

## David (P.G.) Herbst

### A Learning Organization in Practice

#### M/S Balao<sup>1</sup>

Captain: When we started off, we were doubtful, but now we know--the way we work is right.

A/B Sailor: I know you won't believe me when I tell you this, but this is the best ship in the Norwegian fleet.

The field trip on M/S *Balao* from Sicily to the Black Sea port of Novorossiysk recorded in this paper was undertaken together with Ragnar Johansen in 1977. The new form of ship organization described was developed by Captain Egil Samuelsen with Johansen as his adviser. M/S *Balao* had been architecturally designed and equipped to function as an experimental development ship. A first socio-technical design was implemented at the time the ship was taken over by its crew. The initial design was evaluated by the crew, a process which took a period of two years, before the form of organization described in this paper was finally achieved.

The ship is no longer in service. All that is left to-day is one of the cabins of the crew, which stands on display at the Oslo Maritime Museum next to a cabin from the days of sailing vessels.

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<sup>1</sup>Excerpted from P.G. Herbst. Socio-technical Design: Strategies in Multi-disciplinary Research. London: Tavistock Publications, 1974.

However, the ship had fulfilled its function as what Fred Emery, years earlier, had described as a "demonstration experiment." This was not an experiment in the laboratory sense, but a practical experiment to show that what was previously thought to be impossible actually could be done. The experiment was also as necessary way of providing the data needed for formulating more general principles.

A demonstration experiment is not a way of studying the world that is, but of the world that can be. A demonstration experiment allows a choice, not between what is and what might be theoretically, which is not a realistic choice, but between alternative possibilities that are demonstrable in practice. At the time, *M/S Balao* seemed to those who manned it like a solitary swallow. It was both an adventure and a cost for those who set out to explore the unknown in human and social capabilities.

Today, the experiment has become the model that provides the principles which Norwegian shipping is seeking to implement over the next 10 to 15 years and that, together with the earlier *M/S Multina*, also provides a guiding model in the development of new forms of ship organization in other European countries including Holland, Germany and England.

One of the innovative and significant developments is the method of participant work planning carried out by the crew with officers functioning in a supportive role. A more systematic account of participative work planning, and the onboard method of socio-technical task structure analysis employed, is in preparation. Both now form part of the curriculum for maritime school education in Norway.

The way in which *Balao* is organized is so simple and so obvious when one is on board and yet so difficult to describe in any simple and systematic way. One has to unlearn

almost everything one has learned from conventional ship organization. It is not just different in particular characteristics that can be pointed to. It differs qualitatively and totally. Within the new structural context, almost every element found in the conventional organization functions in a different way. The theories and principles which were useful for understanding conventional ship organization no longer apply.

In conventional organizations the role and status of individuals and of departments are the primary concern, and the task as such tends to become a secondary and sometimes almost irrelevant issue. Here, the opposite is the case. The nature of the task is the primary concern and the question of roles and status a secondary issue. This is just one example of the kinds of structure reversal which are found. There are five characteristics related to the work organization that appear to be of particular significance.

*Total crew involvement in organization of change.* What has changed is not just a part of the organization but the total organization from top to bottom. The successful involvement at an early stage of the total crew in the process of change, which has been maintained for most of the period of over two years, has played a major role. At the same time, the sharing of dining, service and leisure facilities by the whole crew has led to a consistent change in the social life on board.

*Organizational change as a learning process.* What has been achieved is not just a new system of organization. From the start, steps taken to implement increased autonomy and active involvement in work planning of the crew were evaluated. Both negative and positive consequences were reviewed. By means of needed changes in the pay system and in the relationships to head office, further steps in organizational change became possible, which were

again evaluated. In this way successive phases of change have occurred. What has been achieved is policy making as a learning process, that is, a process of action research which has made minimal use of outsiders as temporary resource persons. It is of some importance that no outsider has, at any time, attempted or been allowed to take over a directive role in the process.

*Participative work planning.* What has aided this process is the fact that the nature of the tasks on board changes week by week. Every planning session has presented new problems, in the course of which the competence of individuals has steadily increased and new work planning techniques have been developed and improved further. As a result, for example, cleaning and painting, which on a conventional ship are the most unskilled tasks with practically no learning potential, have become transformed into highly sophisticated opportunities for technical and organizational learning. Even if a task comes around again at a later stage, it may no longer be the same. Possible new technical procedures become apparent and, as both the number of competent persons and the level of competence increases, new work organizational solutions become possible.

What has evolved here is not simply job enlargement or job enrichment. A key characteristic of the new organizational context is that those who are going to do the task engage in preplanning meetings to map out work methods and technical requirements. This leads to the determination of boundary conditions; that is, the dependence of the task to be carried out on other tasks and other persons who may be affected. One of the officers will generally be asked to participate as a resource person. After the task is completed, more information will be available to provide a revised task analysis and, at a later stage, when new and better approaches to the task are developed and tested in practice, the task description will be updated. The material which

becomes available in this way, specifically with respect to the number of persons and the approximate time required, can then be used to improve the joint planning carried out in weekly conferences.

*Development of a learning community.* What has evolved in this way is a learning community in which practically everyone is involved in one way or another. In a conventional organization, superiors instruct subordinates. Here, instruction has regained its original sense. Those who are formally superior instruct those who are formally subordinate but, in addition, colleagues instruct colleagues, and those who are formally subordinates instruct those who are their formal superiors. The relationship is more like that of seniors and juniors who have developed mutual respect. Coming out of the conference room after a weekly planning meeting, the captain commented that the work methods arrived at by the ratings turned out to have been better than the proposals made by the officers.

Looking back, my impression is that there was more learning going on aboard this ship than in almost any school I have visited. The reasons for this are that there was learning going on at so many different levels simultaneously. There is

- organizational learning;
- collegial learning on the job;
- instruction given by seniors to juniors in navigation, machine maintenance, crane operation and tool use;
- learning in the course of detailed work planning;
- learning of work planning in discussions of work allocation to new tasks.

There is also school-type learning, when twice a week a group of ratings come together for several hours in the conference room to work on textbook problems in physics and mathematics for their maritime certificate examinations. One of the officers helps them when they have difficulties and checks their solutions to the problems. When I asked whether officers asked for extra pay for teaching juniors, I found the question was not appropriate. The relevance of the new payment system that was introduced will be discussed later.

All this provides an organizational context within which people can find mutual support and help and are able to develop both their human qualities and their technical competence.

*Open and joint territory.* As a result of all the characteristics discussed so far, the rigid, almost impermeable compartmentalized boundaries, behind which crew members on conventional ships isolate themselves and which they utilize to play out their stagelike antipathies and ritualized conflicts, have practically disappeared. On conventional ships the norm is closure and exclusive control of territories. Here the norm is openness. A necessary exception is the privacy of personal cabins.

Entering the superstructure at the back of the ship, one comes directly into the coffee lounge. This adjoins the dining room. There is also a duty mess, convenient for use during working hours. From the coffee lounge, a stair up, one comes into the dayroom and bar. This adjoins the swimming pool and a library which can also be used as a small conference room. On the other side of the corridor there is a large L-shaped room that contains the offices of the chief officer, machine chief and captain. The captain's section opens into a large conference room. All the cabins are on successive levels of the superstructure. The navigation bridge is on

the top level.

The standard cabin is about 17 square meters, consisting of a sitting room, a bathroom with toilet and shower and a small bedroom which also has a writing desk and stool.<sup>2</sup> Chief Officers have somewhat larger cabins. There is enough and suitable accommodation available to allow any crew member to bring his wife and children along, which they do usually in the summer months.

The machine room is painted in cool, beautiful colors and looks spotlessly clean. For a while, one does not notice the heat. However, it is very noisy. In the control room it is cooler, and the noise is no longer noticeable. From the lower deck a stair leads down to a set of storerooms for equipment and material and a small but well-equipped machine shop. There is no bosun here to lock the stores and keep the key. After the work planning sessions, the team members responsible for jobs just go to the stores and fetch whatever material, equipment and tools are needed. The ship's budget provides for all the best and most suitable equipment to be available.

The automated machine room has made a considerable difference. Only the three navigation officers and three ratings are on a four-hour shift cycle. Since the ratings rotate their tasks after some time, and shift-over coincides with meal times, almost everyone is able to participate in the social life on board.

Passing to the coffee lounge after dinner, large groups form around the tables. From there, people move to the dayroom where, in the comfortable, closer and more informal layout, a more open pattern of shifting groups emerges. Some crew members wander into the

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<sup>2</sup>Mrs. Schjetlin, an architect who collaborates with the Institute participated, in the design of the living quarters.

library and others join for a game of table tennis. The bar is open all day until midnight, both at sea and in port. There are soft drinks and beer in the refrigerator and strong drinks on the shelf. No one sits at the bar. People just go and fetch what they need and note down in a book on the counter what they have taken. There is scarcely any consumption of alcohol. A few of the chief officers take a whisky in the evening. Some drop in during working hours to get themselves a cold drink. On the bridge, which is some distance away, there is always a cup of coffee brewing.

On conventional ships, status differences and boundaries are built into the layout. Changing the architectural design by itself may not be sufficient. At the same time, without this change, it would not have been possible to go very far in the development of a more cooperative and equalitarian work and social organization.

So far, an outline has been given of what appear to be significant characteristics of the work and social organization on board. These are summarized below.

The change process has not been limited to any part of the organization but has affected the total work and social organization on board.

It has not been simply a changeover to a new system. The ship has gone through successive phases of organizational change that was evolved, tested and implemented by the people on board themselves.

This process has been aided by the fact that the nature and pattern of tasks change from week to week. At the same time, the steadily growing competence of crew

members provides new organizational possibilities.

This has led to a continuously evolving work and learning community in which, in one way or another, practically everyone is involved. A crew member may, in one situation, be a learner and, in others, contribute to the teaching of others.

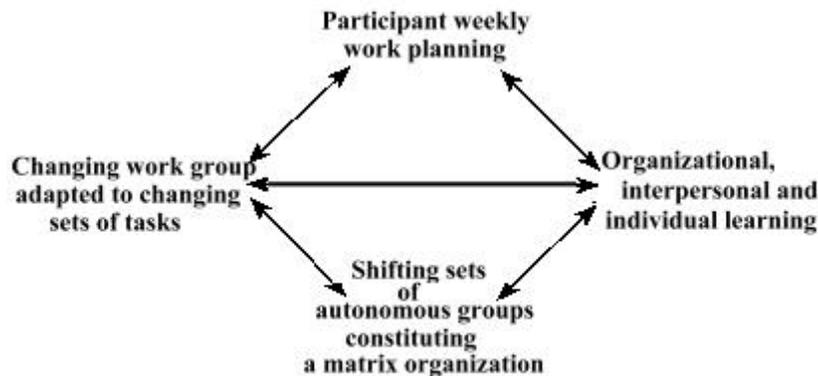
While there is a distinction between seniors and juniors both in terms of competence and ultimate responsibility, the rigid vertical, horizontal and territorial boundaries have disappeared. This development has been aided by the new layout and design of the office and living quarters and by the fact that work stores and service facilities are open to everyone. What has evolved is a ship in which the crew have accepted and taken joint responsibility for the running of the ship.

The central elements of the new structure are shown in Figure 1. The core of the new structure is the joint planning procedure that has evolved. This takes into account both the work requirements and the individual training needs of the crew. What is achieved is essentially a joint optimization of work and training requirements.

On a conventional type of ship where role and task specialization are given, planning tends to be little more than a mechanical job. This is not the case here. From week to week different autonomous-type task groups are formed based on the shifting sets of tasks. However, this does not entirely describe the actual work organization since, within the

## Figure 1

### Central elements of the joint planning structure



cooperativ

e culture, others

may join in informally to lend a hand. An officer on an inspection round, instead of noting some minor job that needs to be done, may just do it himself. The shifting set of autonomous work groups constitute a matrix organization. It is within this context of active involvement both in overall and detailed task planning, together with the work carried out within the structure of a matrix organization, that a continuous process of learning is maintained at the organizational, interpersonal and individual levels.

At present, the matrix organization encompasses most of the junior crew, together with the electrician and the repair man and to some extent the machine engineers. Most of the ratings and trainees are being brought up to the newly established level of ship technicians approaching a joint competence on deck and machine at the junior officer level. From there, the next step planned is the implementation of overlapping skills of deck and machine officers, thus arriving at a matrix organization which, apart from the steward department, will encompass

practically the total crew. The bottom-up strategy of change is here on the way to being successfully implemented. If it is so implemented, then this is because, in the course of the change process, the squeeze on--and resulting opposition of--the middle management level has been largely avoided by the development of consensus at each significant step of the change process and by the development of mutual trust. As a result, also, those who at a given stage were not primarily and directly involved in the change process did not feel that other crew members might be engaged in actions which were counter to their interests.

So far only the organization on board a ship has been considered. However, the changes would not have been possible without requisite and critical changes in boundary conditions. These have altered to some extent the relationship between the ship and head office.

A major aim was to provide the conditions for achieving increased stability of the crew. The following operating principles have been implemented:

*Flexible crew size.* The size of the crew can vary over time between 19 and 26.

An average of 23 is to be maintained.

*Vacation plan.* Each crew member is entitled to three months vacation. Vacation absences are planned on a yearly basis.

Both the above provide the conditions for personnel planning, a function which has increasingly been taken over by the ship.

*Inclusive overtime payment.* The monthly pay includes a fixed overtime payment for 14 hours a week.

*Balao* went through a difficult period in 1974. While a stable nucleus of persons has continued on board from the start, the haphazard "normal" replacement sent by the personnel department caused considerable problems. Two steps were taken: the planning conference was reorganized to provide more active involvement by the junior crew and more control was taken by the ship over personnel and replacement planning. A critical condition is that junior crew members be, as far as possible, willing and able to work both on deck and in the machine room and that they have, if possible, some technical school training. Over time, practically all the junior crew would be replaced by the new level of combined ship technicians (*skipsmekanikere*), who would effectively function as officer candidates. Stable vacation replacements were available for key ship's officers, including the captain.

Coming into the dock at Novoryssisk in the evening, one sees that everyone working on deck has the same yellow boiler suit. There is no way of seeing who are officers and who are crew. Both are working together on the ropes to get the ship tied up alongside the dock. The only difference is that one of the officers in each group has a walkie-talkie. Both the radio-telegraphist and one of the mess-girls have boiler suits as well, and the latter is shown how to work the winches. The job being finished, we go to the coffee lounge. One of the deck officers comes to join the radio-telegraphist, saying, "Thanks a lot for giving us a hand." He replies, "No need to thank me. I enjoyed it. It was fun."

Next day a staff member of the Russian Maritime Agency and a uniformed

official came to pick me up by car. On the way to the local airport we pass rows and rows of newly built apartment blocks. I mention that we have just the same. The Maritime Agency official looks at me and asks: "Do you know what is the most important thing in the world?" I ask, "What is it?" He says, "The most important thing is humanization."