

Learning Organization - A Lasting Concept

**E. Timm, N. Honecker,
E. A. Hartmann**
Department of Computer
Science in Mechanical
Engineering (HDZ/IMA)
University of Technology
Aachen (RWTH)
Dennewartstraße 27
52068 Aachen, Germany
+49-241-96660
timm@hdz-ima.rwth-
aachen.de

J. Gund
John Deere Works
Mannheim
Windeckstraße 90
68163 Mannheim,
Germany
+49-621-829-0
gundjuergenH@r2
mannheim.deere.com

R. Sell
MA&T: Mensch, Arbeit
und Technik
Krantzstraße 7
52070 Aachen, Germany
+49-241-968840
mat.aachen@t-online.de

ABSTRACT:

Today there exists an evident need to view an enterprise as a learning system whose adaptive capabilities have to be increased for the joint and participative development of organization and technology. As an example of implementing the concepts of a Learning Organization into practice, experiences at John Deere Works Mannheim will be described. The company has started to implement a project that intends to integrate lasting concepts of a Learning Organization. Strategy and expectancies of the project are described in this report.

Keywords:

Learning Organization, Participatory Design, Organizational Development

INTRODUCTION:

In nearly every part of society today, a dynamic change of structures and processes can be observed. Reality today is characterised by complexity. Global development and internationalization of markets are linked to the increasing use of information and communication technologies. With such decentralization of economic structures, work conditions change. In industry, traditional (staff-) structures are changing. Less hierarchical, team-oriented structures are being implemented. These changes in society and industry have impact on working and learning: learning has to be integrated with reality of work in order to correspond to today's complex social interactions. Such learning processes have to include technology, people, and organization.

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Thus, the integration of learning and regular work will be more and more important. The borders between those two areas will be less strict than up to now, in most countries. Learning will be integrated within the working environment, and the working environment will influence individual learning. Normal work or daily practice will become the centre of learning processes. In order to remain competitive, the necessity of re-learning as well as continuous lifelong learning will be the norm - based, however, on a thorough basis of initial education and training. These aspects need to be taken into account in all processes of designing production processes today.

This need of being flexible and competitive is supported by the introduction of new models of work organization, e.g. team work, self-organised groups, Learning Teams, and other strategies. Creation of knowledge is nothing but a shift from implicit to explicit learning. Groups, for example, are a suitable form for spreading knowledge and making problem-solving abilities transparent. Everyone in the group is an expert and can give his/ her knowledge to the process of complex problem-solving. Thus, the group can function as a link between individual and organizational learning.

Organizational learning occurs as one aspect of running an enterprise, whether this is intended or not. To make these learning processes more efficient and goal-oriented, however, they have to be designed deliberately. Organizational learning transcends individual learning, as it focuses on organizational change. The basis of these change processes are nevertheless individuals, their subjective beliefs and actions. If organizational learning is meant as a concept to affect all business and work processes within the organization, on all hierarchical

levels, in all departments and especially between them, participation becomes a critical issue. In this report, the fundamental aspects of such a Learning Organization are briefly described. They are applied to the case study of John Deere Works Mannheim, as an enterprise which recently decided to change over to the Learning Organization concept. Some results of this change process are reported.

THE CASE OF JOHN DEERE PLANT MANNHEIM (JDWM), GERMANY

The company

The JDWM produce tractors (mostly agricultural) with 4 or 6 cylinders engines ranging from 75 to 130 HP (55-96 kW); this is the „6000-Series“ in John Deere's tractor programme. The annual production output is 28,000 tractors approximately. JDWM employ about 2,200 people. The Mannheim Plant has one of the longest and richest histories in farm-machinery production in Europe. The Heinrich Lanz Company, founded in 1859, produced the first steam-powered stationary threshing machines in 1879 and the first crude-oil-fuelled tractor - the famous „Bulldog“ - in 1921. In 1956, Heinrich Lanz AG merged with Deere & Company, Moline, Illinois (USA). Today the Mannheim Plant is the largest and most important John Deere factory outside the USA.

Like many other organizations the John Deere Works Mannheim (JDWM) is going through a reorganization process. Aspects of this process are:

- segmentation of the factory in several "focus factories": decentralizing production and service departments ,
- introduction of team work in all production lines, and also in management and administration,
- reduction of hierarchical levels going along with process oriented structures,
- outsourcing of departments.

These change processes have started on the level of individuals and teams. Subsequently, they have affected the whole organizational structure as well as technology design and implementation in production and information processing. Being aware of the well-known problems of the company renewal, the John Deere Plant Mannheim started several different activities in parallel:

- Learning Teams (so called "Learning Islands") in different production and assembly areas. These are learning environments which on the one hand, serve as a special module within the regular vocational education scheme for apprentices (cf. footnote 2), on the other hand are used for further qualification or re-qualification of employees. Especially the recent

reorganization, including outsourcing of some production processes, has created a need for re-qualification of workers to be able to work within 'core-competency' areas. The educational concept of 'learning islands' relies on 'real-world' work processes and the concept of 'complete tasks', known from German work psychology (Hacker, 1986). This means that learners will produce a complete product – for example, in the "Assembly Learning Island" they will as a group assemble a complete tractor – including all planning, quality assurance, and organizational tasks together with the 'direct' operational tasks. This learning process is guided and supported by professionals in vocational education¹.

- Qualification for participation for all workers. As a part of the introduction program for group work, all group members attend a 2-day workshop where they learn methods of communication and problem solving in groups.
- Training of team leadership skills. In each group, at least one – usually between two and four – members of the group take part in additional workshops to learn how to facilitate problem solving in groups.
- Appointing and training of team consultants ('process attendants') from within the company. Their task as professionals in organizational development is to support the groups and the facilitators in applying the methods mentioned above. Furthermore they consult and coach all departments and hierarchy levels concerning new forms of work organization. They also monitor and support the general process of developing group work and other new forms of work organization within the company.

So far, the following two main strategies have been put into practice which concern learning of individuals and teams: company-wide group work structures, and the Continuous Improvement Process.

Introducing Group Work

At present there are more than 1,500 employees of the John Deere Works Mannheim working in teams. Different

¹ In Germany, skilled industrial workers (or junior craftsmen) may attend an educational 2-3 year programme to achieve the qualification of a 'Meister' (originally 'master' in the sense of 'master craftsman'). This includes in-depth knowledge of their technical domain, workshop management, and vocational teaching qualification. The people running the learning islands at JDWM are 'Meisters' with substantial teaching experience from their work in the vocational education department of the plant.

types of team work - from partly autonomous groups to self-organized groups and Learning Teams - can be observed. The methods of group work are based on the concepts of the participatory approach related to improvement of work organization, production processes and technology with a special emphasis on qualification for participation (Hartmann, 1998; Sell & Fuchs-Frohnhofen, 1993).

Once a week the employees come together in a group meeting where they discuss production problems. The employees have learnt to organise their group meetings by themselves, to solve problems on their own, and to cooperate in the teams and between teams of their own and other departments. In these teams, learning processes are taking place on individual as well as on group level.

Introducing Continuous Improvement Processes (CIP)

The Continuous Improvement Process (CIP) as a project is embedded in a programme of organizational renewal. The main characteristics of CIP are:

- the activation of organizational knowledge and experience,
- the translation of improvement options into action,
- the reduction of wasting resources,
- the optimization of working processes, and
- the integrating and participation of all employees (multi-hierarchical).

Within JDWM, 'improvement' is defined as any action oriented towards a set of goals, namely:

- reducing costs
- reducing (throughput) time
- improving product quality
- improving organizational flexibility
- improving the quality of working life; humanization of work

These goals have been agreed on by management and works council². This of course does not neglect different

² In Germany, the works council is the elected representative body for all employees of a company. Its functions, rights, and responsibilities are regulated by federal law. In the metal industries, most or even all members of the works council are usually also members of the Industrial Union of Metal Workers (IGM). Nevertheless, the works council is no trade union organization; the trade unions have their own basic member organization within the companies in parallel.

interests and different priorities between the two sides, but gives a common frame of reference.

CIP groups can be understood as temporary project groups which are based on the concepts of team work. For one week a group, isolated from its regular working place, is asked to solve a specific problem. The standardized use of problem-solving methods is necessary for a successful CIP:

- employees have the same common knowledge (from skilled workers to engineers and managers),
- employees speak the same company language,
- with the standardization of methods a basis for evaluation processes is given.

In addition to solving existing problems, in CIP innovation can be achieved, and basic company concepts can be questioned. Learning processes take place on individual and group level as well as on intergroup level. In addition, learning processes can be observed on organizational level as there exists a cross-departmental composition of CIP groups.

The change processes described so far concern the individuals and teams as well as the organization of the company. Nevertheless the company is not really yet a „Learning Organization“ because the activities are isolated - they do not affect the overall views of the company. Hence, the concept of the „Learning Organization“ is discussed in the following paragraph.

CONCEPTS OF LEARNING

Single-Loop, Double-Loop Learning, and Deutero Learning

In Learning Organizations people learn with and from each other. Their knowledge, experience and lifelong learning are prerequisites for a Learning Organization.

The model of organizational learning to be discussed here is based on the synthesis of various concepts of learning of individuals and organizations:

- a) models of individual Experiential Learning as proposed by Kolb et al. (1984) based on the research of Piaget and Lewin;
- b) the theory of Mental Models emerging from recent research in the field of cognition science (compare Fuchs-Frohnhofen et al., 1996);
- c) the work of Cyert & March (1963) and March & Olsen (1975) considering organizations to be behavioral

systems which continuously try to learn and adapt to their environment;

- d) Argyris & Schön's (1978) concept of Single-Loop (SLL) and Double-Loop Learning (DLL) on both the individual and the organizational level, and the integrated model of organizational learning proposed by Kim (1993).

Considering SLL and DLL (Argyris & Schön, 1978) there are two different levels on which individual learning can occur. On the one hand, there is individual SLL. It shows features of short-term learning corresponding to a given set of assumptions of the individual. These assumptions are referred to as individual mental models. On the other hand, there is learning on a higher level referred to as individual

DLL. As opposed to SLL, the individual's experiences are not simply interpreted in the already existing frame of the mental models. This type of learning results in a change of individual mental models which subsequently leads to a fundamental change of individual learning and action.

On the organizational level the concept of mental models is repeated by introducing shared mental models. They describe the extent to which the different sets of individual mental models overlap. A fundamental change in the individual mental models results in change of the corresponding mental models which then influence organizational action: DLL on the organizational level (Fig. 1).

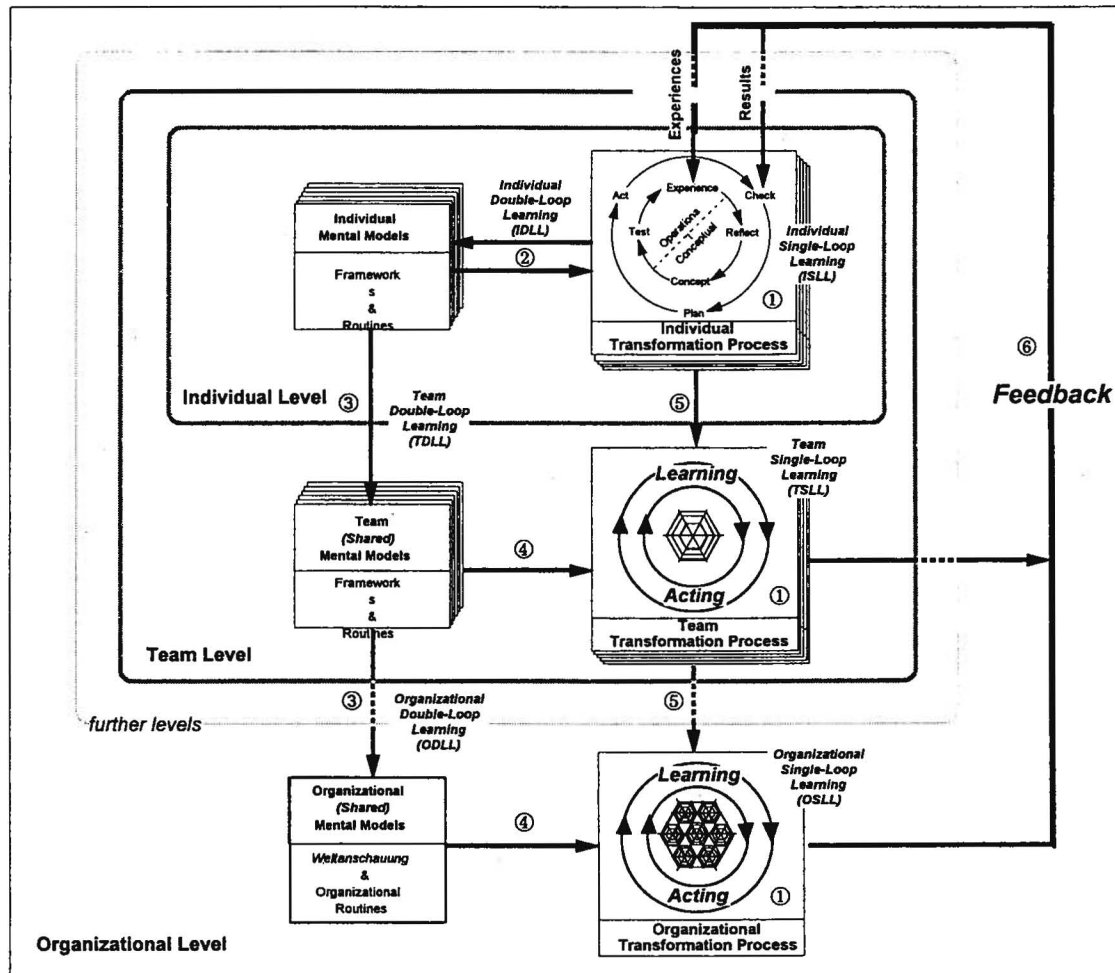


Figure 1: Learning and Acting - Transformation Processes of Organizations from a Systemic Perspective (Lorscheider, 1997)

Figure 1 shows the different transformation processes of individuals, teams and organization. These learning processes are characterized by integrating Learning and Acting. They are linked to the different mental models. If these different mental models change with learning, learning can be called Double-Loop Learning (DLL). If the whole enterprise follows this model, it may be called a Learning Organization.

So far, the company JDWM has introduced

- company-wide team work structures and Learning Teams which are DLL for individuals and groups;
- the project of Continuous Improvement Processes which focusses on aspects of DLL on individual, team and organizational level.

The next step is to introduce Organizational Learning for the whole company JDWM, as a DLL process on organizational level. Even more, the intended project described below explicitly aims at redesigning the company's learning processes themselves; this is an instance of 'learning to learn' or, in terms of Argyris & Schön (1978), 'Deutero Learning'.

INTEGRATING A LASTING CONCEPT OF A LEARNING ORGANIZATION

The main features of the intended project

Despite all measures of reorganization implemented previously at the company JDWM, not all problems have been solved. Especially the isolated activities in the different departments lead to weaknesses. On the one hand, a general and common qualification for participation of all staff exist at JDWM. On the other hand, there is only little time for qualification and innovation during the regular work process. JDWM has tried to face this aspect by introducing its 'Learning Islands' concept but it is an isolated solution because only parts of the Product Delivery Process (PDP) are covered. An integrative qualification concept along the whole PDP - from design to delivery to the customer - has been missing.

These deficits were identified in the first place by the process attendants / team consultants together with other people involved in work-related learning within the company. Their idea of a new project to overcome the deficiencies gained support from senior management as well as the works council (actually, one of the main 'driving forces' behind DILO is a member of the works council). A small 'design-group' consisting of some of

these internal experts and external consultants began to sketch an outline of the future project.

Thus, the intended project about integrating a lasting concept of a Learning Organization has been designed to take up the concept of an integrative qualification, integrating all levels of Single- and Double-Loop Learning as well as Deutero Learning. The core of the project is the sustainable integration of personal and organizational development which expresses itself in a reciprocal integration of work processes and change processes: The aims are

- to make use of regular work processes for qualification (learning through the job),
- to use the Learning Island concept for work-oriented learning processes (learning near the job).³
- to create a network of Learning Islands within the factory, covering the whole Product Delivery Process,
- to integrate Continuous Improvement Processes within the Learning Islands
- to design systematic ways of knowledge exchange and development between different departments within the Product Delivery Process,
- to establish a 'feedback system', allowing workers in production groups as well as management to assess their own work with respect to learning processes and opportunities and to figure out action plans to improve these learning processes and opportunities.

All these aspects are to be understood as strategies of organizational development which trigger and shape business transformation. The project aims at the improvement of continuous learning and innovation activities through integrating them into the regular work flow. Hence, project-activities will cover the whole product development and production process (PDP).

³ There is a clear distinction between these two concepts of work-related learning and the common notion of „learning on the job“ as a - completely insufficient - substitute for systematic vocational education. In Germany, we have a tradition of institutionalized vocational education, the so-called 'Dual System' combining public vocational schools and a more or less standardized vocational education inside the companies. Both the 'learning through the job' and the 'learning near the job' concepts are to supplement these established schemes of vocational education and to provide options for lifelong work-related learning. Both approaches imply very explicit standards and methods of education and learning.

According to the claims of a participatory process, employees from all departments have been involved in developing project from the beginning of the planning. It is necessary to integrate their experiences, knowledge and expectations in such a programme at that early stage. Otherwise the concept would be far from reality, it would not correspond to existing needs and claims.

The Learning Islands concept and the Continuous Improvement Processes (CIP), implemented before, are essential prerequisites for the successful implementation of the new project. Their contribution to the implementation of a lasting concept of a Learning Organization are the learning processes on different levels of individual and group learning. The concept of learning (Single- and Double-Loop) has, thus, been established in the company and mental models are shared as prerequisites for making JDWM a Learning Organization.

Integration of a lasting concept of a Learning Organization

The integration of the new project was started through a five-day-workshop attended by 55 workers and clerical employees. The four parallel sessions of this workshop were facilitated by pairs of internal and external facilitators. The task of the workshop for the participants was to work out the implementation strategy of the integration of a lasting concept of a Learning Organization at the JDWM. Their results were presented in a meeting attended by about 100 people from JDWM, including management and works council, who approved these results and the suggested ways of implementation.

The outcome of this first workshop has been substantial. A series of fundamental innovations have been suggested which are presently being implemented, step-by-step. Some are as follows

- the opening of Learning Islands for all members of the organization;
- the use of Learning Islands for qualification and Continuous Improvement Processes with the focus on products, production processes and technology, thus generating integrated 'Learning and Innovation Islands';
- the design of a trainee programme on certain production processes tailored for e.g. workers from other production areas, engineers, etc.;
- the integration of a group of workers from series assembly into the design and prototype building activities for new products. For every product development project, a different group of these workers will join the prototype building department. This will enhance learning effects in two directions: The workers from series

assembly will gain advance knowledge about the new product, enabling them to share this knowledge with their colleagues and thus minimise problems in series start. On the other hand, they will use their experience from series assembly to help designing the new product according to assembly requirements.

CONCLUSIONS

The implementation of the new project about integrating a concept of a Learning Organization has been the most fundamental change process to be imagined for a traditional European production company. It has given the company a very strong boost of renewal affecting all areas and levels of the enterprise. It has only been possible because of the previous innovations introduced at JDWM with group work, the Learning Islands and the Continuous Improvement Processes. Today already, the outcomes of these innovations are clearly visible - together with the results of further organizational changes briefly mentioned in this report. These results have given the company strong economic advantages in the world market: e.g. one-third less costs per tractor produced, etc. In overall economic terms, the company is among the leading companies of John Deere world-wide.

On the other hand, there are serious risks for the implementation of the project described above. There will always be conflicts between the demands of individual and organizational learning on the one hand, and the restrictions and pressures set by work and business processes in a highly competitive environment, on the other hand. The promoters of this new project will have to handle these conflicts and to gain continuous support from all groups and institutions within the company. To find out if and under which conditions this is possible will be a major aspect of the intended project.

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