Knowledge Creation Through Interactive Research: 
A Learning Perspective

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1. Introduction

Knowledge creation through the development of mutually productive forms of collaboration between research and practice, has for a long time been an important issue for researchers as well as practitioners in different sectors of working life. In the social sciences there is also a long tradition of criticism of traditional research models, and a corresponding interest in different models of action research and collaborative research\(^2\) (e.g. Adler, Shani & Styhre, 2004; Argyris, 1980; Clark, 1976; Reason & Bradbury, 2001). The ideal typic research model within mainstream social science research is very much influenced by the traditional concepts of basic and applied research; a linear model of the relationship between theory and practice; and a role model of the researcher as basically detached from the field of practice, a role with roots in the nineteenth century ideals of Wilhelm von Humbold (Brulin, 1998; Sörlin, 1996). In line with this, traditional models of research has also been be criticized for objectifying the participants, and for being too inflexible, closed, specialized, and of little practical relevance etc. (Svensson et al, 2002; see also Toulmin & Gustavsen 1996; Gibbons et. al. 1994).

However, from the perspective of traditional (mainstream) social science research, action research and other forms of collaborative research are characterized by a number of difficulties and alleged flaws, and the scientific value of action and collaborative research is still a matter of debate within the social science research community. A classical criticism concerns the potential threats to "objectivity" and, thereby, also to the validity of the research results, due to the involvement of the researcher in practical activities. On the other hand, there are also counter arguments to the effect that a collaborative relationship between researchers and practitioners may contribute, first of all, to a better access to important processes, but also to more valid data compared to traditional research models with their typically more authoritarian relations between the researchers and the subjects of research (Argyris, 1980; Eikeland, 2006).

A perhaps more serious criticism against action-oriented and collaborative research models concerns the risk that maximizing the contribution to practice, tends to minimize the contribution to research, and vice versa (Sandberg, 1981; Seashore, 1976; Svensson, 2001). As argued by Svensson (2001), action research is simply often too close to practice and too practically oriented with limited scientific ambitions. The objective to change things has often


\(^2\) The notion of collaborative research is used here to refer to an umbrella concept covering a wide range of variants, including action research, interactive research and participatory research. In this paper there will be a focus on the concept of interactive research.
taken precedence over the interest in producing general and critical knowledge. By implication, there is the risk, as stated by Seashore (1976), that the notion of action research becomes a justification for practical development work masquerading as research, and, conversely, for research being reduced to a more or less trivial service role.

Among proponents of action-research a not too uncommon reaction to this kind of criticism has been to try to circumvent and avoid it. One recent example of such an avoidance strategy is the one pursued by Reason & Bradbury (2001). According to these authors, any concerns about a trade-off between research and practice in the conduct of action research is just another expression of a "positivist" research tradition. However, this denial of a trade-off between research and practice usually has a price. For Reason and associates this price means that they have to give up the fundamental aim of research, i.e. to create new knowledge in the sense of concepts, models, and theoretical frameworks. In order to argue their case, they escape into what they call an "extended epistemology". In essence, this means a shift in emphasis: "from the traditional emphasis on propositional knowledge and the written word to practical knowledge and the manifest deed." (Heron & Reason, 2001). Of course, such a shift in emphasis is in itself a good illustration of the original concern that a lot of action-research approaches tend to sacrifice traditional aims of research on the altar of "practicism" – and, thereby, runs the risk of becoming a bad excuse for doing bad research. Thus, according to my mind the issue of how to handle the trade-off between the aims and interests of research and those of practice is still a compelling one, and a dilemma that has to be dealt with in one way or the other if we are to be sucessful in conducting good collaborative research.

How, then, can this dilemma be resolved or at least handled in a satisfactory way? Is it at all possible to carry out collaborative research in a way that is productive both from a practical and from a scientific perspective? Although much has been written about different forms of collaborative research, there is a lack of empirically grounded studies concerning the use of this research approach in practice. In this paper, a model for interactive social science research is presented and discussed. Thus, rather than using the concept of action or collaborative research, the notion of interactive research will be used. In line with Svensson et al (2002), the concept of interactive research as used here refers to a research approach which position itself in contrast to traditional academic research on the one hand and action research on the other hand. The model presented in this paper has been developed through a series of research projects carried out in co-operation between researchers from CMTO at Linköping University (www.liu.se/cmto) and a number of industrial companies and public sector organizations for more than a decade (see Ellström et al, 1999). This model is also used within the newly established HELIX VINN Excellence Centre at the same university (www.liu.se/helix). This paper draw on these experiences. The purpose of the paper is to contribute to our understanding of interactive research – its possible meanings, advantages and problematics. But also to an incresed understanding of how to organize interactive research, and some of the trade-offs that may be involved. In addition, the ideas and arguments presented below are also attempts to deal with some of the classical criticisms against collaborative research that were mentioned above.

2. On the General Concept of Collaborative Research

With certain ups and downs collaborative models of research have been part of the social sciences at least since the 1930s and onwards (see e.g. Chein, Cook & Harding, 1948), with perhaps its most intensive and creative period during the 1960s and 1970s (Clark, 1976). However, in spite of its long history, it seems as if the collaborative research approach never
really got off the ground. Still, the separation of social science and practice is strongly institutionalized.

However, there are signs of ongoing changes (and proposals for change) towards a stronger integration of research and practice (e.g. Etzkowitz, 1998; Gibbons et. al. 1994; Nowotny et. al 2001; Aagaard-Nielsen & Svensson, 2006; Sörlin, 1996). Specifically, in the Swedish context there is a legal requirement on the universities to engage in co-operative efforts concerning education, research and development with companies, agencies, different kinds of associations, and other organizations (the so called third task of the universities). With respect to the field of working life research, it has also been argued that this new legal requirement on the universities may prove to be an impetus to a new model for research, development and innovation based on a collaborative model of knowledge creation and use (Brulin, 1998), a model which appear to come close to the concept of collaborative research.

What, then, could be meant by the concept of collaborative research? As used here, this concept is viewed as a general concept (“an umbrella concept”) that refers to a number of variants. These different variants are assumed here to be constituted by at least two basic ideas, called the idea of the threefold task and the idea of knowledge creation through some form of co-operation between researchers and practitioners.

**The Idea of the Threefold Task**

The first of these two basic ideas, that is, the idea of the threefold task, refers to the idea that collaborative research aims to contribute *both* to practical concerns, for example, how to handle practical issues in relation to the management of change, *and* to the creation of scientifically acceptable knowledge, for example, new concepts, theories, and models. In addition, a third task may be included in the definition of collaborative research, namely the educative task of enhancing the competencies of the parties involved in the research process through processes of dialogue and learning.

As argued above, a common problem, or rather dilemma, of collaborative research is the tendency to emphasize one of these tasks at the expense of the others. Depending on which of the tasks that is emphasized, collaborative research may, in practice, be reduced to a research strategy, a strategy for problem solving and change, or an educational strategy. The position taken in this paper, is that the comparative advantage of collaborative research is its potential for combining and integrating the concerns of research, development and learning. Of course, this is also where the problems and challenges start.

How, then, is it possible, if at all, to accomplish this threefold task, and, thus, to avoid the risk of, for example, maximizing the interests of practice at the expense of the interests of research and vice versa? In principle, there appear to be at least three ways of handling this issue. One possibility is, of course, the one already mentioned, that is, to emphasize primarily one of the three tasks. A common example of this strategy is to subordinate the research task to that of practical problem solving and change (in some cases in combination with the task of competence development), that is, for example to reduce collaborative research to a strategy for organizational change and/or learning. In practice, although often implicit, this strategy underlies many applications of collaborative research in the fields of e.g. educational and organizational development (e.g. Zuber-Skerritt, 1996).
Another common strategy for handling the tensions between the different sides of the threefold task, is to try to accomplish an interplay between the three tasks over time (Ellström, 1984; Sandberg, 1981). This means that one accepts as more or less unavoidable that, at any single moment of the research process, either research or practice takes precedence over the other. By implication, action- and learning-oriented activities are allowed to predominate during certain periods of time, while more research-oriented activities are allowed to predominate during others.

A third possible strategy for handling the threefold task, and one that is proposed in this paper, is to attempt to identify, and negotiate between the parties involved in the research process, an integrative task. That is, a task that has the character of a common denominator between the different sides of the threefold task, and, thus, which may be considered as significant from the different perspectives of research and theory development; practical action; learning and competence development.

The Idea of Knowledge Creation Through Co-Operation Between Researchers and Practitioners

The second basic idea of the concept of collaborative research as used here, is what could be called the idea of knowledge creation through co-operation between researchers and practitioners (Brulin, 1998; Rapoport, 1970; Van de Ven & Johnson, 2006; Woolgar, 2000). This idea means essentially that there is a certain degree of sharing of responsibility and power between the parties involved in the research process.

Sometimes this and related ideas of interaction between researchers and practitioners is interpreted in quite idealistic terms, emphasizing a subject-to-subject relationship and a personal encounter, while ignoring differences in identities, competencies, responsibilities and roles between the actors. Differences that may have their roots in cultural differences between the two spheres of research and practice, respectively (e.g. differences with respect to autonomy), but which also mirror the division of labour in society at large. In line with such a view, we rather emphasize the importance of a clear division of labour between researchers and practitioners based on their different interests, responsibilities, and competencies. Thus, rather than trying to erase the differences between the spheres of research and practice we believe that it is very important to respect and preserve these differences (see also Brulin, 1998; Edquist & Flodström, 1997).

At the same time, co-operation between researchers and practitioners is likely to bring to the fore a number of problems concerning authority, power, and participation, which need to be carefully analyzed and taken into account in the planning and conduct of research. In addition, there are important ethical issues that need to be dealt with. In order to establish a mutually acceptable ethical framework it appear to be necessary to discuss and establish a consensus concerning the values and goals underlying the research effort, the methods to be used, and the expected outcomes of the research at the outset of the research process.

Of course, co-operation between researchers and practitioners also have a number of methodological implications. At a general level, it is a rather well established fact that the relationship between researchers and subjects affects the outcomes of research (Argyris, 1980; Rosenthal, 1966; Eikeland, 2006). Concerning the more specific question of in what way a cooperative relationship between researchers and practitioners affects the reliability and validity of research data, there is little or no direct evidence. As already mentioned in the introductory
section, there exists, however, rather general assumptions and speculations of about such effects. These assumptions range from those emphasizing co-operation as a threat to the objectivity and validity of research, to those stressing the importance of co-operation for getting access to organizational processes and obtaining valid data. However, taken together available methodological analyses seem to indicate that collaborative research designs, when used under favourable conditions and competently conducted, is not inferior to traditional forms of research with respect to the validity of the research results (Argyris, 1980; Eikeland, 2006). Although crucial to the advancement of collaborative research, these methodological problems and the underlying problems of epistemology will not be further dealt with in this study. Rather, the focus of the remainder of this paper will concern how to conceive and organize processes of collaborative or interactive research.

3. A Model of Knowledge Creation Through Interactive Research

The model presented in Figure 1 below is proposed as an ideal typic model of knowledge creation through interactive research. The model depicts two interacting systems, called the research system and the practice system, respectively. Both systems are viewed as cyclical in character and driven by problems/issues originating in research or practice. The basic activities in both systems, that is, research activities (e.g. data collection and analyses) and different kind of organizational actions are assumed to be informed by explicit or implicit theories based on previous research and/or practical experiences. Of course, in addition to such cognitive-theoretical factors, a range of other factors related to the participating individuals as well as organizational and societal conditions are assumed to influence the activities that are undertaken as part of an interactive research process.

![Figure 1: A Model of Knowledge Creation Through Interactive Research.](image-url)
Two Interlocked, Collective Learning Cycles

A basic point in this model, as indicated by the shaded circle in the intersection between the two systems, is that the process of interactive research is assumed to produce common conceptualizations and interpretations of the research object that are fed back as “cognitive input” into the next cycle of problem-solving activities, but also into the next cycle of the research process. Considering this cyclical process of knowledge creation and use, these two activity systems may be seen as two interlocked, collective learning cycles that produce successive versions of common conceptualizations of the research object.

In relation to discussion of the general concept of collaborative research in section 2, the model outlined above claims to represent an alternative both to conventional more linear models of research and to traditional models of action-research. What, then, do these claims mean more specifically? First, the model presented here is interactive in the sense of attempting to build a two-way flow of problems and knowledge between research and practice. This in contrast to the common assumption made by traditional models of research, that there are predefined practical problems that are waiting to be solved by theories, results, and methods derived from research, and disseminated to the potential users. This may certainly be true in a few cases, but usually you can not expect to find workable solutions to predefined practical problems. Furthermore, many real world problems are too complex to be captured by any one actor or perspective (Caswill & Shove, 2000; Van de Ven & Johnson, 2006). Rather, the problems typically have to be analysed and redefined through an interactive process between researchers and practitioners. In fact, in many situations an interactive process of problem-finding and diagnosis is required before possible solutions could be considered and applied.

In line with this, the model presented here starts with a joint process of diagnosis and problem-finding, where the researchers and practitioners together try to conceptualise and define the problems and issues that should be addressed. This problem-finding process may sometimes require an empirical study of the problem area (“a pilot study”) in order to be able to define the problems. Thus, as argued also by Van de Ven & Johnson (2006), the practice system (for example, an organization) is viewed not primarily as a site for data collection, but as a site for idea generation and learning where researchers and practitioners coproduce and test alternative ideas about of a common research object.

Defining an Integrative Task

In what ways, then, do the model outlined above differ from traditional forms of action research? Could not in fact much of what has been said so far equally well be said about many kinds of action research? One main difference between this model and many traditional models of action research concerns what we in section 2 called the threefold task of collaborative research and how this task is handled. As discussed in section 2, a common way of handling the threefold task is to subordinate the research task to that of practical problem solving and change, that is, to reduce collaborative research to a strategy for research-based developmental work.

Contrary to this way of handling the threefold task, we have tried another strategy based on the idea of identifying and negotiating a common, and potentially integrative task between the research system and the practice system, that is, to identify a kind of common denominator. This integrative task is an attempt to produce a common understanding of the ongoing change
process that could be viewed as significant both from the perspective of practice and from the perspective of research. (cf. Figure 1 above). In one research project focusing on change programmes in an industrial enterprise (Ellström et al, 1999), the integrative task was formulated as the task of: "reaching a common understanding of the ongoing change process that could be viewed as significant both from the perspective of practice and from the perspective of research”. In accordance with this task, the outcomes of the research activities were fed back at particular "feed-back seminars” to the practice system and used as "cognitive input” in the management of the change programme. This integrative task as stated at the beginning of the research process should be open to re-examination and redefinition during the whole research process. Furthermore, it is of course also necessary to jointly specify this general task, and to define more specific and operational research tasks already at the beginning of the research process.

Of course, it is difficult to know to what extent one in practice succeeds in creating such a common understanding of the research object. However, there are evidence that it is at least possible to create an interest in reaching such an understanding within a practice system (Ellström et al, 1999). One indication of this was the conclusion drawn by one production manager from an industrial company concerning the company's experiences of participating in an interactive research process for some time:

“...before we believed that there were two kinds of companies; companies that make things happen and companies that watch things happen. Our goal was to be a company of the first kind. Now we understand that there is a third type of company. Our goal is now to become the company that makes things happen and try to understand why they happen”.

Similar observations concerning the possibility for researchers and practitioners alike to meet in a search not only for empirically based instrumental knowledge, but also in a search for reaching an understanding of a common research object is attested to by others (e.g. Caswill & Shove, 2000; Van de Ven & Johnson, 2006). As stated by the former authors, practitioners are "often more attracted by new ideas and concepts than by empirical material." (p. 221).

Although the strategy of defining an integrative task in certain respects have proved to be able to handle the tensions created by the so called threefold task of collaborative research, it is hardly sufficient for reconciling the different aspects (the subtasks) of this task, i.e. the subtasks of practical, change-oriented activities, learning activities, and research activities. In practice it has proved necessary to use the strategy of creating an interplay between research-oriented and practice-oriented activities over time. Thus, while practice-oriented activities is allowed to predominate during certain periods of time, more purely research-oriented activities (e.g. analyses of data, writing research reports) must be allowed to predominate during others. In other words, one needs to alternate between practice-oriented activities and activities oriented towards critical reflection and knowledge production.

This tension between different subtasks of interactive research is also addressed by Eikeland (2006), and he reaches a conclusion similar to the one indicated here. As argued by Eikeland (2006), it is useful to make a distinction between "on-stage-performance” at the workplace, that is, activities related to data collection or practical activities, and "back-stage-reflections” including learning activities, analysis, and critical reflection. Using this distinction as a point of departure, one of his main conclusions is the necessity to build capacity to systematically alternate between performing "on-stage” and engaging in critical analysis and reflection "back-stage” (Eikeland, 2006, p. 232). Similar to the idea of the three-fold task advanced above, such an alternation is assumed to be fruitful from the perspective of the validity of
research results, but also from the practical perspectives of organizational learning and change.

A Clear Division of Labour

Another important characteristic of the model outlined above in relation to many traditional models of action-research, concerns the character of the co-operation between researchers and practitioners. The co-operation between the researchers and the practitioners involved in the research process should be based on a division of labour in which traditional academic values are kept intact, that is, the right to be critical, the development of new theories and general knowledge, a long-term perspective on knowledge production etc. In these respects interactive research differs from action research (Svensson et al., 2002).

From the first contacts with the practice system, a clear division of labour between the researchers and the practitioners is agreed on. Thus, rather than trying to erase the differences between the spheres of research and practice we believe that it is very important to respect and preserve these differences (cf. Brulin, 1998). This means that the role of the researchers is clearly separated from the role of being a consultant or change agent in the sense of an advisor or expert that prescribes certain solutions to "given" problems. Rather, as researchers we define our primary task as the task to contribute to a common conceptualization and interpretation of the change process (see Figure 1), and to participate in joint arrangements (e.g. seminars) in order to give feedback, discuss and explore different conceptions of the ongoing research and innovation process. Decisions concerning possible implications for practical action, and the management of the organizational changes that may be undertaken on the basis of the research is the task of the managers of the practice system. Of course, this does not mean that the researchers are avoiding practical issues. On the contrary, the task of the researchers is to support in different ways (e.g. as discussion partners) the management of change and innovation processes for example through arranging joint seminars with a focus on interpretation and implementation of research findings.

4. Implications and Practical Suggestions

In this final part of the paper, I will discuss some implications and practical suggestions of the model outlined above for how to conceive and organize interactive research. More specifically, I will focus on some factors that, according to my experiences, appear to be in some respect significant or critical for the possibility to realize ideas of interactive research (see also Ellström et al., 1999).

A Negotiated Agreement Concerning Research Problems and General Research Design

It is important to reach an initial agreement between researchers and practitioners concerning research problems and the general design of the research project. This should be accomplished quite early in the research process. In some projects a project steering group has been created with management and employee representatives. Here, issues and problems were analysed in a process of diagnosis and problem-finding in interaction between the researchers and practitioners. Areas of interest could be raised both from researchers as well as from the practitioners in the organization. This phase has proved to be important in several ways:

- it involves researchers and practitioners in a mutual effort to express different expectations on the planned research process;
• it provides researchers and practitioners with opportunities to discuss what roles initially, and over time the parties should have in the research process; that is, it becomes a process of interpretation and sense-making regarding roles and expectations in relation to the research process;
• it has the potential to create a mutual understanding of questions and issues at stake;
• it could be regarded as a supportive recurrent activity if the project definition, problems, strategies etc. need to be refined and/or redefined.

This early definition phase should result in some kind of written document. Furthermore, the research project and the problems to be approached need to be founded on an explicit theoretical framework, and based on results from current research in the problem area. Specifically, it is important that the research project has the explicit aim to contribute not only or primarily to practical concerns, but also to the development of the theoretical framework, e.g. to the development of new concepts, theories, and models. Without an explicit and firm orientation towards theoretical development, there is an obvious risk that practical concerns drive out more theoretically oriented interests. To a certain extent this is simply a function of time restrictions. The practical activities are often very time consuming, and there is the risk that the immediate and often short-term practical concerns are automatically given priority over more long-term research activities (Adler, Shani & Styhre, 2004).

The main functions of an articulated theoretical framework is of course to guide the collection, analysis, and interpretation of data. However, in interactive research projects the theoretical framework might, in addition, offer conceptual tools that can be used both in the initial discussions and negotiations concerning what problems to address, and as tools of reflection during "feed-back seminars". Furthermore, in order to be able to use interactive research projects as a basis for carrying out the so called "third task" of the university, by, for example, engaging graduate or undergraduate students in the research projects, it is essential that the research work has a firm theoretical grounding, and uses the more or less established methods of research within a certain field. Otherwise, there is an obvious risk of a legitimation crisis for interactive research approaches, and, by implication, for the work with the "third task". In this perspective, giving up on "the written word" as a main product of interactive research in the name of the kind of "practicism" advocated by Reason & Bradbury (2001), would hardly be recommendable if we want to increase the legitimation of interactive research as a means for furthering the work with the "third task".

**The Importance of Both Active Management Support and Employee Participation**

It is almost impossible to overestimate the importance of management support for successful formation of interactive research projects. However, equally important is to engage and encourage participation from the employees and their representatives within the organization. This is one of the major arguments that strongly supports the involvement of management and employees in a collaborative research process. As researchers we build on the assumption that both the quality of the research results, as well as the process of change, will benefit from a broad participation from different groups within the company. This is also an important point of clarifying our role as researchers, both in the eyes of management and in respect to other parts of the organization.

The combination of a top-down and bottom-up approach is also vital in other respects: it supports a broadening of activities in the organization, and it makes it possible to create and/or capture interests from other groups within the company regarding ongoing change processes. This seems to be a prerequisite necessary for the access of researchers to change
processes, as well as an important condition for successful realization of changes on the whole. In this way, the model assumes a certain extent of mutual trust and co-operation between management and other actors (e.g. unions) in the company. Without this mutual trust it is doubtful if an application of the model, or the change process as a whole, will be successful, or even possible.

**Clearly Defined Roles Between Researchers and Practitioners**

An important factor is to minimize role ambiguity regarding the researchers and practitioners by defining these roles during the joint definition phase. One important aspect of this process is also to clarify the expectations towards the interactive research model and the roles of researchers and practitioners. The primary task of the practitioners is to manage, carry out and take the responsibility for the process of action and change within the organization. The common primary task of both researchers and practitioners is to engage in a mutual effort to conceptualize, reflect on and learn from the ongoing change processes. The joint definition phase can in this perspective also be seen as a role definition phase, where questions of responsibility and division of labour in the co-operative process were important ingredients.

5. Concluding Remarks

The model presented in this paper should be viewed, not as fixed, but rather as an emerging model of knowledge creation through interactive research that need to be continually modified and improved. However, the model – in its general outlines – seems so far to be promising. Among the difficulties experienced in the application of the model to be mentioned is that interactive research according to this model is quite resource demanding in terms of data collecting and analysis, followed by feedback seminars and workshops involving different groups within the organization. As mentioned above – if this issue is not handled in an appropriate way – the strong resource demands in terms of time and effort may constitute a serious threat to the possibilities for the researchers to engage in long-term theoretical development.

As argued already at the beginning of this paper, interactive research differs from action research in its alleged capacity to promote both practical concerns and traditional academic values, i.e. the right to be critical, the development of new theories and general knowledge, a long-term perspective on knowledge production etc. (e. g. Svensson et al., 2002). This might be true at philosophical level, whether or not it is true in practice remains still an open – and challenging – question.

One final aspect of the model raised here, deals with opportunities to learn and benefit from interactive research in a longer perspective. Several practitioners involved in our interactive research projects have expressed that the interactive approach has created an arena for reflection and conceptualization, which did not previously exist within their organization. It is also an opportunity to get an outside perspective and update with current research. In the same spirit, several companies have expressed a consultant-fatigue, on the basis of consultants giving "too many good models and answers", but "too few good questions to connect these answers to".
6. References


