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# Trying to Educate Employees to Participate in an Ongoing Change Process, Using an "Experimentarium" as the Scene for Reflective Learning.

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Abstract. The initiating question guiding this paper is how employee participation can be established during an organisational change process in order to improve the employees' involvement in the change process. A case study in which an "experimentarium" (learning lab) was conducted in a medium size Danish company is presented. The case study demonstrates that it is feasible to generate employee participation in designing their future working environment in the experimentarium during the change process, when careful attention is given to the influence of negative situational factors.

## 1. INTRODUCTION

In this article, we examine a Danish processing company in which an experimentarium (learning lab) was set up in an attempt to gain employee participation in designing their future working environment. There exist many opportunities to implement systems that support employee development, however, it appears that we are still lacking the optimal method by which to concurrently develop the psychosocial and technological aspects of the organisation as well as methods for handling changes.
Establishing a "developing workplace" (an environment which encourages both organisational and employee development) within the processing industry is not without problems (Bergman, 1995; Ellström, 1996; Ullmark,1996). Various characteristics of the particular organisation present difficulties due to often strict operating procedures, stringent safety regulations, and the utilisation of shift work schedules. The existing company culture, its values, and employee attitudes can also become significant barriers to the development of an effective work environment (Vartiainen et al, 1998). There is a need for methods of change management which can foster motivation, commitment, and a willingness to work with both the possibilities and difficulties inherent to the change process while continuously focusing on critical aspects of the work environment. Furthermore, these methods for change management must acknowledge that, while different actors in a company may be useful resources in the change process, their varied interests often lead to conflicts.
To this end, we have developed (Busk Kofoed et al, 2000) an "experimentarium" (learning lab) in which active learning principles relevant to the ongoing change processes are used. Through the use of the experimentarium, members of the organisation are guided through the process of identifying and solving concrete problems from the actual work environment connected to the change process. Our assumption is that the experimentarium will serve as an invaluable tool for providing an arena in which the participants will gain a greater understanding and sense of ownership for the change process. In addition, we expect the experimentarium to allow the participants to contribute their varied and unique knowledge, skills, and interest to the process to help ensure the development of a more desirable future work environment combined with improved productivity.

## 2. THE EXPERIMENTARIUM AS A FORUM FOR LEARNING

THE experimentarium is essentially a learning lab in which groups of employees and managers, through common learning processes, attempt to identify, explore, and solve concrete problems from their actual daily work setting. The applied learning principles are grounded in problem-based learning and analysis using the project work method, in which participants work in small groups with a specific project. The project can be, for example, an experiment with a new job design, a problem resulting from organisational change or the

development of new work methods. The participants are encouraged to take ownership of their learning process as well as their project and for this reason, they are responsible for the selection of their own project's content. Guided reflection is utilised in order to provide support for the participants throughout the course of the project. The experimentarium is an experience or process that runs over a limited time period (e.g. 4 months). The project work is mainly performed during spare time and the learning process is supported by facilitators who lead participants in discussions concerning the projects and the learning processes.
The primary purpose of the experimentarium is to create a learning situation in which participants have the opportunity to develop, experiment with, and evaluate new work concepts (e.g., new ways to organise work) that can eventually be transferred to the actual work environment. Within the learning situation, participants will begin to work with and develop such skills as: communication, conflict resolution, problem-analysis, and evaluation. A precondition to the learning experience is that participants feel secure within the learning arena. For this reason, it should be stated clearly that "mistakes" are not only allowed - but expected - as potential solutions to work related problems are tested in a simulated work environment (or the actual work environment, if it is possible to remove any negative consequences for the trials on actual productivity). Participants in the experimentarium are also encouraged to view themselves (and their co-workers) as experts, each possessing unique ideas, talents, and skills that can positively influence the experimentarium and the change process.

2.1 Pedagogical Considerations

Our view (Busk Kofoed et al, 1998) of problem-based learning in groups making a project, is that reflection loops have a predominant place. This understanding of learning processes is based on Kolb's (1984) learning cycle, and Schön's (1987) ideas about reflection in the learning process, combined by John Cowan (1998) to a learning concept based on several small reflection loops - Kolb cycles (as paraphrased by Cowan: - experience - reflection - generalisation - test -) and planned reflection three times in a learning process (see figure 1): before or in the very beginning of the learning process where it is considered what the process shall be to fulfil the learning needs, in the middle of the process, where it is considered how the process so far has fulfilled the scopes and aims, whether they are still relevant and what changes in plans if any are necessary, and finally after the learning process, in order to decide what has been accomplished and what is yet to be done to implement the project in the daily work situation.
The experimentarium is based on a model in which there are three concurrently operating processes. These processes include: the number of participants actively working together as a group; the group's identification of a work-related problem to serve as the focus for the project; and, a learning process which supports the development of problem-solving skills (see figure 1). Furthermore, the group and co-operative work should centre primarily around the actual project work, with support from exercises relating to the participants' normal work functions. In this way, participants gain experience in such areas as communication and conflict resolution, without fear of negative consequences on their productivity (DeGeus, 1997).

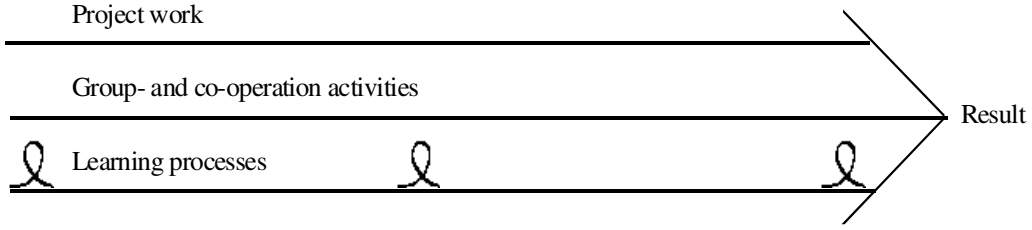


Figure 1 illustrates the 3 parallel tracks which are dealt with in the experimentaria. The learning processes are facilitated by 3 planned reflection (loops).

## 3. A CASE STUDY OF A DANISH PROCESSING COMPANY

The case study provided is from a medium size Danish processing company, which is a part of an international concern. At the beginning of the planned change process, there were approximately 250 employees, with more than one half of those involved in the production activities which are regulated and monitored within a control room setting. A very distinct division can be seen between the employees in the production and those performing the administrative and management functions within the company. The chain of responsibility and level of competence follow a very hierarchical structure. The production technicians' union is very strong and has been quite successful over the years in negotiating good employee benefits, salary, and work conditions.
Due to such factors as increasing market and external environmental pressure, the company has lost its competitive edge and in January, 1997, faced mandates to improve efficiency and effectiveness on all facets of its operations prior to Spring, 2000.

In defining goals for improvement, management of the processing firm focused on ways to optimise production and create a more flexible organisation. In addition to technical and logistical changes, mamagement sought a new organisational structure whereby the total work force would be reduced by approximately 20%. Tradition within the company did not support firing or work force layoffs and therefore a programme of early retirement was proposed.
In the planning stage of change, the general manager was inspired to run the process in a democratic way with emphasis on employee participation (as described in BPR) and an international consulting company was hired to supervise the intervention. The approach of the consultants, was to activate as many employees as possible in the process and use an analysis of the present situation as the basis for designing and planning the future organisational environment. Problems surfaced quickly, due to the fact that many of the employees and managers did not understand the complexity of the change nor had they received the appropriate information and tools to analyse the future consequences of change.
In short, the change process created an atmosphere (especially among production technicians), which resulted in a high degree of resistance, insecurity, and distrust towards management. The prevailing attitude could be described as one in which there was absolutely no wish to participate in discussions related to any topic other than manpower, regardless of the potential benefits to their work environment. The manner in which the production technicians expressed their frustration demonstrated their need for a much deeper discussion of the potential outcomes of the change process. It was also evident they required the assistance of a skilled facilitator to lead constructive discussions aimed at modifying their reactive attitudes to more proactive ones.

## 4. SIX EXPERIMENTARIA

In the summer of 1998, the major part of the BPR-process was already in progress and the top management expressed a desire to "bring the production technicians back into the change process". The management asked if we would run an experimentarium with each shift (6 shift with 15 production technicians on each shift) in an effort to reverse the production workers' negatives attitudes to change.
Each shift started with a workshop intended as a planned "reflections before" in order to generate ideas for relevant projects. However, it quickly became apparent that the workshops would be fulfilling another very important function, as it offered the production technicians an arena in which they had the opportunity to vent their feelings of frustration, anger, mistrust, and scepticism regarding the change process initiated by both the external consultants and the changes in their present work environment. Once the "air cleared" somewhat, the majority of the participants were able to begin to focus on selecting a work-related issue for the experimentarium.
The experimentarium was held during a five month period with three full days away from the company: a start day, a mid-term day and a closing day. On the start day, each shift formed two or three groups (5-6 persons in each project group) who each chose a project from the lists created at the workshops. Thereafter, the time was filled with project work, exercises as games, role-plays, tests, and discussions of the learning process, with each day ending in facilitated reflections. In the intervals between the three offsite meetings, each group worked with their project and was in contact with one member of the research team, using e-mail and visiting the group three times during the process to help with the project.

### 4.1 A Project Example

Traditionally, new employees were trained by a supervisor (another production technician) for at least 14 days on each of the facets of production. One project group discovered that, due to downsizing, time for on-the-job training would be severely limited and would only be possible for a period of 14 days (once every 3 months) while the day shifts were working with maintenance work. This method of conducting the training was extremely problematic in that it required the trainee to receive instruction during three or four different daytime shifts, which were often quite busy. After analysis of this problem, this project group proposed a solution that would involve assigning a trainer from their own shift to follow the trainee through each of the shifts during the maintenance period. During the last half of the project period, the group was given the opportunity to test their plan during a scheduled maintenance period. On the closing day of the project period, the test project was positively evaluated and then presented to management, who were very pleased with the success of the trial and authorised it for future implementation.

## 5. CONCLUSION AND DISCUSSION

This project was guided by our interest in discovering the possible positive consequences of encouraging employee participation in a planned change process. In this, our using a model for common learning processes within the experimentarium has proven encouraging in several respects.
First, the participants gained a greater sense of understanding of the entire technological and organisational change process, where participation of the production workers had been undermined by the fact that they worked around-the-clock shifts while the majority of change activities occurred during the day. By self-identifying and seeking to solve existing or potential problems in their work environment, the participants began

to generate a more accurate vision for their futures as well as gaining a better understanding of possibilities and problems associated with their changing work situation.
Second, a large number of the employees in the experimentarium demonstrated an interest and willingness to participate in the change process by their selection of legitimate and relevant projects. The frustration, distrust, and opposition expressed at the first workshops was generally replaced by enthusiasm to work as teams in overcoming barriers to an improved work environment. Although not their intended purposes, the initial workshops provided a secure environment in which to express their feelings, as well as ask and have answered, many questions regarding the upcoming changes in the organisation. The exercises and games were very valuable methods for discussing the importance of communication, and through the problem-solving projects in the experimentarium, the participants also began to gain respect for the teams on other shifts, for the first time opening the window to inter-team co-operation.
Third, the experimentarium provided members of the organisation the opportunity to learn, practice and discuss various qualifications, including "soft skills" related to teamwork (as well as the skills to present their projects to management), and skills associated with identifying, analysing, and solving work related problems. The planned reflections proved to be a very strong element in this learning process. It was through reflections that we, as well as many of the participants, experienced the individual and common learning. Evidence of double-loop learning, outlined in the original research protocol, was observed within several of the projects conducted during the experimentarium. In particular, the double loop learning was clearly witnessed in those participants who dared to challenge the existing procedures and rules during their project work (eg. 4.1).
In our view, there are also a number of lessons which can be learned from this research.
As it was, when the experimentarium started, the technicians and their leaders were already quite exhausted from the previous process, and there was little motivation to be innovative and thereby challenge existing structures. This outcome highlighted the importance of choosing the right moment for starting the experimentarium.
Time allocation to work on the projects in the experimentarium also presented itself as a problem. Many of the shifts complained that with the reduction in their work force, even when they did have the ideas and desires for developing a project, there simply was not available time during regular working hours. Consequently, many of the projects were designed and managed almost exclusively by smaller subsets of employees who seemed to be more enthusiastic or creative in finding extra time for the projects.
Given the combination of both positive findings and somewhat disappointing lessons learned from this study, we can conclude that, when it is possible to satisfy the preceding conditions and stringent efforts are taken for minimising or eliminating the effects of negative external factors, the experimentarium should offer an effective means for providing a common learning process which develops and encourages employee participation during the process of technological and organisational change. As such, we would argue that the experimentarium can be a very valuable part of a company's change strategy.

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