## Interactive research - an attempt to analyse two change programmes

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# Interactive Research –
# an Attempt to Analyse two Change Programmes

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This article describes and discusses an interactive research approach, and illustrates this approach by presenting two examples of national change projects. Our aim in presenting these two examples is to demonstrate how interactive research *can* be conducted in close co-operation with those concerned, within the framework of a critical and reflective community. The two cases presented serve to illustrate how an interactive research approach can support the development and dissemination of project experience, but also how the interactive approach can act as a means of generating theoretical knowledge in order to identify and understand more of the mechanisms involved in sustainable work environment and health work.

**Key words:** Sustainability, interactive evaluation, theoretical development, developmental-oriented learning, a critical and reflective community

## 1. Introduction

This article describes and discusses an interactive research approach, and illustrates this approach by presenting two examples. The first, more extensive, example relates to an assignment to evaluate a major national programme comprising 18 projects that aimed to promote health and reduce the level of absence from work due to illness. The second example describes a stand-

alone project that aimed to investigate and improve the working environment of postmen.

It is not our ambition to provide detailed case descriptions, but to use these examples to illustrate how work can be conducted on the basis of an interactive research approach including close co-operation with those concerned within the framework of a critical and reflective community. The two cases are different with regard to structure and intervention, but have the common feature that the participants and practitioners were engaged as important actors in the research project: as definers of the problem, as analysts and as interpreters in the ongoing research process. The primary objectives when adopting an interactive research approach are to pursue theoretical development and acquire generally-applicable knowledge.

## 2.  Background and initiation

### *2.1 The evaluation case*

In the autumn of 2001, the Swedish government allocated funds to counteract ill-health in working life in the public sector. The call for applications and the selection of projects was managed by the Ministry of Industry, Employment and Communications – a process that resulted in the award of a total of SEK 50 million to 18 different projects that would run over a period of several years. Just over a year later, VINNOVA (The Swedish Agency for Innovation Systems) was commissioned to evaluate the programme. The first evaluation, which was conducted by a consultant, was more in the nature of a follow-up and an individual evaluation. VINNOVA and the Ministry of Industry, Employment and Communications also wanted a research-based evaluation of the long-term effects of the programme, and the authors of this article were commissioned to do this. We were able to plan and focus our research with the help of the previously conducted follow-up and individual evaluation. The planning and design of our research-based evaluation was conducted in co-operation with those responsible for the programme at the central level and with participants in the local projects that had been granted funds.

The overriding issue for the research project was how programmes of this type can be organised so that they contribute to sustainable development in

working life, i.e. so that they lead to lasting effects for individuals, organisations and society. It could be said that sustainable development in the context of working life is about how operations and processes should create and recreate human resources rather than consuming them. One of our assumptions was that sustainability presupposes solutions that are based on the interests of the employers, the employees and the users/clients (see Eklund 1998).

## 2.2 The project on development of the work environment

Our second example, the project that aimed to develop the work environment of postmen, was initiated in 2001 by The Swedish Post Office, called Posten. The company had rationalised and restructured the work of the postmen using a new working method that was designated "Best Method". This meant that each postman sorted "his" post directly and in a single step, with the help of a newly-designed shelf system divided into vertical compartments, one for each household. Previously, the post had been sorted in two steps, first general sorting and then detailed sorting. In this process, horizontal shelves had been used and the postmen worked together in groups. Organisational changes were made so that in the new system the postmen began their working day by sorting the first-class mail and then going out at 09.30 to deliver this mail. On returning from their rounds, the postmen then sorted the second-class mail in the afternoon. The management experienced problems when running-in the new system which meant that the expected gains could not be achieved. For their part, the unions were worried that the new system would lead to an increased risk of musculoskeletal disorders. They were also concerned about the increased level of stress experienced by their members at many of the post offices. Researchers at Linköping University were contacted to determine why the new system was not working as intended and how the work situation of the postmen could be improved. The plan was that these researchers would also co-operate with Posten on the development and implementation of improvements in the work environment.

## 3. Perspectives and issues

In the evaluation case, the distinction between long-term effects and short-term results formed the starting point for the documentation and analysis, and also for the choice of method.

### 3.1 From results to effects

A programme of this type has various goals. In this case it was a question of improving health and reducing the level of absence due to ill-health. Goal-fulfilment relates to the achievement of the primary goals to a satisfactory degree. The goals can be formulated in terms of *results*, but also in terms of *effects*.

 *Results* relate to relatively concrete products, methods or processes – such as training courses, leaflets, programmes, policy documents, action plans, new routines, the simplification of rules and regulations etc. The results stem from the activities implemented. The intention is that these results should lead to goal-fulfilment, i.e. provide the desired effects in the long term too and not lead to any negative/undesirable side effects.

 *Effects* in this case relate to the aims of the programme with regard to the personnel and operations concerned. These aims may include, for example, improving health, reducing absence due to illness and improving rehabilitation. The effects can be measured in subjective terms, such as perceived changes in self-confidence, motivation, capacity for work, health problems, resources etc. They can also be measured in terms of the number of employees registered on the sicklist or of those returning to work. Other effects may include changes in attitudes or employability, more effective co-operation or more well-considered strategies for development. Effects can be difficult to measure, but they can be assessed by those who are closely involved with the development work concerned.

 It may also be difficult to differentiate between results and effects at a certain point in time (cf. Vedung 1998). Nevertheless, we believe that it is possible to differentiate effects – in the form of more far-reaching mechanisms – from results in the form of limited activities and events. It should therefore be

possible to make qualified assessments of the effects of different projects, if complementary methods for evaluation and analysis are used.

The aims of the projects were extensive, which added to the difficulties in assessing their long-term effects on operations, organisations, personnel, clients/patients and health authorities.

In order to illuminate and resolve these complex issues, we selected a research method for the evaluation that is long term and has a firm theoretical base (cf. Toulmin/Gustavsen 1996). We felt that an interactive approach was appropriate in this particular case, primarily in order to make the most of the know-how and expertise of the participants and to interest them in participating in the analysis work. The dissemination of the research results was also one of the main reasons why the government allocated funds to the 18 projects.

Our intention was not to point to the projects studied and rank them in terms of their long-term effects. We wanted to examine the variation between them in order to identify important preconditions and obstacles in a more general way. The intention was thus to make comparisons between the projects in order to analyse what factors and contexts in the course of development work contribute to long-term effects.

In Table 1 we have schematically – and more as *ideal types*, i.e. in a streamlined form – attempted to illustrate some of the differences between a result-oriented and an effect-oriented perspective on development. In practice, it may be difficult to make such a differentiation, as this is a question of chains of results and effects. However, a number of extensive surveys and national evaluations of various development programmes, often involving the participation of researchers, have shown that the distinction can still be fruitful (Svensson et al. 2007). When short-term project *results* become the focal point in development projects there is a risk that a narrow, static and unreflective working method will be adopted.[1] Development work that focuses on *effects* is characterised by assessments in the longer term on the basis of a

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[1]  In some types of project a focus on results is natural – e.g. in construction projects and product development.

more process-oriented, open and dynamic approach with the aim of creating self-generating development.

**Table 1:** **Differences between results in, and effects of, projects – an analysis model**

| Project characteristics | Results | Effects |
|---|---|---|
| Time perspective | Short – current status | Short and long – future |
| Means – Goals | Means – activities, methods, training, plans etc. | Goals – effects that can be assessed currently and studied in the long term |
| Approach | Result-oriented, static | Process-oriented, dynamic |
| Success criteria | Implemented activities and measures in accordance with project plan | Self-generating development, integrated in the operations concerned |
| Project strategies | Planning and activation | Activation, networks, innovation systems |
| Important factors | Management support and participation | Management support, active ownership and participation internally in combination with external co-operation |
| Focus | Fixed | Can be developed |
| Ownership, control | Project management | Partnership |
| Theories | Planning, organisational, activation and management theories | System theories, learning theories |
| Organisational view | Closed | Open |
| Evaluation | Result-oriented (summative) | Process-oriented (formative) |
| Learning | Adaptation-oriented | Development-oriented |
| Form of feedback | Deviations from clearly identified goals | Understanding-oriented analytical process |
| Role of research | Descriptive, confirming | Identify strategic opportunities |

The distinctions presented in Table 1 originally formed a conceptual model for our evaluation that has subsequently been developed in co-operation with the project participants. Sustainable development presupposes that project results can be "linked" to long-term effects. A short-term focus – on the project organisation and measurable results – must be combined with a long-term

ambition to generate lasting effects. The theoretical difference in Table 1 does not mean that it is a question of "either/or" but of "both together". The problem often is that the client/funder demands quick results, while more uncertain effects that are difficult to assess take a backseat in the reporting process. This applies in particular to EU projects where various result indicators must be met before the funds reserved can be used (Svensson/von Otter 2001).

The questions we raise relate above all to the links between results and effects. In order for the results to lead to long-term effects, some form of intermediary body or generative mechanism is usually required. This could apply to new forms for co-operation on rehabilitation, a method for health accounting that becomes part of the budget process, knowledge about health work that is introduced into management training courses, the establishment of co-operation between different intermediaries (researchers, trainers, corporate healthcare services etc.), and an increase in the use of evaluation in development work and so on.

## 4.  The evaluation case

All 18 projects were invited to take part in the collaborative research project. The different projects comprised of county counties including their health and care organisation, local authorities or public service agencies such as local police departments, some were social partners organised in collaboration together with state and regional agencies and some where regional networks comprising of several local authorities including state agencies. Altogether the projects involved at the least 85 000 employees in the Swedish public sector.

The projects lasted between six months and four years. The scope and activities varied between the projects, some focused on developing and piloting steering systems for human resource management, others on involving the social partners to develop a holistic system for preventive work. Some projects focused on intervention at work place level aiming to involve employees in developmental work to develop healthier working conditions. Others focused on health prevention work – such as age management, increasing daily

exercise, diet classes and stop smoking campaigns. Others focused on the sick – and how to rehabilitate them back to work through different intervention programmes.

The evaluation project aimed to look at these efforts together with the participants, to learn from them and to explore weather the initiatives had been developed in a way that could lead to long-lasting effects.

### 4.1 Implementation

This section describes how we gained the understanding and backing of the steering group and the local project managers for our ideas regarding the objectives and methods for the research.

The organisation and working structures of the evaluation project were developed in close co-operation with the project participants and those in charge of the programme at the central level in a discussion about how effects can be analysed and evaluated. The content of, and the forms for, our research were determined in consultation with the project's central reference group, but also in a dialogue with local project managers. Initially, some project managers were doubtful about being "examined" by a research group commissioned by the funders, but we feel that we were quickly able to alleviate these doubts about openly presenting one's own experience and the value of learning from each other.[2] One project manager felt that the collaboration process was marked by an atmosphere that promoted trust and confidence:

> "You have managed to create a sense of trust and confidence between those who are being evaluated and those who are conducting the evaluation."

At the final seminar, there was a joint discussion of the forms and structures adopted for the work and the comments from the project participants were overwhelmingly positive:

> "We don't feel that we have been researched."

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[2] During the series of seminars, all of the seminar participants were able, on two occasions, to complete questionnaires to comment on the seminars, present their views and request changes.

"You have been interested in what we have done. That has been very positive."

The six analysis seminars that were held together with participants from the 18 projects and the central reference group formed the primary arena for interaction. Research-based documentation in the form of two case studies on each occasion provided the basis for each seminar. One of us (Randle) collected quantitative and qualitative data from the projects that were to be analysed and provided feedback and discussed the results with those concerned before the seminar. This documentation was then used as a basis for joint reflection and analysis at the seminar. In total, almost 100 interviews were conducted on an ongoing basis ahead of the various seminars.

There was a great deal of interest in participating in the seminars, despite the fact that several of the projects had already been concluded. Some 30 to 40 participants attended each seminar, and, on average, 10 to 12 of the projects were represented each time.

### 4.2    An interactive working method

The interactive research approach includes creating joint learning and analysis together with the participants. The extent to which we succeeded in generating these preconditions for interactive research is discussed in the next section.

Studying effects requires more analysis and a deeper understanding than is required in the case of a study that focuses on results. Effect-oriented studies require more time and knowledge about the preconditions, processes and underlying mechanisms. They presuppose "internal" knowledge that is based on a holistic understanding of how a programme has worked, but also an objective and critical analysis that clarifies the distinction between temporary changes and more fundamental changes. The understanding of the participants is the starting point for the dialogue. The joint learning process must, however, go beyond this in order to find explanations that exceed everyday understanding (cf. Bourdieu 2003). *Understanding* and *explanation* thus complement each other (Riceur 2003). Reality, however, can be difficult to get at, and it must therefore be investigated and "revealed". This means see-

ing what lies "below the surface"– what is temporary and what is of a more sustainable nature.

Our aim was to create a *community of inquiry* (Argyris et al. 1985) between the researchers and the participants that would lead to the acquisition of both practically-applicable and theoretically-interesting knowledge. How can we create a community that invites the participants to reflect upon and critically analyse their own experience and the experience of others? How can we demonstrate that development-oriented learning has taken place among the participants (Ellström 2004)? One way is to describe and analyse the learning process and its content. A complementary method is to get the participants themselves to describe their learning process over time, i.e. what it contained and any changes that took place. It emerged that the seminars and the contacts with participants from other projects contributed to a deeper understanding and a more structural analysis of the participants' own development work.

The point of departure was that participation in the evaluation was voluntary. The research project entailed the *offer* of an opportunity to be critically examined in the form of short case studies as a basis for joint analysis with other project participants at a seminar. The project managers and participants were clearly interested and felt a need to engage in critical reflection with others with the aim of sharing their experience.

Nine case studies were conducted on the basis of the following themes: participation and support; project management; learning; evaluation; dissemination. Ahead of each seminar, a case study was thus carried out based on interviews and group discussions in one or two of the projects. The interviews were compiled and feedback to the respondents, including a number of overall conclusions, was given to the interviewees before each seminar. The intention was to prepare the participants so that most of the time at the seminars could be devoted to dialogue and discussion.

The seminars lasted for about six hours and were based on a theme that was introduced by one of the researchers. This was an introductory part of each of the seminars. The aim was to present a brief research overview and some of the concepts that acted as a basis for the evaluation. The selected projects then presented their experience – usually from different perspectives

(e.g. project managers, politicians, trade union representatives). The researcher who had conducted the interviews briefly summarised the conclusions drawn from the case studies. The participants were then given the opportunity to discuss the case studies presented in small groups. A joint discussion then followed involving the whole group and the researchers drew some preliminary conclusions. Shortly after the seminar, a preliminary analysis was sent to the participants for comment.

The structure of the seminars may not be remarkable or unique, but the difficult thing is to find a structure that works on both the participants' and the researchers' terms. We can summarise the central elements of the effort to create a reflective community in the following points:

1. to create a high level of participation before, during and after the seminars

2. to ensure that there is time and scope for development for the participants and that production logics in one's own organisation do not take over (Ellström 2004)

3. to create trust and openness in order to enable a critical discussion at the seminars

4. to constantly document what is done (in interviews, group discussions, analyses)

5. to provide ongoing and rapid feedback of the documentation to get reactions and views

6. to base the work on different case studies in order to demonstrate variations in implementation and thus facilitate learning and reflection

7. to link the experience gained to previous research

8. to develop concepts and analysis models that provide new insights together with the participants.

### 4.3. Introducing a critical perspective

Being too close to the participants and too highly involved entails a major risk, i.e. that the research conducted will be uncritical. Proximity to the prac-

tical sphere is important in order to understand the mechanisms that lead to lasting change. To tackle the problems relating to short-term project solutions, the researcher must gain "backstage" access (Goffman 1959). This is primarily a question of understanding the difference between what is *said* (espoused theories) and what is *done* (theories in use; Argyris, 1985). It is possibly more difficult than ever to differentiate between rhetoric and practice, above all in the case of organisational development and health work.

Proximity presupposes *participation*. The interactive researcher participates, but does not observe in a traditional and remote way. Instead of participative observation we can talk about *participative experience*. The researchers and the participants share experience as a result of their curiosity and desire to learn – to better understand a phenomenon, to solve a problem, to discover something new, to explain something or to reveal something that was previously hidden. But the new knowledge is used in different ways and with different aims – in a development context or in a research context.

Interviewing participants at different levels of an organisation is one way to "open things up" for a critical analysis of different interests and the different preconditions that govern participation in a development project. Another way of creating transparency is to let the participants tell each other about their experience and the opportunities they have had to influence the development work concerned. The aim of our evaluation was to create a *free space* for critical reflection with the support of the research. It was a question of creating conditions that would enable the participants to take a step back and examine their own experience "from a distance".

How do you get the participants to tell people they do not know and the funders of their projects about their problems and difficulties? The case studies proved to be a way in here as they were conducted by an external researcher (Randle). Another way was to illustrate alternative working methods by providing concrete examples, for example by getting participants from different projects to present different solutions to the same health problem. We were careful to stress that there was no right or wrong solution and that mistakes were permitted, perhaps even necessary, to promote innovation and learning.

It is difficult to assess how well we succeeded in creating a critical dialogue, but we must have succeeded to some extent as a number of problems and difficulties relating to health work were brought to light. We were very aware that the first seminar was particularly important as it could easily set the norm (cf. Andersson et al. 2005, Björn et al. 2002). It is therefore important to choose projects and people for the first seminar that accept openness and a critical examination by external parties.

### 4.4 Documenting experience

An interactive research project may entail documenting experience so that it becomes available and can act as a source of inspiration to both participants and external stakeholders. We organised documentation as a work process entailing a joint analysis that would result, among other things, in different reports and a jointly-produced book. The researchers shouldered most of the responsibility for this work, but we were careful to provide ongoing feedback and constantly discuss the results with the participants. We wanted to do something concrete together with the participants – create 'a common third', i.e. something that we owned together (Tofteng 2005).

There are several good reasons for documenting the work in this way. The starting point for the joint production and acquisition of knowledge becomes joint *action* rather than joint *discussion*. The work to be done is concrete and it requires people to perform tasks and meet deadlines. The result is a product that has been created jointly. The written text can provide a basis for individual reflection as well as for discussions in the projects. It is a question of highlighting one's own experience and the experience of others so that this experience gains credibility and legitimacy within one's own organisation. Another important aim is to disseminate this experience to other interested parties. A publicly-funded programme that costs tens of millions is not – or not primarily – for the organisation in which the project is run but should provide results that are applicable on a broad front. The reference group represents the social partners in the public sector who will gain access to material that can be used in their own development work. Wider dissemination is being planned, the idea being that participants and researchers will take

part in national conferences and seminars together. Concrete and living examples can then be alternated with analysis and a holistic understanding of the issues involved.

The question is: what is the significance of such joint documentation from a scientific point of view? The joint book is not primarily intended for other researchers, but we believe nevertheless that it will be of value to continued research. The results will be further analysed and presented in various scientific articles.

### 4.5 Interactive research as practice

What form do interactive research methods take in practice? The interactive process took place at three different levels during the research project's development process. Level one relates to the joint development of knowledge that occurred between the researchers in the research group in their efforts to contribute to a joint understanding of a complex phenomenon. Level two relates to the development of knowledge that occurred between the researchers and representatives of the principal (VINNOVA) and the client for the research assignment (the Ministry of Industry, Employment and Communications). Level three describes the joint development of knowledge that took place between the research group and representatives of the practical sphere in the various projects, i.e. representatives of authorities, county councils, municipalities, private companies, other research institutes and universities, corporate and occupational healthcare services and so on.

The research group discussed proposals regarding the planning and structure of the study together with a representative of VINNOVA and with participants from the reference group. This was done on an ongoing basis throughout the entire project period. Above all, we discussed the structure of the case studies and seminars and the progress of the joint book. We also discussed how we intended to use the seminars as a basis for data collection. One result of this was that we chose to divide the different seminars into different themes so that, taken as a whole, they would formulate a set of questions or issues that we intended to use and describe in our analysis. Questions that the research group had in mind throughout the research process were

how the results of this process could be used in practice during the ongoing research process and how the lessons learned could be used to develop projects in the future. Ahead of each seminar, the various projects were offered the opportunity to participate on the basis of selected theme areas. The participants themselves suggested which theme areas best suited their own activities. Most of the projects made presentations during the series of seminars. Only five of the 18 participating projects declined to do so. Their reason for declining was that their project periods came to an end in 2003 and that they lacked the resources that would enable them to participate.

As mentioned above, one of the members of the research group established a network of contacts with project managers and participants from the various projects, conducted interviews and surveys and documented and provided feedback on the interviews. The practical planning and preparation work for the seminars was done by members of the research group together with an analyst from VINNOVA. The research group was responsible for writing the various chapters in the joint book on the basis of the documentation from the seminars and the data collected. The research group also developed interview guides, discussed the interpretation of the research results and assessed the results of the questionnaires and interviews in a joint process.

By meeting representatives of the practical sphere at seminars and in interviews, the research group was able to gather information about the experience gained with regard to the development work in the projects. Among other things, this experience related to how to develop health factors and new methods and models for this. The meetings contributed to the joint development of knowledge about how different scientific perspectives complement each other in understanding the interplay between individuals and organisations.

Case studies and an interactive approach enable a researcher to test different interpretations with the participants with the aim of describing the complexity of the problem concerned. When the participants in a development project are given the opportunity to describe their practice to the research community, the researcher can learn from practice and gain a deeper understanding of the issues. With the support of previous theories, the researcher can then develop understanding at the practical level but also help to further

develop concepts and theories. All of the participants – approximately 130 – who took part in the research and development work also participated in the process of producing the joint book.

Taking part in the series of seminars enabled the project participants to acquire a deeper understanding of the needs of their own operations and the potential of the development work, which in some cases led to organisations investing more resources in development. For example, the researchers were invited to take part in dissemination activities with the aim of providing a critical perspective on the development process. Several participants have said that this learning process, which takes place between different participants and between research and practice, strengthened them in their professional roles and in their assignments.

The project participants also learned, when looking at their experience from interactive research in hindsight, that they could have gotten more support in their practice from the research group and the other participants if the evaluation process had started earlier.

### 4.6 Interplay between the gender of the project manager and organizational structure of the project

Is it then possible to demonstrate the theoretical value of the interactive research approach (Svensson et al. 2002; Aagaard Nielsen/Svensson 2006)? We would like to give one example where in our opinion the interactive research approach played an important role. The example relates to the interplay between the gender of the project manager and organizational structure.

Previous research has highlighted the interplay between the project organisation and the development work and management of the operations concerned where the project management works on behalf of the client with the aim of developing and implementing development work. Such projects are developed in broad co-operation between politicians, officials and representatives of various operations. There is a joint understanding of the content and objectives of the development work. Those responsible set up a project organisation in order to disseminate the project and implement learning processes throughout the organisation. The project is subject to clear control and

strict demands, and several individuals in leading positions are committed to the development work. In a politically-governed organisation, the political leadership acts as the client and owner of the development project.

However, our evaluation revealed that the governance of the various projects varied and that this affected the preconditions for each of the projects. In several of the projects studied it was the project manager that initiated and developed a project description within the framework of an organisational assignment – in an internal executive unit function or as an external consultant. The individually-focused working method is often chosen by project managers and this corresponds with the image of a dynamic and forceful project leader (Engwall 1996). A consequence of this approach is that the project manager is forced to generate legitimacy for the project after the event by influencing politicians, managers and others who are affected by the development work, often by means of different types of information and dissemination activities. Internally-recruited project managers must utilise their own informal contacts in order to successfully exert influence and disseminate the knowledge gained in the development work.

Our data provides some basis for discussing gender differences in other respects with regard to project management. Although the empirical data must be interpreted cautiously, it is nevertheless important to discuss certain observations, especially as there is almost no research on project management from a gender perspective. Being a project manager is normally associated with career and personal development, but our study shows that there were gender differences in connection with the recruitment of project managers in terms of position, status and level of education. The male project managers were recruited externally from a higher formal position. The female project managers were recruited internally and more often from a lower formal position in the organisation. Projects managers who are tasked with driving change processes are in an exposed and vulnerable position. An internally-recruited project manager who has conducted a development process in project form and who remains within the organisation concerned can become an uncomfortable figure for those at more senior levels. Externally-recruited project managers who only remain within an organisation for a limited period of time do not risk the same level of exposure during – and especially not af-

ter – the project period. The question of internal or external recruitment seems to be linked to gender. In total, the 18 different projects had 22 project managers, of which 13 were men and nine were women. Seven of the thirteen male project managers were recruited externally from positions as experts or self employed, while all women were recruited internally. There were six male project leaders who were internally recruited, however five of them were recruited from higher management positions and one was recruited from a position as a regional coordinator. What criteria were set for the expertise and know-how of the project managers, and did the degree of complexity of the projects play a role?  In our study it was more common that the men were responsible for the complex and inter-system projects, i.e. those where several organisations and players were involved, seven of eight project leaders were male and five of them were recruited externally. Internally-recruited project managers are in a weaker position as their opportunities for mobility within the organisation are more limited.  Our results indicate that internally-recruited project managers (more often women) have to put their own careers and commitment "at stake" in the effort to achieve the results promised in the project applications. Some project managers have come into conflict with managers at the line and executive levels because they have revealed shortcomings in the organisation or because new manager have been appointed who have their own ideas on how development work should be run. Some conflicts lead to project managers feeling that they have been set aside or even persecuted. When project managers remind those responsible of earlier undertakings and promises made within the framework of the project at the more senior management level of the organisation, this can lead to irritation and even sanctions. The project managers have a sense that they themselves take the task more seriously than those who have allocated resources or given their backing to the project.

We looked for a pattern that illuminates the link between the exposed role of the project managers, the organisation of the projects and the wider context in which they work and we were able to distinguish four different models for the form of organisation as a context for the project *and* the project manager. The four models provide a number of criteria that reflect the project manager's support or lack of support in the development work, and they can thus

be useful in explaining why some project managers feel that they have less support from the owners of their projects for the content, results and objectives of the development work. The models can be used as an aid to conduct a more structural analysis of the preconditions, backing and support for a project management.

The four models are as follows:

1. Projects in existing formal permanent structures.

2. Projects in innovative formal temporary structures.

3. Projects in innovative informal temporary structures.

4. Projects that lack structures.

The externally-recruited male project managers are found to a great extent in models 1 and 2 while the internally-recruited female project managers are largely found in models 3 and 4.

How are these insights and the formulation of the four categories of organizational contexts related to our interactive research approach? We have indications that they are related in several ways. The recurring interaction with participants at different levels in the organisation in combination with the systematic collection of data and the critical analysis seminars played a major role in enabling us to formulate a model for the interplay between recruitment, the gender of the project manager and organizational structures (see Svensson et al. 2007). Would it have been possible to make this discovery using a different methodological approach? Well, it is possible that interviews, for example, might have pointed us in the right direction. We feel, however, that the critical community of inquiry that we created made it much easier for us to move beyond common-sense understanding and gain new theoretical impulses. The joint learning events are similar to methods used in action research – like Dialogue Conferences and Future Workshops – but without an ambition to lead or organise the change process. Our change ambitions focused on long term implications rather than short term applications (see Nowotny et al. 2001).

## 5. The work environment development project

In the joint discussions between Posten and the researchers in connection with the initiation of the project, it became clear that both parties wanted to see a high degree of interaction and frequent contacts during the course of the project. The parties also agreed that the focus of the project could be changed in line with the knowledge that emerged as the project progressed. The structure of the collaboration was therefore largely based on a model for interactive research that had previously been developed at the Centre for Studies of Humans, Technology and Organisation (CMTO) at Linköping University (Ellström et al. 1999).

### 5.1 The CMTO model for interactive research

The model aims to produce research results of good scientific quality but also to produce practically-applicable knowledge as a basis for concrete measures. The model is based on the concept that there is a clear division of interests, responsibilities, powers and expertise between researchers and participants within the framework of the collaboration that takes place. This should also be clearly reflected in the division of work between them. The point of departure is that there is a practice system and a research system and that these systems interact with each other. Project participants and researchers meet at the start of the collaboration to discuss and decide on the issues that the respective parties are interested in examining and to jointly define the issues that both parties are interested in. These issues govern the researchers' choices regarding the theoretical reference framework and choice of methods. The issues at stake are investigated by the researchers who collect data and analyze them. The results are discussed, interpreted and conceptualised in a joint process. Responsibility for taking action and implementing practical operational changes lies with the project participants from the practice system.

**Figure 1:    The CMTO model for interactive research (Ellström et al. 1999).**
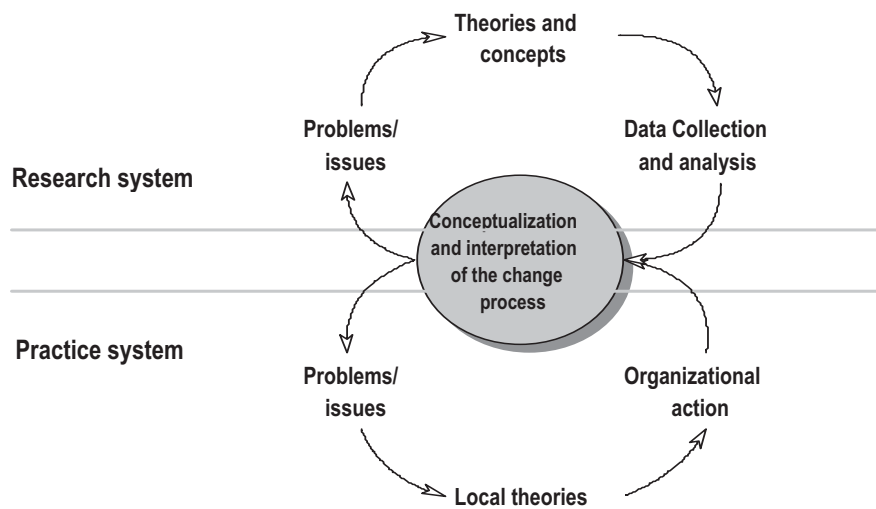
Once the measures have been implemented, a new discussion can be held be-tween the researchers and the participants to define the new issues they are jointly interested in. If they find that the preconditions for proceeding exist, and that there is a joint interest in doing so, then a new round takes place in accordance with the model presented in Figure 1. In other words, the model is based on a thorough evaluation of research issues for selection of those with highest practical and scientific relevance, allowing only the most interesting issues to be researched.

### 5.2 Application of the CMTO model at Posten

At the start of the project, a project manager and a group representing various internal stakeholders were appointed by Posten and given responsibility for the project. It was this group that interacted with the group of researchers during the project. The joint research and development tasks were defined ahead of each of the project's different phases in a number of detailed discus-sions and in connection with negotiations that concluded with the signing of a contract. The researchers planned the research in detail, and collected data at

the start of each phase. Several methods were used for this including questionnaires, interviews, measurements of work environment factors, compilations of existing knowledge and information and laboratory tests of proposed physical solutions.. The results of the data collection process were discussed and interpreted at regular and frequent project group meetings, learning laboratories and/or seminars. More detailed analyses were conducted as a result of these discussions of possible interpretations.

The first phase largely consisted of describing the problems and setting priorities for the potential measures that would be subjected to further study. In the subsequent phases, work environment measures were developed on the basis of technical and organisational factors and plans for implementation were drawn up. In the final phase, the implementation of the work environment measures was evaluated in a pilot case and subsequently at 30 different post offices.

The problems initially identified included the lack of participation on the part of the postmen in connection with the introduction of "Best Method" and the fact that the learning period for the new working method was longer than management at Posten had estimated, a factor that put the postmen under time pressure in the initial period. In addition, high physical loads were identified for certain combinations of tasks. The work environment measures developed in sub-projects were 1) a new manual with process descriptions of how the work should be organised, equipped and carried out as a part of the management system, 2) training courses in work techniques required for all postmen in Sweden, 3) new lighting for the sorting racks, and 4) new labels for names and addresses on the new sorting racks. Recommendations were also drawn up on how tasks could be combined to avoid excessive physical loads. The work environment measures were introduced at all post offices in Sweden over a period of approximately two years using an implementation group at Posten and other contracted personnel.

The assessments made by the researchers could sometimes be very critical, e.g. pointing out the lack of participation in previous changes, which led to more detailed discussions between the company representatives and the researchers. The plan for phase two was a result of the interactive approach and such discussions. We consider that the interactive approach also contributed

to the development of different solutions. One example of this is "the local participative decision-making process". It was found that both performance and working conditions were better in the post offices where there had been more local participation in decision making, but also that central decisions were resisted at many post offices. A solution was therefore found in which a management system was developed including the work organisation, workplace design and equipment to be used. This management system stated a few but important centrally-decided rules that were not to be compromised, and also stated a larger number of issues that had to be decided upon within each local post office in a participative process. The application of a participative decision process was therefore compulsory, resulting in increased control, communication and motivation. The evaluation of the intervention supports that this "local participative decision-making process" has been an important contributor to the positive results obtained in the project (Karltun 2007).

Another concept introduced was that the project managers of the project and its sub-projects were assigned among local post office managers in order to improve participation and legitimacy among postmen throughout the organisation. Projects had not been manned in this way before, and the idea was developed during the interactive discussions. Thus, we consider this to be a result of the interactive approach.

In the initial discussions, a hunch from the researchers that learning times increased with the new system, was rejected by the practitioners. The researchers video filmed postmen sorting mail in different stages of experience. When these films were analysed jointly at an interactive meeting, the representatives from Posten agreed that learning time was an important problem, and a new project was initiated to assess this issue and to propose improvements. The results showed how the postmen's mental model over their districts could be improved, and several methods were devised for improving learning. This example demonstrates effects from the interplay between researchers and practitioners that would not have arisen without the interaction.

Learning laboratories were also used in order to support the building up of basic knowledge prior to joint interpretation and conceptualization. These one-day exercises also contributed to building better social relationships as well as deeper mutual understanding of the existing problems and alternative

ways of improving the situation. In practice, it proved to be difficult to combine participation in managing the project with rapid decision making and the progress of the project. At times, there was hesitation and frustration among project members when the project got stuck due to attempts to run it in a participative way. The interactive approach thus contributed to knowledge about the advantages and limitations of participation, results that have been published in a PhD thesis by Karltun (2007).

The research group has published results from this project in the fields of learning, lighting and vision ergonomics, physical loads and intervention. The results are so generally-applicable that it has been possible to publish them internationally and academically (seven Master's theses or the equivalent and contributions to two doctoral theses, see www.ikp.liu.se/iav).

## 6. Discussion and conclusions

The two cases presented here serve to illustrate how an interactive research approach can support the development and dissemination of project experience, but also how the interactive approach can act as a means of generating theoretical knowledge, in order to identify and understand more of the mechanisms involved in sustainable work environment and health development.

The two cases show both similarities and differences. In both cases, we have attempted to deal with the difficulties associated with combining an action orientation with theoretical ambitions. The second case was more action-oriented from the beginning with an intervention approach from management. Learning took part during the whole course of the project and was continuously used to support and improve action, which was the driving force for the interactive approach chosen. The first case was based on a joint learning approach where the action component was not intended from the beginning, but was added as a result of the interactive approach which resulted in practical outcomes of the research project. The driving force for participating was to a large extent learning for the next project. The participants feel that both projects have contributed in different ways to increasing their knowledge about how sustainable development work can be organised. They have real-

ised the importance of active ownership, clearer control of the development work, the preconditions governing project management from a gender perspective, the opportunities and limitations associated with participation, the importance of a learning evaluation and of external collaboration, the preconditions for integrating work environment work, the importance of local backing and so on (Svensson et al. 2007; Karltun 2007). In both projects it was obvious that there is normally competition for resources with several other projects in the organisation. A crucial requirement for the survival and sustainability of a project is the legitimacy and priority given to the project by both external and internal stakeholders. Another result was the necessity that the project leader maintains frequent and high-quality communication with top management, politicians and other important stakeholders not only before but all through the course of the project, in order to secure the legitimacy and the continuation of it. The experiences reported here support that joint learning between the participants will lead to a more systematic and long-term change orientation, even though the article does not focus on this issue.

Both of the projects had a common approach by declining to accept any responsibility for development, working in independent research groups, having broad and interdisciplinary research expertise, complying with inherent research requirements regarding scientific documentation and transparency (in the form of articles, books and theses) and asserting the right to publish results independently. Having funding that has enabled us to work with a long-term approach has also facilitated this. The second case was financed partly by Posten and partly through research funding. This combination of funding supports a continued interest from the organisation as well as it gives opportunities for the researchers to put time and efforts into the research and knowledge creation. In this sense we have tried to live in line with our research theme – a sustainable working life.

However, the interactive approach is not free of difficulties and risks. One obvious disadvantage is the substantial demand for time and economic resources. It is necessary and it takes time to build up mutual confidence, especially since the approach must be combined with critical discussions, something which is difficult for many participants. Another obvious risk is that the interaction takes place over long periods of time and as a conse-

quence strong relations with participants from the organisation develop so that the researchers "go native" and lose their critical view. Furthermore, the personality and experience of the researcher is not unimportant with regard to the ability to run this type of project. It is probably not a task that can be recommended to every PhD student, especially not if they are young and inexperienced.

In conclusion, the two projects have demonstrated that the interactive approach has contributed to building up projects in which there was joint interest from both the organisation / the practice system and from the researchers / the research system. The examples show how the research issues have been formed and changed during the course of the projects for better relevance and more usable results. They have also contributed to scientific knowledge about the sustainability of change and development projects for the working environment and health (see Svensson et al. 2007). The driving force is the mutual interest in gaining a better understanding of the issues dealt with. Introducing a critical perspective supports the scientific knowledge-creation process and it would not have been possible to access much of this knowledge without the interactive approach. Among the difficulties are the high demands for time and resources and the fact that the researchers need to be experienced in interactive research.

A final conclusion would be that the examples described in this paper support the belief that the interactive research approach can be  a fruitful way of handling the classic conflict between the action and research component in collaborative research. It can be a fruitful way at least from a theoretical point of view because we do not have a focus on the action component. The practical value of interaction research can thus be put in doubt. We think that the joint learning with the participants will lead to a more systematic and long-term change orientation, but the article does not focus on this issue.

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