roles when performing this activity has been as a *designer* (developing alternative maintenance models based on theory), as a *reviewer* (examining the present intra-organisational maintenance models), as a direct supporting *consultant* (an adviser, systematic and theory based, presenting alternative maintenance models – a theoretically and practically grounded normative direction to practitioners' future actions) and as an *action researcher* within an AR setting (constructing an emergent, general e-service method). This particular AR situation is an activity mainly linked to the action taking phase in Susman and Evered's (1978) cyclic model of AR (in Figure 2), but in the analysis of this situation we reflect upon action planning, evaluation and the phase including diagnosis. This AR situation is also an example of an arrangement where the process is interactive and a situation where the relation (cf. Goldkuhl, 2005) improved and become stronger based on the usable results that were achieved. The potential of the maintenance model to work as an instrumental theory, playing a mediating role between researchers and practitioners, (Davison et al., 2012) was realized. The research output in this particular situation were not that obvious and did not result in any publication focusing application of maintenance models, and therefore it cannot be compared to an interactive approach using Chiasson et al.'s (2009) categorization.

Arranging a Process Modelling Crash Course in the Driving Licence Application e-Service Development Processes

Action taken that a situation needed to be addressed was performed by us as researchers (a research-driven *initiation*, cf. Davison et al., 2001) [who]. Or to be more precise, similar to the

communication analysis in the driving licence application e-service development process above, a researcher “discovered” governmental problems and issues. And, again, using Chiasson et al.’s (2009) terminology, the initiative were research dominant; using theoretical ideas intended to inform one or more problem-solving situations. We identified a need of more knowledge among the practitioners concerning process modelling principles and techniques when designing the driving licence IT system and intervened (Goldkuhl, 2005). We identified a potential risk that the standardised system offered by the consultancy firm could overshadow the business logic in an unfeasible way and, thus, negatively influencing the way the SCoA would like to handle driving licence permits in the future [why]. A process modelling course for staff at the SCoA was arranged by researchers. This process modelling crash course primary generated benefits for practice in terms of improved competence to draw process models when designing e-services [why]. A secondary benefit, from a research perspective, was that we could gain some knowledge concerning the emergent method for e-service development (experiences from using process modelling principles and techniques in an e-service development setting) [why]. This benefit can be interpreted as a problem-solving situation generating knowledge discovery interactively (Chiasson et al., 2009). The design and preparations of the course were performed at the university and the course was then held by the researchers [who] at a seminar organised by the SCoA [who, where, when]. This particular AR situation is an example of an activity linked to the action taking phase in Susman and Evered’s (1978) cyclic model (in Figure 2), but in the analysis of this situation we reflect upon other phases.

The researchers’ roles when performing this activity has been as an *instructor* (designing a process modelling crash course based on theory and previous field experience), as a *consultant* (presenting principles and techniques supporting practitioners’ process modelling – an indirect supporting role) and secondary as an *action researcher* (learning from agencies using process modelling principles and techniques when constructing an emergent, general, e-service method) as a part of a more interactive approach (Chiasson et al., 2009). Temporarily this researcher intervention strengthen the relationship with the practitioners, however on a long term basis, the relation did not improved. Even if some practitioners found the results usable, the overall response (cf. Figure 1) from the project management team was not obvious. The potential in the course as a tool to work as an instrumental theory, playing a mediating role between researchers and practitioners, (Davison et al., 2012) was not fully realized.

Below the AR (development) situations are characterized and summarized using previous AR research on drivers, activity focus and role of theory.

Table 2 AR situations - drivers, activity and role of theory

AR (development) situations	Driver (Avison et al., 2001)	Activity Focus (Chiasson et al., 2009)	Role of theory (Davison et al., 2012)
1) Performing a communication analysis	Researcher Driven	Research Dominant (theory informing problem-solving) Interactive character present – but weak	Instrumental (but full potential not realized)
2) Developing a maintenance model	Problem Driven	Research Dominant (theory informing problem-solving)	Instrumental – potential realized
3) Arranging a process modelling crash course	Researcher Driven	Research Dominant (theory informing problem-solving) Interactive character present – but weak	Instrumental (but full potential not realized)

Action Research Situation – theme 2 “Authority for Action and Degree of Formalisation”

A breakdown in the licence handling project’s e-service development process occurred twelve months after the start of the AR project. By *breakdown* we do not mean a pure clash between the involved actors; it was rather a series of misunderstandings (cf. Heideggers communication breakdowns as described by Winograd and Flores, 1986) and uncertainties between involved parties. Until then the project had a number of situations where roles, initiatives, activities, and meetings had been misinterpreted and/or misunderstood by the participants. There were also situations where we as researchers did not have access to several important project documents. The interpretations and interaction (Goldkuhl, 2005) between the parties did not create a positive and innovative climate.

Avison et al. (2001) and Mumford (2001) claim that once an AR project has been started the mechanisms by which authority is defined are very important. There is also a need to determine action warrants, power over the structure of the project, and processes for renegotiation and cancellation. The determination of these aspects is one way of regulating the relation between the actors in the interactive social action (cf. Goldkuhl, 2005). This was not done properly enough in the beginning of the present AR project in order to be successful. This is one part of the explanation of the breakdown that occurred, and that a generative interaction was absent.

Parts of the breakdown can also be explained by the division of labour, authority and responsibility for intervention and action within the present development project and between the practitioners and the researchers and maybe also by the research dominant (Chiasson et al., 2009) focus in the project. Some activities (e.g. quality assurance of user dialogue logic and

conceptual design in the licence handling application construction phase) were completely distributed to us as researchers in the development process due to time restrictions in the SCoA. This is one example of ultimate authority distributed from practitioners to researcher of a non-suitable character and also an example of an explicit dilemma concerning the “time zone” (cf. Rapoport, 1970). This can be related to Smith’s et al. (2010) discussion about who is in charge of an AR project. The question who is the leader of the project and who owns the process is also elaborated on. Researchers must be distinct in explaining their roles and responsibilities; otherwise there might be misunderstandings and conflicts between practitioners and researchers in the project. According to Avison et al. (2001) it is rare that organisations cede ultimate authority for organisational action to an external researcher. In this case the researchers clearly indicated that the researcher effort in this phase should not be the only activity performed in order to assure quality in the construction. The practitioners need to take part of the quality assurance as a part of an interactive research process based on mutual trust and a mix of activities and focus (Chiasson et al., 2009).

One of the results when discussing and handling the breakdown in the development process was a more clear and communicated division between research goals and organisational problem-solving goals. This can also be directly related to the arguments of Avison et al. (2001) concerning the importance when determining motives and commitments in AR projects. After the discussion and handling of the breakdown the researchers also got full access to project documents on a project groupware.

One lesson from this phase in the e-service development initiative is that the need for current evaluation (Susman, 1983) should be taken more into account. An evaluation of roles, initiatives, activities, and authority should have been performed earlier in the process, reducing some of the components in the breakdown. This approach is one step towards a more formal AR project than the present development initiative was at its start in 2005. The project in 2005 had, to a large extent, an informal character. In line with Davison et al. (2004), a degree of formalisation, such as a simple contract or letter of agreement defining dimensions of practitioner and researcher engagement, and mutual expectations had been helpful. Probably not, to a large extent, the document in itself, but certainly the process of discussing and designing the content of an explicit agreement covering the different roles, initiatives and authority in detail. We as researchers and the practitioners should collaboratively have determined control structures early (Davison et al., 2004) in the development initiative.

The driving licence web portal development initiative did not suffer from any of the challenges in the licence handling e-service development process. No breakdowns occurred. The “supply and demand” of problems and issues as well as the specific competencies held by practitioners and researchers have been very well utilised in interplay with proactive interventions and interpretations as initiatives and responses (cf. Goldkuhl, 2005). There have not been formal in-depth agreements, but oral informal agreements and give-offs (ibid.) based on a mutual understanding and a communicated agenda. This fact regulates the relation between the actors in the interactive social action (Goldkuhl, 2005). The reciprocal motives and commitments (Davison et al., 2004) have been explicit and these have similarities with elements in a current evaluation (Susman, 1983).

Below (*Table 3*) the illustration of elements in the AR situations are summarized.

Table 3. Illustrations of different action elements identified in the IS development initiative

Action (What?)	Actor (Who?)	Motive (Why?)	Space (Where?)	Time (When?)
Development initiative	Roles (practitioners, researchers)	Organisational benefits and results – to solve problems. Research results (theories and models) – scientific papers and articles. R&D results: a method for developing e-services.	In the organisation or at the university.	In real-time or delayed.
1) Performing a communication analysis	Practitioners: mainly responded to researchers' actions. Researchers: initiators, reviewers, supporting consultants and overall action researchers.	Organisational benefits: making better use of the new IT – not just copy the old solution; a better e-service. Research results: experiences from using communication analysis and contributions to a method for e-service development.	In the organisation, at the university, at a conference, and in a journal. A short report also in written form.	Part of the design phase, mainly delayed and the AR process, comments in real-time sessions.
2) Developing a maintenance model	Practitioners: initiators and explicit receivers of the results. Researchers: designers, reviewers, direct supporting consultants and practice oriented researchers within an AR setting.	Organisational benefits: received three different drafts of a maintenance model; better maintained e-services. Research results: contributions to an emergent model for e-service development focusing systems maintenance issues.	At the university and reported at a project group meeting organised by the SRoA together with a short report.	Part of the e-service maintenance design phase, mainly delayed and the AR process.
3) Arranging a process modelling crash course	Practitioners: course participants. Researchers: initiators, instructors, consultants and practice oriented researchers.	Organisational benefits: better process modelling knowledge and skills. Research results: Some benefits regarding knowledge concerning the emergent model method for e-service development, but mainly practice oriented. Gaining access is an indirect benefit.	Course delivered at the organisation's premises; preparation at the university.	Organized (delayed) in conjunction with a project seminar.

Challenges and Dilemmas in Action Research

One challenge when acting as action researchers in the licence handling e-service development process was the responsible application development leader's degree of sensitivity (low) when handling alarming signals from the project, as well as advices and insights from collaborators (practitioners and researchers) within the project. There was a lot of time and resource pressure in that development project. Milestones had been postponed, manning problems had occurred, strategies and communication had been more of an ad-hoc than planned character. The project leader was "chasing" project deadlines. This process can be characterised as putting daily action in the foreground and reflection in the background. The ideal of AR as expressed by Avison and Wood-Harper (1991) focusing on researchers, theory, and informed practitioners did usually not occur in the present project. Neither did instrumental theories play the mediating role between researchers and practitioners in this AR project as they can (Davison et al., 2012). The opportunity to "bridge the gap between theory and practice" (Mathiassen et al, 2009, p. 5; Berger and Rose, 2015), as a part of AR or engaged scholarship (Van de Ven, 2007) and to achieve an interactive approach with knowledge application and discovery (Chiasson et al., 2009), did thus not occur. The time pressure also made it hard to perform good action research (Rapoport, 1970) in the first project. Even direct problem solving intervention and benefits from researchers in the application development initiative have been put in the background – focusing more on (re)active activities directed by a rough development timeline. This challenge can be a kind of failure with its roots in the researcher driven initiation shown by Kock (1997). When practitioners do not understand the real opportunities for improvement, defined by Kock (1997) as "iceberg subjects", they missed the "big picture" in e.g. organisational and IT development. We, as action researchers, did also take sensitivity and the response from the application development leader, in some sense, for granted. As action researchers we could have put more effort in trying to communicate, convince and highlight the need for current evaluation (Susman, 1983) as a part of an interactive research approach. We could also have put more effort into the changing relation (cf. Goldkuhl, 2005) and mutually taken a responsibility for reciprocal interpretations and interventions (ibid.). One can also emphasize the need identified by Baskerville and Wood-Harper (1996) that it is important to have a clear understanding of the differences between AR and consulting – "action without research is consulting" – in order to avoid or at least reduce misunderstanding concerning the tasks and roles between researchers and practitioners (cf. also Baskerville, 1997; Mumford, 2001). Our

findings, based on the breakdown above, is also in line with, e.g., Simonsen (2009) arguing that AR is a risky approach and a truly time consuming approach that is heavy to manage. This is also accentuated in classical AR studies (Rapoport, 1970). However, after the breakdown described above the project entered a more successful mode and managed to deliver interesting and usable results both in terms of artefacts and processes for the organization and theoretical outcomes.

In the driving licence web portal development process the interaction, prerequisites and results have been totally different. The development process in itself is characterised by proactivity, a clear organisation and a watchful application development leader. In the portal application development the “ideals” of AR, where researchers inform practitioners (and theory informs practice) and practitioners inform researchers (and practice informs theory) in an equal and synergistic way (Avison and Wood-Harper, 1991) is close and a situation where instrumental theories played a mediating role the parties (Davison et al., 2012).

The differences in the two IS development initiatives may also be explained by using Checkland’s (1991) particular problem solving vs. problem situation solving. In the licence handling project there has been expectations that we as researchers should solve particular problems (using theory to inform problem-solving as a part of a research dominant approach [Chiasson et al., 2009]) that, e.g., practitioners have not been able to solve themselves, due to time and resource pressure. In the portal project the problems were more tied to situations with the use of comparative advantages (e.g. in competence) between practitioners and researchers. An example of a problematic situation, that needed competence from the researchers to be solved, was the driving licence web portal maintenance model described above. Based on the actions of the practitioners involved one can also elaborate on the question when a project can be classified as an AR project or not – when is e.g. the lowest level of interest from practitioners’ in a client-system infrastructure achieved? In the AR situations studied above we claim that the research can be classified as AR – but one of the two initiatives was not ideal AR in terms of the development situations and activities (Chiasson et al., 2009).

6. Conclusions and Discussion

Conclusions

Below the conclusions from the study are presented and discussed. The purpose of this article was to elaborate on the concept of action by addressing actions and roles in the practice of AR,

and to illustrate these by dilemmas in an AR project on IS development in public sector. The questions focused was how we can understand researchers' and practitioners' actions, interaction and roles linked to dilemmas within different situations in AR settings and how action researchers can deal with the dilemmas in order to act as engaged scholars.

Our first conclusion is that there is *a need to understand actions and roles within AR projects – not separating action from research*. Research is also action, but action partially performed within another domain based on a certain logic. Action in AR projects can also be linked to, or exclusively, performed within a client organization.

The second conclusion is that there is *a need to understand AR practice as context bounded interactive social action based on a pragmatic standpoint*: AR as a recurrent, interactive, and dynamic activity. This is illustrated by e.g. the discovery of research problems and initiation of AR project above and discussed below.

Based on the two conclusions above we have identified that the understanding of roles, actions and interaction can help us to *discover and handle dilemmas in AR* in order to achieve relevant research and research with quality. One important contribution in this article is also the *illustrations of AR settings* and the learning that can take place based on a *breakdown* in an AR project. These illustrations can serve as illustrations for other researchers and practitioners working with AR both in general and in the IS field.

Below we will discuss the conclusions summarized above.

Discussion

Actions and Roles within AR projects – Research is also Action

The analysis above and the illustrations provided in the case study show the importance of understanding action, actors and roles within AR projects. We have been addressing action elements, different roles and dilemmas (e.g. a breakdown, division of labour, roles, formalisation; summarized results in Table 1) in AR illustrated by situations in a project on public e-service development. We have also been using previous research on AR to guide our analysis and to relate our results' context to the present body of knowledge, but we have also used an explorative approach in order to generate for example action elements. The focus on AR situations and the embedded elements of action are contributions of this research to the existing body of knowledge in AR and a way of focusing research as action from a pragmatic standpoint, further elaborated below.

The need to address issues related to actors, roles and activities within AR project can be illustrated when linking activities to different AR phases (Susman and Evered, 1978). If we illustrate this with the critical discovery of research problems, we found that there is a need to thoroughly understand the initial and critical situation when the problem “discovers” the researcher. Understanding and structuring that situation can be elucidated by focusing the *actor* that “discovers” the problem – the practitioner, the researcher or other, single or multiple, actors and their incentives, goals, pre-understanding, and overall agenda. Avison et al. (2001, p. 30) seem to mix the terms of “research-driven” and “researcher-driven” initiation or at least be implicit concerning the two concepts and their relation. Kock (1997), also used in Avison et al., 2001, uses the term “researcher-driven”. We argue that it is important to analytically separate the *actor* (the researcher) from the *activity* (the research) per se.

Based on the use of the concept of action in AR it is important to make a distinction between *practical action* (cf. Baskerville and Myers, 2004 based on Lewin) and *theoretical action*. The former type of action describes action that is a part of an organisation’s problem solving (and their social context of action) – an action that can be performed by researchers or practitioners. The latter type of action describes action that is a part of a research process solving theoretical and more general problems and a part of a research community as a social context of action. The practical and theoretical actions in combination is a part of the growing interest in engaged scholarship (Van de Ven, 2007) in which Scandinavian IS research has a strong tradition (Mathiassen and Nielsen, 2008; Simonsen, 2009). The trend within the Scandinavian research funding bodies is to push researchers towards “committed involvement with public agencies, private companies, and society at large” (Simonsen, 2009, p. 13). The AR project reported in this article is no exception regarding that aspect, rather an illustration of collaborative practice with practitioners from public organisations, as in our case (Mathiassen, 2002; Simonsen, 2009). By being precise of what we mean with action within AR we argue that we, as researchers, can uphold a situation where science (in building theories) and practice (as in organisations, when solving problems) are distinct forms of knowledge (cf. Van de Ven, 2007).

AR Practice as Context Bounded Interactive Social Action

Besides the need to be explicit about action elements, showed above, in order to control and understand AR projects, this article shows that the key aspects when addressing situations and problems of the AR situation presented by Avison et al. (2001, p. 29 f.) can be refined. We argue that it is important to understand research initiation as a *recurrent and non-linear activity* that is a part of the *dynamic character* of an AR project – in a broader sense than e.g. presented

by Avison et al. (ibid.). When analysing our AR project we have identified a need for a broader definition of initiation than Avison et al. (ibid.). Our experiences, also based on other AR projects, show that initiation can be viewed from a process perspective.

To pose questions, define and redefine problems and issues during a knowledge creation process is a part of the dynamic and interactive character of a project. This implies that we suggest problem and situation addressing to be an iterative and interactive process in an AR project. The interactive dimension in AR projects is also manifested by the actions performed by researchers and practitioners (cf. Goldkuhl's model in Figure 3). As social actions (ibid.) they are interactive and performed in a particular setting; not performed in parallel or isolated. This is in line with a pragmatic perspective with an interest for actions, an interest for actions in contexts; i.e. an acknowledgement of human action (Dewey, 1938; Goldkuhl, 2004). However, the quality of the outcome of an interactive process can be very different as showed in the settings in the section above. The existing models of AR often assume or take phases for granted, not highlighting the non-linear character elaborated on above. This is an important contribution from our study. A good exception in this case is Mumford (2001, p. 23) discussing AR as a dynamic process and the "[...] unexpected events together with an increased knowledge of the problem situation may cause these to be revised".

The two IS development initiatives reported in this article also show that AR projects are highly situational (Avison et al., 2001) and context bounded. The artefacts and the organisations are situational; people's actions, motives, incentives, and goals certainly are. It is reported that public organisations face several challenges when developing e-government, IS or e-services for public use, e.g. regarding IT-infrastructure, security and privacy, IT skills and organisation and operational cost (Ebrahim and Irani, 2005). Challenges regarding IT skills can for example be unqualified project managers, shortage of salaries and benefits. Organisational issues can be e.g. lack of coordination and cooperation between departments, complex processes, politics and political impact (ibid.). Some of these challenges are also present in the private sector, but may be even more challenging in the public sector.

To Handle Dilemmas in Action Research

Several scholars have discussed dilemmas in and challenges linked to AR (Rapoport, 1970; Avison et al., 2001; Baskerville and Wood-Harper, 1996; Mumford, 2001; Simonsen, 2009; Brydon-Miller et al., 2003; Davison et al., 2012). Our study confirms the reported dilemmas as described in the analysis above. We can for example highlight the need for *determining the authority* for action and the *degree of formalisation* of an AR project (Avison et al., 2001;

Mumford, 2001). This is evident in our study and labelled as a breakdown (in the licence handling project's e-service development). The breakdown was a series of misunderstandings (cf. Heidegger's communication breakdowns as described by Winograd and Flores, 1986) exemplified in a number of situations where roles, initiatives, activities, and meetings had been misinterpreted and/or misunderstood by the participants

When discussing authority and formalization the IS development initiatives illustrated in this article have also shown two different sides of this coin. This is also evident for the practitioners' expectations of what kind of support they will get from interacting with action researchers. If the practitioners' expectations are only focused on getting "cheap consultants" (or "quick and dirty research", using Rapoport's [1970] terminology), this certainly would not promote successful, or ideal, AR (Lindgren et al., 2004). One can also put this argument vice versa. If a researcher only expects the practitioners' organisation to be a "quick and cheap case study" (cf. Rapoport's [1970, p. 506] "parasitical" and "highbrow smash-and-grab types") this would probably not promote successful AR either. Our research also supports that the role of instrumental theories as mediators between researchers and practitioners (Davison et al., 2012) effects the relation between the parties. In order to reduce or avoid the risk for problematic situations and dilemmas (Mumford, 2001; Rapoport, 1970) there is a need for recurrent evaluation (Susman, 1983) evident in AR projects. One of the results when discussing and handling the breakdown in the licence handling e-service development process was that a more clear and communicated division between research goals and organisational problem-solving goals was needed. This can also be directly related to Avison et al.'s (2001) arguments of the importance when determining motives and commitments in AR projects. The illustrated breakdown and the results from this show the importance of being able to divide research goals and organisational problem-solving goals within AR.

Another aspect is that there is a challenge and a dilemma in combining and controlling AR (cf. Avison et al., 2001; Mumford, 2001). It is possible to combine practical and theoretical ambitions, but there is a need for e.g. creativity, timing, systematic approaches, regarding history, and so on. The interest in and focus on theory development separates the two arenas. But theories (as instrumental theories [Davison et al., 2012]) can certainly be used to guide, focus, and develop (Lindgren et al., 2004) knowledge even if our empirical examples show that it can be differences in action logic, timing, and intensity in the two arenas.

Some of the aspects highlighted in this section are extra important and critical in AR practiced within the IS field and relevant as practical implications. We believe that the fact that IT

artefacts are included stresses, for example, the need to take the recurrent and dynamic character of initiation into account. We deal with IT artefacts that are emerging in development projects and have to be able to handle versions of prototypes, process redesign, changing demands, etc. and the overall interplay between humans, technology, and information in contexts (cf. McKay and Marshall, 2001). The division of labour between people in heterogeneous project groups (concerning competency, position in the present organization and background) may also highlight the need for *focusing roles* and the *degree of formalization* reported above when practicing AR. Other aspects of AR, such as focusing AR situations and action elements, are more general and not that dependent upon the field of study or the discipline – in this case IS. Our research uses key aspects and phases proposed by Avison et al. (2001), follows McKay's and Marchall's (2001) call for a clear conception of the nature of the AR process, focuses and elaborates more on roles and degree of formalization, and illustrates this using case study data.

We do not claim that the understanding of roles, actions and interaction can solve the dilemmas and challenges linked to the practice of AR, but such understanding can help us – in some sense – to discover and handle dilemmas in action research.

The results in this article have several theoretical and practical implications as described above. The empirical illustrations can serve as examples for both theory and practice. We contribute to the body of knowledge concerning AR in IS and in general, as discussed above, by exploring the need to study the concept of action (e.g. situations and elements), to be explicit concerning the different phases, different roles and responsibilities and management of different dilemmas in AR.

7. Limitations and Further Research

The IO character of the development initiatives illustrated above adds an extra dimension into AR that is only partially highlighted in this article. This can be a separate theme to analyse. The fact that the context also is dominated by public agencies is another feature that can be studied further. However, it is our opinion that this fact is not critical for the results on action elements and the AR dilemmas that are studied in this article. Another theme, and reported dilemma, is the ethical dimensions of AR (cf. e.g. Myers, 2009; Rapoport, 1970). This is not highlighted as such in the present study, but is an interesting theme to investigate within a general IS arena, and also in an e-government and public sector context. So is the question of funding; in the present project there was an external source of funding; the AR was not funded by the client system. That situation created a certain action space, but may also have created a situation where

research was not prioritised enough from different actors within the client system (cf. Rapoport, 1970). The aspect of funding can, thus, be studied more thoroughly as a part of an AR dilemma. The empirical findings in this article can be related more thoroughly to canonical AR (Avison et al., 2001; Lindgren et al., 2004; Susman and Evered, 1978) and to design science in IS research (cf. Hevner et al., 2004; Ågerfalk, 2010) as well as comparisons between those two (Järvinen, 2007; Lee, 2007; Sein et al., 2011). Another example is found in Goldkuhl (2012) who proposes practice research as a way to both contribute to general practice through abstract and useful knowledge and to study empirical fields as interconnected practices. Practice research is broader defined than merely AR encompassing also design research and evaluation research. Important concepts in practice research are local practice contribution vs. general practice contribution, theorizing vs. situational inquiry, and abstract vs. situational knowledge. However, these themes of AR are not in the scope of this article. They can nevertheless increase the understanding of the presented AR project, like the link between the present research and ADR (ibid.) made above. To relate to action science research (Argyris et al., 1985; McKay and Marshall, 2001; Papas et al., 2012) can also throw a different light on the reported AR, but this is another issue for further research.

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