



Working on the quality of working life: Developments in Europe

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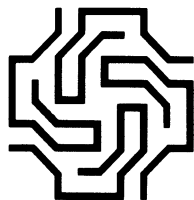
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Developments in Europe

International Council for the Quality of Working Life

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The production of the report was financed by the German Marshall Fund, Washington, D.C. Its conception and design, with selection of papers on defined criteria and editing of the manuscript, was undertaken by a group of four 'correspondents':

Andreas Alioth, Switzerland
Max Elden, Norway
Oscar Ortsman, France
René van der Vlist, Holland

They were later joined by two others, Jenny Blake, United Kingdom, and Margaret Butteriss, United Kingdom. The introductory section and the final section outlining some experiences and tentative plans of the editorial group, are by Max Elden.

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PREFACE

In November 1975, the German Marshall Fund of the United States agreed to support a proposal from the International Council for the Quality of Working Life for study of 'cross-cultural communication' on developments associated with the quality of working life – a shared interest of the fund and the council. In early 1976 the council invited four action researchers, each from a major language area in Europe: Andreas Alioth, Switzerland and Germany; Max Elden, Norway and Sweden; Oscar Ortsman, France; and René van der Vlist, the Netherlands, to consider production of a joint publication which would make more generally available, at international levels, reports on innovative Q.W.L. experiences within individual European countries. The main task of the four 'correspondents' was seen as facilitating the exchange of experiences across international boundaries – it was left to them to decide which experiences, how these should be communicated, and how the project itself should be organized.

In early March 1976, the 'correspondents' decided at their first meeting to search informally, through their existing national contacts, for suggestions as to what papers might be of value to a larger and more international Q.W.L. readership. Decisions on the character of the proposed book publication, and further definition of the project itself, were at this point deferred. At their second meeting, some sixty suggestions from six countries were reviewed. Some forty of these seemed sufficiently promising (both in terms of content and the likelihood of write-up within the available time) to begin planning the overall project. At the third meeting, in November 1976, a final decision was made on the main form and contents of the book. The twenty individual project descriptions available at that time were reviewed and, in addition, a decision was made to include appropriate material from Italy and from the

United Kingdom. The Italian contributions came from Federico Butera, Stefano Mollica, and Guiseppe della Rocca. The British materials were assembled by Margaret Butteriss and Jenny Blake, who also undertook the final editing of the manuscript.

Clarification of their concern and modification of their objectives inevitably led the 'correspondents' to consideration of relevant national differences and similarities. Further, they came to a realization that a book would not, by itself, adequately achieve the project objectives, and that some continued contact and complementary activity of those concerned would be required. This could be initiated, they felt, by a conference built around evaluation of the papers and work recorded in their forthcoming publication; and plans to undertake such a conference are in fact under consideration.

There were other outcomes of these important discussions – for example, a realization by the 'correspondents' first, of profound differences in their orientations and experience in the Q.W.L. field; and second, of the wider significance of the criteria they decided to define and use in the selection of papers for inclusion in this book. More important, it became clear to them that these same criteria could also be seen as the minimum preconditions for effective and concrete innovations in the field of the quality of working life. These points on the social process and outcome of correspondent interaction are discussed later; they may well lead to other publications.

I should like to express the thanks of the International Council for the Quality of Working Life to the original 'correspondents' for the work they undertook, which went far beyond writing activity; to the two U.K. 'correspondents' who joined in the later phases; and to the thirty-three authors of the papers which form the main body of this book.

A last point; although it is both interesting and encouraging that, despite worldwide economic problems, the rate of development in the Q.W.L. field is high, this has also presented the familiar difficulty of a need to update some papers, written less than a year ago, to keep pace with events.

Einar Thorsrud, Chairman
International Council for the Quality of Working Life

SECTION ONE

INTRODUCTION

1. Project goals and approach: increasing actionable Q.W.L. knowledge

Max Elden *

Our general goal is to disseminate information of practical use in improving Q.W.L. activities in different countries. In other words, we want to help those interested or engaged in Q.W.L. developments in any one country to learn about what is going on in other countries that might be of use to them. To use the label 'Q.W.L. professionals' for such people might be misleading; we do not mean only academically trained researchers, consultants, or other full-time Q.W.L. workers. We mean also (perhaps even especially) union officials, managers, government officials and employees generally – in short, anyone actually trying to learn about improving Q.W.L. and engaged in new developments in the field.

From our preliminary research it became quite apparent that many Q.W.L. people and experiences which have surfaced within different countries in the last few years have largely failed to cross national borders. Helping to overcome the lack of connection between Q.W.L. people in different countries is the main purpose of this project in our eyes. What conditions are necessary to achieve this goal?

Simply making information on Q.W.L. activities in different European countries more generally available through some sort of publication seems to be a *first necessary condition*; but we think it insufficient by itself. Q.W.L. changes are embedded in action – ideally, in our view, action following an analysis of an organization or some part of it by the people working in it. In other words, action and research reinforce each other (i.e. 'action research'), for initiation of an effective change process requires something more than

*Institute for Social Research in Industry, Norwegian Technical University, Trondheim, Norway.

written material – it requires the development of a high degree of trust, sharing and support among those concerned. If Q.W.L. information is to cross national boundaries and be applied in a new cultural setting, then the people involved will have to know something of each other as people and as Q.W.L. workers. Therefore, a *second condition* for the effective international diffusion of Q.W.L. information is development of personal-professional relationships between Q.W.L. people in different countries. In this way, someone working in a particular kind of organization or on a particular kind of problem can better get practical, directly relevant, comments or information from the outside when they are wanted.

Q.W.L. changes do not happen in a vacuum, quite the contrary – if anything is clear in Europe it is that each country has its own distinctive pattern, of socioeconomic activity and of labour relations, to which Q.W.L. development must relate. While it is beyond the scope of our publication to analyse each country's labour relations, wherever a recently developed national strategy is in existence a larger historical and institutional overview may be appropriate. For example, the Scandinavian context and national programmes (such as official experiments) are generally known, but new developments (e.g. the new work democracy law and creation of a new work research institute in Sweden or the new Q.W.L. law in Norway) might not be generally known. The same could be said for other countries such as the United Kingdom, for example, where the Work Research Unit in the Department of Employment has a programme of ten field studies.

From this point of view, a *third condition* for effective cross-cultural communication could be the analysis, where appropriate, of the context as well as the content of new Q.W.L. strategies and/or institutions in a particular country. To achieve these three conditions we need a way of organizing information exchange that increases both the level of knowledge and the level of personal-professional relationships between Q.W.L. people in different countries. Hitherto international exchanges among Q.W.L. professionals have been limited; and the international council itself grew from a desire to develop the field as rapidly as possible without

bureaucratizing it. What initially existed was a rather loose ‘network’ of people with many years of active interest in Q.W.L. activities – one or two from each country. The facilitation of international exchange, in this new and rapidly developing field, will certainly be improved by including in this network more people with relevant experience.

Developing criteria for selecting project reports for publication

Given the concern of the ‘correspondents group’ for social process – a matter to which we return in the final section of this book – the organization and development of the project was as important to consider as its substantive focus. We chose to start from our respective home bases and proceed through informal contacts, building as much as possible on existing local and national ‘networks’. We have been able to define a point of departure, to identify the main criteria for selecting material for publication, and to recognize the much wider significance of these criteria.

We did not expect to include descriptions of all projects that might be deemed innovative. Each of us is connected to a particular institution in his home country and has a particular network of professional contacts, so our initial search had some practical limits: it was neither extensive nor exhaustive. It did not need to be, for the publication is intended to be a selective guide, not an exhaustive encyclopaedia. Indeed, with relatively little and rather unsystematic effort, we found considerably more material than could appear in a single volume. We needed to devise criteria to select the material to be included; and as we went through the initial list of some sixty-odd suggestions there was little difficulty in identifying which ones sounded interesting and should be included in the book.

When we had identified these we asked ourselves what they had in common. All, of course, had something to do with a systematic and educative effort over time to improve the conditions of work by increasing the developmental possibilities of work and work situations. This is what we meant by action research to improve

Q.W.L. Within this we sought a more limiting set of criteria. These turned out to be six in number:

1. *Innovation.* The project should present something new, from Q.W.L. frontiers in Europe. For example there are descriptions of new areas of application such as hospitals; new trends such as action researchers working exclusively for unions; new government Q.W.L. policies such as the German 'work humanization' programme and its shop-floor projects; and new professional problems such as the democratization of 'expert' roles in the field of organizational change.

2. *Democratic-humanistic values.* The projects reported did not aim exclusively at technical-economic goals of efficiency, but included some noneconomic goals such as increasing work democracy or decreasing work alienation. In other words, the projects were directed at some broadly political ends, in the sense of increasing the general welfare of workers, of the organization concerned, of the surrounding local community, and society in general. At the core of such an effort we would expect to find increased worker participation in decisions over day-to-day work life, and some change in the power structure towards less inequality. We have not included cases where change has been unilaterally imposed (either by researchers or managers) and we have included cases where people whose workplace is being changed have some say in these changes. We also have descriptions of cases where government programmes change formal power relations (e.g. in Norway and Sweden, where laws have recently been passed requiring work representatives on boards of directors). In the shop-floor action research projects there can be seen at least two characteristics of a participatory redesign process:

a. *Nonbureaucratic organization.* The change process itself is not bureaucratically organized. People's ordinary position in the organization does not automatically determine their role and position in the change process (e.g. examples where a worker

or shop steward rather than a manager or a personnel officer leads the redesign team).

- b. *No expert in charge of change.* The change process is not controlled by an outside specialist whose job it is to make changes for other people. The expert role is temporary and short-term, often limited to just the start-up (e.g. at a 'participative design workshop') and some critical points under way (e.g. at a planning or evaluation session), but is not so much as to impede the participants themselves from managing their own change process.
3. *View from the inside.* Part of the reason for seeking accounts written by people who have experienced the change process was our hope that we would in this way get a more complete picture. We encouraged people to write from their experience, including especially the results of their having reflected on that experience.
4. *Concreteness.* Since we are concerned with change, we invited clear and specific descriptions of what exactly changed, avoiding such abstractions as, for example, 'delegation of authority'. Who was sanctioned to make what kinds of decisions he or she could not make before? Describing the sequence of events in the action research process over time was important, since we assumed that all action research takes at least something in the order of a year or two before producing much of substance to evaluate. We wanted not merely to hear that there had been an evaluation phase but rather to hear what was evaluated, by whom, and with what result. Here, in contrast to the 'insider's' reflections stressed in the preceding criterion, we sought a factual, objective account of what actually happened.
5. *Impact.* Description of the consequences of the project was important, especially if these were not immediately obvious, in the particular context or setting in which they had occurred. Here we were thinking of local impact in the experimental unit itself, impact in the host organization (i.e. diffusion of experience within

the organization concerned). At an early stage of a nationally developing Q.W.L. strategy an experiment may have more significance nationally than within the host organization (e.g. the first field experiment in Norway in 1964 at Christiania Spigerverk). In the case of several projects reported, the major impact, at least initially, seems to have been within the project itself (e.g. in establishing the conditions for a self-sustaining learning and change process).

6. *Context.* We stressed the significance of the influence of particular organizational or national contexts acting as limiting conditions in the project (e.g. conflict between different unions at the same plant, in contrast to the high degree of union membership and long tradition of labour-management cooperation in Scandinavia).

These six criteria are not the only features that may be important in any project; nor do we expect each case write-up to cover all criteria with equal thoroughness. We tried to specify minimum rather than maximum criteria; but the complexity of this can be seen, for example, in situations where a new factory is set up and in which there are no operatives in existence at the planning stage.

The original four 'correspondents' have grown first to six and later to thirty-five. The changing objectives of the project, and their development, are discussed briefly at the end of the book. They have considerable importance.

SECTION TWO

QUALITY OF WORKING LIFE IMPROVEMENTS IN EUROPE: NATIONAL PROGRAMMES AND PERSPECTIVES

2. The action programme of the German federal government: Research on the humanization of working life

Werner Menden *

On the political background of the programme

For decades in some countries there have been scientific investigations and experiments by firms on the improvement of working conditions. However, since the beginning of the seventies, industry, unions, and also governments have increasingly concerned themselves with the problem of working conditions by means of concentrated measures and programmes. This is an expression of a profound reorientation process in the economy, society and politics. For centuries engineers and planners have optimized production processes and working conditions primarily in accordance with technical and economic criteria. Capital, knowledge and creativity were invested to a truly gigantic extent in order to bring Western industrial society to the level of economic and technical efficiency which it is at today and which still ensures us our high standard of living and our economic dominance in many areas of the world economy.

Unfortunately this development was accompanied by a considerable shortage of investment in the improvement of the *social* quality of work, that is towards a *humane working structure* of democratic organization and participative structures in the working situation.

The reduction of this deficiency is the objective of the community and social policy of the federal government in which is embodied the research programme discussed here.

* Federal Ministry for Research and Technology, Bonn/Bad-Godesberg, West Germany; now, Counsellor, Scientific Affairs, German Embassy, Washington, D. C., U.S.A.

Before I go into the objectives and focal points of the programme, may I indicate some *basic social and economic conditions* which presently confront the national economy as a whole and which influence our policy of humanization as partly stimulating but also partly limiting or decelerating marginal conditions.

In this context mention should *first* be made of the *new consciousness* of the *central role and significance of work and labour* which has existed for some time, both here and in many other countries. This applies both from individual points of view and from economic perspectives: not only have psychologists and sociologists proved to us – in my opinion beyond a doubt – what a narrow positive connection exists individually between opportunities of being effective and gaining skills in the work process on the one hand and the spiritual and social activity of the person on the other, but in the present world economic situation it is made daily more clear to us by energy and raw materials crises that labour and the willingness to perform at a high level, the knowledge and the creativity of our working people, are our only strong national resource, which we in the Federal Republic can put to use now with a view to the future in the ever sharper competition in the world markets. We can therefore not afford, either today or in the future, the exhaustion of these national resources by premature attrition or by a skill potential largely unused.

Against this background one can understand the special significance which is accorded to the humanization programme today by the federal government within the framework of community and social policy.¹

A second basic condition concerns the *critical disturbances in the development of the world economy* which today are becoming recognizable everywhere. Many economic researchers are convinced that the oil crisis of 1973 has simply acted as an accelerating factor by revealing a series of structural crises at a deeper level; in the wake of this development many countries see themselves confronted in the long term with a general economic weakness, with currency and

1. The annual budget climbed from DM9 million in 1974 to DM30 million in 1975, DM44 million in 1976, DM70 million in 1977, and DM90 million in 1978.

employment problems and stagnating growth. The imminent sharpening of the conflict between the industrial countries and the countries of the Third World acts as a further factor of uncertainty in the assessment of the long-term competitive chances which we and other industrial countries now have available.

This *basic condition* also seems to have *direct relevance for our programme of humanization* in general, and for our efforts towards a humane work structure in particular. Although the reasons appear to be obvious and are discussed in many places today, it seems to me that to a large extent there is still a lack of willingness to draw the appropriate conclusions. I would therefore like to consider the context again briefly.

Because of the developmental trends in the world economy, mentioned above, we find ourselves today at the beginning of a *structural change* in the *type of goods* with which the Western industrial countries can remain *competitive in the long term*. The developing countries are increasingly taking part in the production of cheap mass-consumption goods and also of simple capital goods and in many cases will also claim for themselves the first stages in the processing of raw materials in the basic industries. There therefore arises for Germany, as a highly developed industrial country, the *necessity to intensify technologically high grade products* with higher value creation. From here there is now a *straight path to work structuring*, for *such production requires increasingly high grade jobs* which again require skilled committed workers who, not only because of their abilities and knowledge, but also because of their scope for effectiveness and responsibility on the job, are willing and in a position to fulfil the demands of such jobs.

I believe that in this context one must be absolutely clear that here as in other countries there is a natural distribution of ability and therefore *even in the distant future alongside jobs with very high demands we will still have a large number of jobs with comparatively low demands*. I am correspondingly convinced that it would be false and dangerous to stake everything too one-sidedly on 'high technology' products. It will be that much more important to do more for work

structuring also in the area of the production of items at a medium technological level.

I now come to a *third basic condition* which in the last few years has been acquiring increasing influence on governmental action, particularly in the sphere of social policy: I mean by this a basic trend running right through all the social strata and occupational groups, which one can formulate briefly as a *demand for a higher quality of life*. It is certainly not only a case here of a new magic formula as a substitute for obsolete, euphoric, growth ideologies but of a genuine new focal target for national policy as a reaction to the increasingly manifest desires and ideas of practically all social groups. The improvement in particular of the quality of *working life* *has always been a crucial duty of social policy*; but *in our economy too* we find that in the discussion on business targets, beside the classic – I might almost say already obsolete in its predominant significance today – target of the maximization of profit, other partial targets, attributable to the sphere of quality of life, are coming more and more to the forefront: I mention here only the maintenance of jobs, the improvement of social benefits, or the structuring of working conditions. Finally in the national sphere the creation of humane working conditions is not new as an important political duty: since 1969 the federal government has always named humanization in its governmental declarations as a duty to be carried out with priority. Apart from a policy on social employment the total national strategy for this area also includes a series of laws and decrees of which I would like to mention here, the Co-determination Law, the Safety at Work Law, and the decrees on workplaces and dangerous industrial substances, by way of example amongst many others.

Within this framework the common research programme of the federal minister for employment and social order (BMA) and of the federal minister for research and technology (BMFT) takes on the role of deepening the knowledge we have on working conditions, of initiating by way of example the organizational and technological developments for the humane structuring of jobs and of ensuring their widest possible application in industrial practice.

Objectives and strategies in research policy

In the research ministry, we are pursuing a double strategy for this programme. Firstly we are concerned about the reduction in the physical and psychological stresses and dangers arising from physically heavy work, unbalanced demands, harmful environmental influences such as noise, heat and dust, and 'inhumanly' constructed work places and working equipment. The aim of our research in this field is directed primarily towards protection of people against injury and damage by 'overloading'. Beyond this 'biological' dimension of humanization the programme is aiming at an improvement in the 'social' quality of work. By the introduction of new 'work structures' we are here moving towards the reduction of psychological and social stresses which arise from the organization of the work processes. Within the industrial initiatives which we have promoted as models, the expansion of the job content, that is 'job enrichment', including the incorporation of planning and supervisory activities, and experiments with partially autonomous groups, are being undertaken.

In carrying out the programme we concentrated first on the problems of industrial workers and in particular those mainly from the areas of basic industries and metal processing. I would like to mention some examples from these specific areas:

Examples of projects

In the *mining industry* we are promoting three fairly large sets of projects, each of which has several individual aims; for example, the improvement of ventilation with the objective of reducing stresses arising from heat and the methane; the development of exposure to dust extraction equipment for underground road-heading and extracting machinery, with the urgent objective of effectively combating the dust increasingly produced in the wake of the automation and mechanization of mining technology; and a series of measures for the better ergonomic structuring of jobs underground and the increasing of safety at work.

A second important project concerns the problems of the combined

stresses of heavy work and environmental influences in the iron and steel industry. Here we are promoting projects for the reduction of the extreme stresses in foundries and fettling shops; in other projects the combined effects of heavy metal dusts and gases are to be investigated; in a third project the different stresses in the metallurgical industry are to be studied systematically.

Earlier *research into stress* concentrated mainly on the investigation of nervous and mental stresses as they occurred in managers, air traffic controllers, bus drivers and other occupations under permanent or intermittent pressure of time and performance. However, the concept that monotony, permanent psychological and physical underemployment, the lack of opportunities for creativity, and low social recognition also constitute stresses of a high degree is a relatively new assumption, and the consequences of such stresses for the health of industrial workers has not yet been the subject of much scientific research.

The objective of one research project is therefore 'the development of methods and models for the analysis of behaviour under stress in working situations'. In this project the emphasis is on the analysis of critical stresses, the determination of risk factors caused by the work place, and the different patterns of behaviour which are observed in the workers as a reaction to the often 'negative' work environment.

From a different perspective, '*technical assistance in the work place*' aims at the reduction, by technical means, of heavy physical work and monotonous, machine-based work. In several projects in different branches of German industry, power amplifiers and automatic manipulation systems (i.e. industrial robots) are being developed for work places. A glaring example is the production of television tubes which is characterized by monotonous, heavily and unequally loaded work, oppressive heat and an increased risk of accidents from occasionally imploding tubes. In this case a decisive improvement in the work place by means of ergonomic measures or safety technology by BMFT in the AEG-Telefunken colour television tube factory is therefore the development of an automaton which will take the place of the human being.

In the field of *work organization measures* I would like to mention a few experiments in the electronics industry and in automobile production where new work structures are being introduced.² The partial objectives of these projects are:

- the abolition of phased production line systems;
- job enrichment for assembly workers by the addition of planning and monitoring activities;
- the examination of different concepts of group working in conjunction with the reduction of hierarchical structures;
- the development of work structures in which the workers become progressively more highly skilled.

In a special project which is currently taking place in an engine factory of Volkswagen AG in Salzgitter the possibility of the assembly of a complete engine by one man in one working process – which may be reasonable and economically justifiable – is being studied. This process corresponds to a work cycle time of over two hours and therefore to a fivefold increase in the cycle time now experienced in the Swedish Volvo situation.

Finally, a project in which workers themselves want to plan and develop new, humane work structures is taking place at a machine and screw factory (with the assistance of some social scientists). The group of machine operators in screw production, who are at present in monotonous, phased individual jobs, are trying to bring about a new structure in their work in accordance with their own concepts and ideas – with some possible later help from the company's engineers. The social scientists are concerned primarily with providing advisory services and organizing the necessary induction and training seminars, and assisting in the process of forming groups.

2. The report of the project supervision body (*Projektträgerschaft*) dated 31 December 1976, lists five companies involved with concrete changes of the work organization:

1. Peiner Maschinen- und Schraubenwerke AG, Peine;
2. Volkswagen AG, Salzgitter;
3. Robert Bosch GmbH, (with five plants);
4. AEG-Telefunken, Frankfurt;
5. Hoppmann GmbH–Kfz-Handel, Siegen.

The type of basic initiative in this project seeks to overcome the difficulty of activating the machine operators' own potential, so that his own creative, planning and structuring abilities are used. It should have a high chance of success and could then be tried elsewhere.

Future focal points of the programme

In 1976 the discussion of the advisory committee of the ministry – the Special Committee on the Humanization of Working Life – has particularly covered the *future orientation of the programme and priorities in the content of the programme*.³ Eight representatives of the unions and of the employers' associations, and seven specialists from different disciplines, belong to this committee, which at present is under the chairmanship of Professor von Ferber, a doctor of social medicine. The committee advises the ministry on all important questions concerning the programme. Within the committee a considerable amount of confrontation takes place between the different interest groups represented concerning the objectives of the programme and the procedures for implementing it.

During the autumn of 1976, the committee presented to the ministry a paper on focal action points for the future, which are as follows:

1. The handling and planning of the programme should be developed and promoted more intensively, with the objective of enabling employees to acquire 'higher' skills.

3. In June, 1977 the Federal Ministry of Research and Technology published the annual report for 1976 on its programme of research and development for humanization of working life. The report, of fifty-eight pages, covers three main topics in some detail: first, 'development and structure of the programme'; second, 'organisation of the outcome of the programme'; and third, 'promotional measures'. There are final sections on: 'the difficulties of promotional activities' ... 'over the research programme' and over ... 'relationships at work'; on 'improvement of the content of work; the relationship of one task to another'; and on 'excessive and inadequate demands of a physical-psychological character on the individual'. The report is obtainable from: 5300 Bonn/Bad-Godesberg, Kölnerstraße 64, German Federal Republic.

2. Ways should be sought of abolishing extremely 'onesided stresses', particularly in the area of repetitive, short-cycle employment.
3. Measures for the reduction of *combined* physical, psychological and social stresses should in future have priority.
4. In conjunction with these three focal points investigations should also be promoted into other work conditions which could also further the action programme, insofar as these could be influenced by the actions of both unions and government – for example, investigations into the possible connection between remuneration and work organization, and between the action programme and laws and decrees. The investigations should contribute towards the strengthening of conditions supportive to the humanization of work and the concomitant reduction of conditions which may restrict such situations.
5. A further focal point should be the allocation of assistance for direct action in the field – for example, support for training measures, in connection with projects, by both management and trade unions.

Criteria for the promotion of research projects and industrial initiatives

The projects should lead to results which are practical or which make intrinsic contributions to further 'actionable' ideas in the field. In numerous areas there is a need for work-oriented scientific knowledge; it is, therefore, an important objective to close the gap between research and action. Projects also deserve promotion:

- if they refer to 'representative' jobs, or if they serve to convert present knowledge into usable employment practice – they should be so planned that the *transferability* of the results is made possible;
- if the research and developments plans have new or essentially improved concepts and procedures as their subject;

- if different working conditions are taken together and not in isolation, so that there is an integration of various specializations;
- if all the recognizable effects of the intended changes on the working situation will be made available; that is, with regard to stress, skill, safety at work, remuneration, and so on;
- if the implementation of the project has a high scientific or technical and economic chance of success.

3. Q.W.L. developments in Holland: an overview

Hans van Beinum and René van der Vlist*

Historical background

Applied research and action research concerning the quality of working life in the Netherlands started shortly after World War II as research focusing on increasing job satisfaction and morale (Ydo 1947). In this, Dutch researchers were clearly influenced by the Human Relations School. Applied research focused during this period mainly on what we would now call the consequences, for individuals and groups, of individuals' increasing alienation. As an example we could mention the sickness absenteeism studies of the Institute for Preventive Medicine at Leiden, which were in the forties a major concern of researchers in the field of social and industrial medicine.

This focus on the individual shifted gradually during the fifties. As far as absenteeism is concerned the first steps were taken by researchers in the field of industrial medicine.

By the end of the fifties, and based on impressive statistical material concerning absenteeism in about 350 companies (with a total labour force of roughly 300,000) researchers at the Institute of Preventive Medicine concluded that the differences in absenteeism between companies were such that there had to be a relation between it and organizational factors. This marked the shift in focus from the individual to the organization as a whole, and from the individual as an absentee to the relation between organizational

* H. J. J. van Beinum is attached to the Foundation for Business Administration, Delft, and the Erasmus University, Rotterdam; René van der Vlist to the Social Psychology Institute of the University of Leiden. This paper is based on a previous one entitled 'Trends and Developments with Respect to the Quality of Working Life in the Netherlands'.

variables and social and psychological consequences for the employees, of which absenteeism is but one (van Beinum 1963). One major example is the research done by H. Philipsen, who compared 83 middle-sized organizations with respect to their absenteeism rates (Philipsen 1969).

During the fifties there were frequent contacts between the Netherlands Institute for Preventive Medicine and the Tavistock Institute of Human Relations in London. These contacts have been very fruitful and meant that at least on the level of applied research the Dutch soon were ahead of most other continental nations.

One of the researchers of the Institute for Preventive Medicine was H. A. Hutte, who started in 1954 a diagnostic field project at the Netherlands Postal Cheque and Clearing Service. This research project developed into an organizational change project in the form of a field experiment, the first on this scale in Holland. It is this change project, initiated by Hutte and later on developed and directed by H. van Beinum, which became the starting point for a stream of research and action research activities that has since then marked Dutch development. The work of Hutte and van Beinum was clearly influenced by the work of Trist and Emery at the Tavistock Institute of Human Relations in London. In 1963 van Beinum became a senior researcher at the Tavistock Institute, shortly before the publication of *Een organisatie in beweging* [An organization in motion], which is an extensive report of the research project which has just been mentioned (van Beinum 1963).

The period between 1962 and 1966 was an important one for the Dutch. As is clear from the description of the work of Hutte and van Beinum several possibilities were open for further research and action:

1. It became clear that the content of the relation between a worker and his task is very important (it has been in the Philips concern especially that many experiments have been made on 'work structuring' as it was called – experiments based on the theoretical work of Drucker, Davis and their co-workers).
2. It also became clear that the relationships between workers them-

selves are important. Two contrasting modes in this could be expressed as questions:

- a. Should work be organized in such a way that the intermediate relation between a worker and the organization is through a stable, formal, working group with semi-autonomous possibilities and matched leadership? Or:
 - b. Should work be organized in such a way that the relation between each worker and the organization might be seen as reflected by a blueprint of the organization in which each worker is linked to the organization by means of a prescribed role description which treats him as relatively independent of his co-workers, but has a leadership system responsible for enforcing coordination between these 'independent' parts?
3. Linked with what was called 'participative organic leadership' was the question of consultation, participation in decision-making and delegation of command, with such basic questions as 'How far?' and 'With respect to what?'. These formed the starting points for further developments in this direction.

One of the first developments with relative autonomous groups was a second field experiment with the Dutch Postal Cheque and Clearing Service conducted by van Beinum et al. (1967). This project was made possible because of two developments:

1. The automation of an important part of the administrative system of the Postal Cheque and Clearing Service confronted that system with problems concerning the design of jobs and organisation of work situations.
2. Since 1954, the Dutch Postal Cheque and Clearing Service had had considerable experience of cooperating with social scientists.

Recent developments

In Holland developments in the field of activities in the area of the quality of working life, where the relationship between individual

and organisation are of central importance, have the following characteristics:

1. A shift from concern only with the individual to concern with the meaning of the quality of working life for the total organization (total system approach);
2. A shift from appreciating the organization as a social system to understanding the organization as an open sociotechnical system;
3. A shift from recognizing only social and psychological factors to becoming aware of the crucial meaning of values;
4. A shift from planning for and with the organization by internal and external experts to a process of participative engagement by the people directly and individually concerned, inside the organization;
5. A shift from being concerned with a clearly defined experiment to becoming involved in a continuous process of personal, role and organizational learning;
6. A shift from optimistic ideas about the feasibility of quick changes, and the measurability of complex human behaviour, to a realization of being part of a never-ending conceptual and experiential process, involving 'blood, sweat and tears'.

One example of these recent developments is the approach taken by the Royal Dutch Shell laboratory in Amsterdam, in collaboration with van Beinum. In this case a quality of working life programme has been developed as a crucial part of an overall strategy for developing the organization. In this programme the quality of working life is defined as being concerned with the quality of the content of the relationship between man and his work situation (van Beinum 1975b). It is based on the notions that:

- Man is a purposeful being, who requires, in terms of job design and work organization, the fulfilment of specific social and psychological needs pertaining to his work, i.e. adequate 'elbow room', chances of learning on the job, an optimal level of variety,

conditions where he can and does get help and respect from workmates, a sense of the meaningfulness of his own work, and the feeling that the job will lead to a desirable future.

- The organization is an open sociotechnical system, which requires joint optimization of both the technical and the social system and the capability for active adaptation with regard to its environment.
- An environment which will increasingly be characterized by complexity, unpredictability and turbulence.

The programme further recognizes that it is essential for advancing the quality of working life to understand the nature of the interdependence between the three systems mentioned above, i.e. man, organization and environment. The nature of these interdependencies leads to recognition that it will be critical, for both man and the organization, to develop the competence to avoid maladaptive defences and to enhance active adaptive behaviour. It emphasizes the process of organizational learning and the necessity to develop a flexible learning organization. It leads to the establishment of relative autonomous groups, relative self-regulating organizational units, based on minimum critical specification design (van Beinum 1975a). A maximum of organizational and managerial transparency, such as visibility of roles, of behaviour, of objectives, of usage of means, of competences, and particularly of values, will be a condition for developing a quality of working life approach.

To understand the nature of the actual approach in this programme of the Royal Dutch Shell laboratory in Amsterdam it is important to appreciate that the principles and values underlying the concept of the quality of working life were incorporated in the methods used. This meant that the persons concerned were actively involved in the analysis, evaluation and restructuring of their work situation according to the basic social and psychological needs mentioned above by means of a process of active participative redesign (Emery and Emery 1974).

This particular method has now been used as part of an overall organization development strategy in the two parts of the labo-

ratory dealing with the interface between research and technical services. The redesign exercise resulted in the setting up of relatively autonomous groups for the design and building of a large unit and for the flow of medium-sized and small projects. The quality of working life activities in this case must be seen as integrated, as crucial parts of a total system approach which includes such things as the involvement of the works council, making explicit and working through of organizational objectives, and various specially designed individual and organizational learning processes.

A further important and distinct development in the Netherlands was initiated and developed by van Zuthem in 1966 and 1970, then of the Free University of Amsterdam, and by his co-workers, in a series of experiments. This approach is characterized by the fact that 'broadening of responsibility in work' and 'industrial democracy' are of central importance. These studies were formulated in terms of power relationships and of ethical and political values (van Zuthem 1963).

'Right from the beginning the orientation has been sociopolitical and directed towards changing decision-making processes, at first only at the lowest level, later at every level in the firm' (van Zuthem, ed. 1971). Van der Does de Willebois (1973) puts it as follows:

The socio-political dimension has been discerned and recognised from the beginning. The problem of continuity is posed in this context and thus made explicit for discussion, which is also a considerable advance. Consequently, the importance of participation by the workers themselves, and by their representatives in starting experiments, is stressed; trade unions are invited, which distinguishes this way of approach significantly from the other two 'schools'. As a consequence the importance of values and ideological dimensions are also stressed. And finally, after thorough analysis of these experiences and those gained elsewhere, the problem theoretically has been boiled down to a problem of power relationships within the work organisation and the enterprise, seen as a whole, with conclusions which have been drawn for the strategy of approach. Thus, conditions are formulated in advance upon which experiments are to be started with scientific support. A fundamental weakness of the socio-technical systems approach as applied in the Netherlands generally, and apparently in favour there also with Philips, thus appears to have been overcome by van Zuthem. The problem of organisation development is seen more realistically, on the one hand, and, paradoxically, less realistically on the other. For discerning and recognising socio-political dimensions, including values and ideologies, does not necessarily need to imply scientifically that values are to be treated, stressed and even claimed as independent variables. In concrete social situations values as such cannot represent a social relationship (De Sitter 1971). Such a treatment tends to operate from fixed presumptions and interpretations of the role of values in social relationships, and thus tends to stir emotions more than thought in scientific and policy discussion.

To summarize: democratization of the workplace is not necessarily the same as industrial or social-economic democracy. It nevertheless can be seen (and is seen within the Tavistock tradition) as a necessary step on the way to industrial democracy.

The role of trade unions and works councils

Van der Vall (1963) has described the great changes during the last fifty years which have affected the role of the trade unions in modern societies (see also van Beinum 1966). As a result of the rise in the economic position of the workers and of the changes in their socioeconomic environment they have developed a different mentality. With change in their 'need-structure', their basic outlook has been modified: the feeling of a collectively shared fate has decreased while individual and situationally determined problems have become more important. Matters are more and more evaluated in terms of private rather than collective needs. Instead of the traditional dichotomy of a working class and a capitalist elite, social structure is much more complex. It is of particular importance that the state accepts increasing responsibility for conditions of full employment and economic and social security. These changes of the last fifty years had a profound effect on the background ideology of the trade union movement; nevertheless the ideology of the class struggle is not really replaced by a new ideology. The consequence is that the trade unions are losing their identity. This is intensified by the fact that the unions somehow from the beginning have failed to adapt to such new legislative measures as the Works Council Act of 1950. Though the mentality of the workers has changed towards an increased focus on more personal and situationally determined problems, the trade unions have developed in an opposite direction: the internal functions, focusing on individual members, have decreased while the external functions (with regard to the total society and workers in general) have increased. In 1966 van Beinum wrote:

It is the neglected area of work organisation on the shop floor, where the individualisation of the needs of the workers manifest themselves, which is the new area of opportunity for the

trade union. The extent to which the trade unions are able to recognise these situationally determined needs and, moreover, the way in which they are able to relate themselves to them, will determine the relationship between the modern trade union and its members and thereby the overall functioning of the trade union organisation (van Beinum 1966).

However, Dutch trade unions have not as yet exploited this possibility. Instead they have shown the deepest distrust of the virtues of developing new forms of job design and work organization.

To put it otherwise: the trade unions have as yet not shown any active interest in the kind of experiments we have briefly discussed. One might well ask why this is the case; and we venture three possible explanations:

1. As far as we can see a majority of social scientists acting in an advisory capacity to the trade unions have traditionally been sociologists and not social psychologists. Sociologists (at least in Holland) have traditionally accentuated the formal aspects of indirect participation and the structural aspects of society at large. Dutch social psychologists, however, have always been more interested in direct participation and in societal processes (van der Vlist 1971). Though this is perhaps a daring proposition we venture to say that by choosing sociologists as advisors the trade unions may have developed a biased outlook on the essential possibilities of 'democratization of the work place'.
2. A second explanation can probably be found in the rather weak position of the trade unions. They cover only about forty per cent of the work force and are at the same time divided among three confederations (socialist, catholic and protestant). This means that the actual influence of each trade union within a single organization or firm is rather limited. In such a situation cooperating with management could mean that they can be held responsible for developments which could easily be beyond their direct control. Beyond this, the fact that in the past trade unions have often been bypassed in company work-structuring experiments may have made them suspicious.
3. The fact that any trade union within a single organization or firm has, as yet, a rather weak position prevents the unions from being

active on the level of the single organization. This holds true not only with regard to 'democratization of the work place' but also with respect to the legally based works councils. There is, however, a more fundamental explanation of the rejective behaviour of the majority of the trade unions (with their different ideology this does not hold for the protestant confederations of trade unions, the CNV). The socialist and catholic confederations (together, the FNV: the Federation of Dutch Trade Unions) interpret society as a capitalistic order in which the capitalists, the employers, have to be treated as opponents; and in no way should there ever be any collusion or cooperation with employers, and certainly not on the level of the individual firm. The only possible way to approach employers is by tough negotiations over primary and secondary working conditions, preferably at national level or that of the industrial sector.

The 1950 legislation on works councils created in each firm with at least 100 employees works councils whose main goal was originally formulated as follows: 'The Works Council has as its objective to add to the effective functioning of the enterprise, to the best of its abilities, acknowledging the independent function of the employer'. In 1971 the scope of works councils was enlarged. Works councils now have the right to participate in decision making with respect to profit sharing, pensions, working hours, holiday regulations, and measures with respect to health, safety and hygiene. They must now be consulted when decisions are taken with respect to payment levels and other wage regulations, training programmes, personnel evaluation systems, promotion, dismissal and recruitment policies. They also have a limited right of advising when important decisions are considered – for example, mergers, takeovers and closures. To fulfil these functions works councils now have the right to consult experts within and without the organization, and to take part in training programmes. Van der Kruijs (1971, 1972) came to the conclusion that under the new law works councils could increase their influence on the organization at large, provided they were able to exploit the possibilities the new law offers. According to van der

Kruijs this would only be possible with the active support of the trade unions. Such active support has not materialized; on the contrary, there have been occasions – small in number but important – on which works councils and trade unions have come into conflict. The trade unions were operating from a national and branch level in terms of their well-known doctrine that employers and labour are permanent opponents, while works councils were inclined to find concrete solutions for concrete problems on an organizational level.

The law on works councils will probably be changed once more. The socialist and catholic confederations try to limit the role of the present works councils, and the functions of these future works councils, to that of passive employee representation, with no trace of responsibility for the management of the organization at large. Provided the trade unions are able to dominate the future works councils they then will have a third level of negotiation: the individual firm; and if the trade unions do not succeed in this respect difficulties may be foreseen between works councils and trade unions (van Dun 1976). To minimize these it is understandable that trade unions try to limit the consultative functions of the works councils with respect to management, for consultation might again lead to situations where trade unions and works councils oppose each other.

To summarize, it is regrettable to record that for the time being a majority of the trade unions do not seem inclined to contribute to what is called ‘democratization of the work place’, nor to any other programme that approaches the organization as a single system, as one sociotechnical unit. On the contrary, they are inclined to treat society, as well as each single organization, as two-class structures. One might wonder whether an approach like this in the long run will not become a self-fulfilling prophecy: ‘the capitalistic system is being kept alive’.

New governmental initiatives

On 28 May 1973 the Dutch government declared that a programme

of scientifically guided experiments on participation in decision making by employees through shop floor consultation must be stimulated. Based on this, in April 1974 the Minister of Social Affairs appealed to the productivity committee of the Dutch socioeconomic council to prepare five to ten organizational experiments, with different forms of participation in decision making. It was stressed that a variety of possibilities and approaches to the problem were to be tried out. To base such a programme of experiments on as much knowledge and experience as possible, the productivity committee decided to begin by an evaluation of various projects and experiences of the past ten years; and their report on this appeared in December 1975 (Scholten 1975). The evaluating research group, mainly sociologists, and with a rapporteur who was also a sociologist, defined participation in decision making as:

The extent to which the relevant participants in a work organization have the possibility to stress their definition of the situation; . . . participant decision making means having the possibility to bring one's own interests and topics to the forefront and to influence decision making concerning them. In discussing participation then this means primarily over problems which are personally experienced by the members of the organization.

The general conclusions drawn by the evaluative group were not too favourable to the shop floor consultation projects and the work structuring projects which they studied. The continuity of the projects through time appeared low. Initiative was mostly taken by management or by a social science research team. The impact on the organization at large was rather small. Their views are, however, consistent with the observation which researchers on work redesign experiments have made for themselves; and this has also been noted, as far as the Philips company is concerned, both by management and by the central works council.

To summarize, the recommendations of the evaluating research group are these:

1. Experiments focusing on participation in decision making can only become successful when the starting point is chosen within the definition of the situation of the relevant workers themselves.

- In order to reach this all the workers concerned must have the possibility to put forward the problems as they experience them.
2. In an open discussion with all the participants involved, priorities must be agreed upon, on which any experiment has to focus. One should not limit these to problems concerning the direct work situation.
 3. Experiments should be encompassed within a more complete change philosophy. As far as possible, starting points and goals should be laid down in a contractual form. The change policy has to be based on prior research during a preparatory phase as well as on periodical evaluations of the project in which all participants are approached.
 4. Projects should be guided by a steering group in which all the participant groups are represented. The end responsibility should be given to the works council. Trade unions should also be involved.

Future developments

It is difficult to speculate on the future developments, in Holland, of activities concerning the 'quality of working life', mainly because it is as yet unclear which position the trade unions will take. With respect to a small number of points, however, we can be clear:

1. Work structuring and job enrichment experiments as they have been carried out in the past will no longer suffice. They will certainly have to be embedded in a philosophy of change of a broader scope. The first indications that we shall have these can already be seen.
2. Projects focusing completely on the grievances and wishes of workers themselves will easily become failures, especially when social scientists take up a passive role. Such approaches may lead to more formal participation in decision making, but they run the risk that over time motivation will decrease and that, on a more factual basis, nothing will change at all, particularly in the direct work situation and the prevailing division of tasks and jobs.

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4. Swedish industrial democracy, 1977: progress and new government initiatives

Doron Gunzburg and Olle Hammarström *

Research in the field of industrial democracy started in Sweden in the late sixties. A growing interest from rank and file unionists started the movement in trade unions as well as in political parties. The presentation in 1968 of the experience in Norway with self-governing groups created a lot of interest.¹ The unions took a somewhat reserved attitude towards the self-governing groups at the start but some academics and employers were enthusiastic. Development groups comprising union and management representatives were set up in the main sectors of the labour market and in 1970 five such groups were in operation.² Some of them hired their own specialists whereas others developed in cooperation with universities or consultant organizations.

In some cases the central development group issued guidelines about what ought to be tested and went out to find companies or workplaces willing to take part. In other cases the work took the form of local discussions on local needs and aspirations which led to the formulation of local change programmes. In all cases the central development group and the experts acted as initiators but the decisions about what to do were a matter for local management and trade union leaders and the employees involved. No attempt was ever made to start anything without union support, as has been the case in some other countries. The high degree of unionization (85 per cent) and traditions in the labour market exclude such possibilities.

* Swedish Ministry of Labour

1. The Norwegian reports are now available in English (Emery and Thorsrud 1976).

2. For a summary of the Swedish experience, see Swedish Employers' Confederation (1975). Another perspective is provided by Lars Eric Karlssen and Renier Hamm, *Experiences in Employee Participation*.

Two industrial democracy policy directions

The industrial democracy experiments in Sweden did not add anything significantly new on the theoretical level. Basically two different approaches were tried. The work organization was changed on the basis of the sociotechnical ideas developed at the Tavistock Institute, London, in the fifties.³ The applications were often not orthodox but included a variety of elements such as job rotation, job enlargement, the elimination of first-line supervisory role, and so on.

The other approach was to introduce different forms of representative influence over middle management and top management decisions. This was largely done by developing the systems for joint consultation between management and unions commonly applied in Sweden since the late forties. At a later stage this system of having special groups outside the regular organization for joint consultation was in some companies exchanged for a system where the unions were allowed representation in all regular meetings held within the organization. This can be said to represent an innovation, particularly in the case where the union representative could exercise a veto against management decisions.

The 'politicalization' of the role of the change 'expert'

One of the purposes of the experiments was to serve as a base for the development of union and management policy in the field. The experimentation was however a much slower process than was expected from the union side. Therefore, experiments in industrial democracy did not significantly influence the policy decisions on the union side. They did probably help to overcome some scepticism at the top of the union hierarchy where people had doubts about whether workers were really interested and capable of playing a new role in working life. But the important decisions on degree of

3. See Trist et al. (1963) and Herbst (1962 and 1976).

worker-union influence and what issues to influence were reached after general considerations. The technical matter of how to reach the desired influence was largely put off until a later stage.

When LO, the confederation of (workers') trade unions, was to take a stand on the issues of industrial democracy in 1971 (the Tjänstemannens Centralorganisation, the TCO, did the same in 1970 and 1973), very little had yet been reported from the Swedish experiments. The leading unions, however, came out with radical demands for a new industrial democracy policy. The advisory system tried for twenty-five years was labelled as unsatisfactory. Unions emphasized the need for an individual to have greater control over his daily work but underlined that this would not work unless influence was exercised at all levels of decision making in a parallel attack from boardroom to shop floor. Unions sought to coordinate this influence at different levels. It was expected that increased influence would largely be won through negotiations but would have to be preceded by substantial changes in labour law. These demands from LO and TCO were taken up by the labour government and later endorsed by a substantial majority in parliament. The years 1973 to 1976 were marked by the introduction of a number of labour laws designed to meet union demands: security of employment, status of shop stewards, right to board representation, new work environment act, and an industrial democracy act, to name the most important pieces of legislation up to 1977.

The unanimous acceptance of the need for greater industrial democracy proved in many cases to hide deep differences in actual aspirations. Unions were after an increased influence over certain decisions. Management was often really looking for a way to fight absenteeism and labour turnover and to improve employee attitudes. But they were not willing to give up the final control over decisions after having listened to the employees' advice. As soon as differing ideas about what it was all about started to emerge, the base for the expert as a joint resource faded away. Each party decided that the expert was in fact supporting one of the two parties and gave no room for a middle man. The experts who were for industrial democracy were seen as belonging to the union side, and

those who pulled out of the conflict and refused to take a stand were regarded as supporters of the status quo together with management. As in many conflicts, there was no middle ground. The experts' role had become politicized.

The developments demonstrated at times the difference in skill between unions and management in forwarding their interests in these matters. The trade union people, lacking academic experience and so on, had problems in communicating with researchers and had difficulty in finding the most effective means of supporting them. The management side, being familiar with scientific work and knowing how to influence university leaders, fund controlling bodies, and so forth, knew very well how to exercise support and non-support. One can actually talk about effective blacklisting of researchers where people have been forced out of the field of action research. If no other way works, management can always refuse to permit a person to enter the premises, and an action researcher without access to the workplace has no future.⁴ Virtually all experiments, the successful as well as the many less successful, illustrated how delicate the power situation is and how many forces will try to prevent change.

Progress on work democracy slower than on worker representation

The combined influence of the labour legislation, trade union pressures for increased influence and power, and management attempts to develop job reform programmes by improving employee motivation in order to combat economic difficulties, has led to developments in Swedish industrial democracy characterized by considerable breadth and depth.

The stage has now been reached where representative systems are relatively well developed, where there is increased influence and responsibility for employee representatives, and there is greater ac-

4. As a consequence, researchers could often find themselves denied access on, in effect, political grounds. See the accounts of Karlsson et al., (1976).

cess to information and more involvement in planning. Representative systems are becoming integrated into the line structure, thus significantly affecting traditional modes of management decision-making.

Changes in work design, however, have been slower. This is not only because of the relatively greater ease in establishing representative institutional forms of democracy as compared to significantly changing work roles, control systems, and work technology, but also the obvious attention of employers to work reform created suspicion among unions and fears of being manipulated. Now, however, no change programme is started without the active involvement of the trade unions concerned. Nevertheless, there are many companies and organizations engaged in some programme of work reorganization in some form or another. Some estimates put the figure at well over a thousand. These developments are highly varied in degree and coverage – ranging through semi-autonomous work groups, group technology, project groups and job rotation at varying levels of sophistication (Swedish Employers' Confederation 1975; Karlsson and Hamm, n.d.). There are some cases where considerable progress has been made in moving away from the one man/shift interface, in giving the work group greater responsibility, freedom, and learning opportunities, and in adapting technology to meet human needs. However, developments along these lines could not yet be said to be typical. In most instances of work reorganization, changes can be seen in information and payment systems and to a lesser extent in increasing the mobility and learning opportunities of employees. These are, admittedly, necessary parts of effective job redesign. For example, there is a decline in the use of time and motion studies, a shift from piece-rate systems to fixed wages (usually with a merit component), a gradual move from individual tasks to group operation – with a corresponding change to the task time cycle, a gradual shift by supervisors from a control to a coordinating function, and a trend to provide fuller and more relevant information to the shop floor. As yet, however, significant changes to work roles and responsibilities, where they do occur, have generally been applied to only a small unit of the organi-

zation, without spreading further. The diffusion process is as difficult in Sweden as anywhere else.

The most significant developments in work redesign have come and can be expected in the future when new plants are designed or new equipment involving heavy investment is introduced. Worker representatives are always involved in project planning groups. The union-dominated safety committee must give formal approval to plans for new plant or equipment. The legislative and participative pressures ensure that job satisfaction and job fulfilment are central issues in management thinking. For these reasons new plants are being based increasingly on sociotechnical systems analysis. The industrial democracy experiments carried out by various collaborative bodies have relevance here. While spontaneous diffusion in existing plants has been slow, the reports from the experiments provide management and trade unions with a pragmatic base for their thinking in the development of new plants.

Effective education is a basic prerequisite for sound sociotechnical applications in both new and existing operations. In this respect also the developments are very promising: employees are involved in institutional training and on-site study groups to an increasing extent. The subjects of study cover work organization and joint influence, among others. Management and supervisory training programmes are putting considerable stress on management styles, intergroup cooperation and personal development. Socio-psychological subjects are increasingly being incorporated into courses for technicians and technologists.

A new and significant step in the development of Swedish industrial democracy was taken on 1 June 1976, when the Swedish parliament passed the Industrial Democracy Act. The act created a new industrial relations system whereby it is the joint responsibility for management and unions to operate and develop a company. It is largely left to the labour market partners to agree on how these aims are going to be met. This means in actual practice that it is up to the trade unions to take the initiatives as to what decisions they want to influence and what degree of influence they wish to have. Apart from general support for employee influence, the law grants far

reaching rights to back up unions as regards the right to negotiate, the right to information, and the right to interpret agreements in case of differing viewpoints on how an agreement applies to a particular case. The act is not expected to lead to any drastic changes overnight, rather it is seen as a base for long-term development; the full effects of the act are not likely to be seen for at least ten years. In support of the act, the parliament has decided on special measures in the field of information, education and training, and research. The information, education and training part is largely left to the unions and employer organizations to administer, but considerable economic support is given by the government. For the first fiscal year about US\$20 million has been allocated, the bulk of it going to the trade unions.

As regards research and development, a new work research unit was established on 1 January 1977. The unions, particularly, do not feel that any of the existing research organizations could fulfil the role of an active back-up institution for the reform work that is lying ahead. The new institute will be government-financed and headed by a board dominated by the labour market partners. The board will also include representatives from science, the public interest, and the institute staff. The institute aims to be interdisciplinary and to possess competence in behavioural science, technical disciplines and labour law. The emphasis of the work in the institute will be on practical problems that are the focus of interest for the social partners. As the Industrial Democracy Act largely advances employee interests it is also expected that the trade union side will have the major influence over the activities of the new institute. One way of securing the applied character of the institute and establishing the desired contacts with the unions is to let academics and people with a union background work together in research projects. The Swedish parliament, when deciding on the institute, also accepted other government proposals for improving contacts between research and trade unions. This is a very important issue, and it is a major task for the new institute to develop this field. The institute will, of course, also have to develop good contacts with the employers' side, but this is not regarded as a big problem. Management

representatives often have an academic background and considerable experience in cooperating with scientists.

Issues that are a joint interest for unions and employers will, of course, be a prime concern for the institute, but it is important to enable it to engage in problems that are of interest to only one of the two sides and to engage in problems where employees and employers have conflicting interests. The composition of the board of the institute should make it easier to solve problems of this type. But further action is also called for. The previous labour government established a royal commission to explore the problem and propose ways to enable experts appointed by the trade unions free access to the workplace. This would be a way of overcoming the *de facto* blacklisting that labour-oriented scientists (especially action researchers) have experienced.

The union-employer groups that were set up in different sectors of the labour market to develop industrial democracy are likely to be reduced or close down and to transfer their activities and responsibilities to the new institute. The institute will carry out some research work with its own staff, but will also act as a coordinator and stimulator of research in work-life issues carried out in other institutions.

The change in government in Sweden following the election on 19 September 1976 may affect the character of the institute. No major objections were voiced in parliament over the proposition from the labour government on the institute, but the appointment of board members and an institute director is now in the hands of a new government. It remains to be seen if this new government will be as ready to listen to union demands as was the labour government. An organizing committee was set up by the former labour government and is presently working on the details of the new institute. It is a fair guess that the new government will follow this committee's recommendations. Any acts by the new government that would cause the trade unions to take a lukewarm or negative attitude to the institute would seriously damage the whole concept.

The institute's main area of contacts will be towards the labour market partners, but links will also be established with the academic

world. Findings must be fed back into the education system and there must be regular ways for attracting bright and interested scholars to the field of working life. The new institute is not meant to be a large organization. For the first years, plans are to employ some ten persons on a permanent basis and the same number on a project basis. Further expansion will be sought by establishing cross-disciplinary 'work-life centres' at various universities, thereby building up cooperation between local scholars and local unions and management organizations throughout Sweden.

As regards the orientation of the institute during the first year or two, the decisions of the 1976 LO and TCO congresses provide important guidelines. They stress greater worker influence in the field of personnel policy and work organization. Other areas of focus include the use and effects of computers and the development of employee influence in small companies.

Thus the scene is set for Sweden to take a further step forward on the road to industrial democracy. A substantial part of the work force has shown a high degree of interest, awareness and commitment to action. The same is true for political and trade union leaders. The institutional framework is promising. While the efforts of employees themselves will be the dominating factor in determining the nature and pace of change; they will be looking for guidance on many issues. Research workers and others who are able to engage in genuine and meaningful dialogue with employees can expect fruitful cooperation and support.

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5. Historical background and action plans towards improving the quality of working life in the United Kingdom

Jenny Blake and Margaret Butteriss*

This overview is concerned firstly with the social and economic background of Britain in the twentieth century and secondly with developments and action in the quality of working life field.

The social and economic context

The Donovan Report (1968: 4-5) and the Bullock Report (1977: 5-25) provide excellent descriptions of social and economic changes in Britain, and therefore this section is drawn from them.

Britain in the twentieth century has gone through a series of marked changes which have contributed to the transformation of social and economic life. These are the impact of two World Wars and changes associated with developing technology, the increasing scale of industrial organization, growth in wealth, and greater government intervention.

Old industries like cotton, coal, and railways have shrunk, and new industries such as synthetic fibres, oil, motor vehicles and electronics have emerged. In other industries processes of production have been revolutionized, with old crafts disappearing and new skills emerging. With increasing mechanization and rising productivity, manual employment has declined and white collar employment has increased, and service industries have expanded in response to growing wealth and an increased tourist trade.

* Jenny Blake was until recently a consultant and associate of the Tavistock Institute. Margaret Butteriss was Principal Work Research Officer of the Work Research Unit, London. David Birchall of Henley Staff College provided material in the final section of this paper.

Concentration of industry

This century has seen a continuing growth in the size of industries and an amalgamation of companies. There are approximately 2,100 enterprises in Britain employing more than 200 people, with 57 per cent of them employing over 1,000 and 738 enterprises employing over 2,000. This concentration of industry in larger units has been a steady trend in the British economy since the Second World War, and this phenomenon appears to be more pronounced in Britain than in other industrialized countries. It has led to the development of a managerial society in which ownership has become divorced from control. The running of large businesses is in the hands of professional managers, who are responsible to boards of directors who represent shareholders.

Trade union membership

Along with the concentration of industry is the concentration of trade union membership in a comparatively small number of large and powerful unions. In 1974, 25 unions accounted for 77.5 per cent of all union membership. In 1974 the total trade union membership in Britain stood at 11.8 million – almost exactly half the total labour force – as compared with 45.2 per cent in 1948.

Pressures for change

The concentration of industry had led to a remoteness of decision making, and this in turn has led to demands and pressure for changes to take place in industry. Because there has been a growing recognition of the influence of companies, especially large ones, on many aspects of people's lives at home and at work; it is felt that companies should be more responsive to the needs of society in general and of employees in particular. There is also recognition of the reality of the increased and increasing influence of employees through their trade unions in company decision making.

Due to the managerial revolution, there is a concentration of power in the hands of boards of directors. They often make decisions without considering the needs of employees. They are faced with decisions on such issues as the introduction of new technology,

requirements of plant or transfer of production to a new locality – decisions which will affect the lives of thousands of employees. It is therefore difficult to deny employees an opportunity to have a voice in the decision-making process.

More recently there has been a recognition shared by government, management and trade unions, of the urgent need for British industry to be more responsive to change if there is to be any hope of reversing the relative decline of the country's industrial performance. This has led to a development of a tripartite industrial strategy which is founded on the assumption that Britain's industrial problems can only be successfully remedied by concentration of effort of all concerned, and this is likely to act as a catalyst to the further development of joint regulation of forward planning decisions at company level.

Social changes have also led to the notion of greater employee involvement in decision making. These are:

1. Rising standards of living and education changes whereby children are taught to adopt a questioning approach;
2. The end, since World War II, of the deferential society, where working people rarely aspired to positions of power;
3. The overspill of democracy in society into the workplace.

Because of all these changes people have come to expect higher standards of material comfort and are less tolerant of low standards, discomfort, boredom, and lack of proper provision for safety and health in their working environment, and are less well prepared to accept the prospect of redundancy and unemployment.

The effect of all these changes has been an increasing desire among employees to control their working environment and have a say in decisions which affect their lives. This to some extent has already been achieved in some areas through the trade unions.

The first main area is in industrial strategies and the regulation of the economy. Also at local level the growth of the shop steward¹ and equivalent union representative system has strengthened the voice of employees at local level through collective bargaining. The scope

of collective bargaining is widening and there is pressure for it to include such things as manpower planning, job and income security, and disclosure of information. Already there is provision for joint regulation in the Employment Protection Act of 1975, and the Health and Safety Act of 1974.

Developments in the quality of working life field

Early initiatives in this field were taken during the First World War, with the setting up of the Health of Munition Workers Committee, whose job it was to investigate the influence of hours and conditions of work on the output and health of workers. After the war both the Industrial Health Research Board and a new independent body, the National Institute of Industrial Psychology, continued studies in the twin areas of production research and vocational testing and guidance.

The Second World War gave rise to unprecedented problems in selection and training, and new and more effective methods were devised. In 1947 the government set up the Committee on Industrial Productivity, with a human factors panel under the chairmanship of Sir George Schuster. This panel sponsored research by making grants to bodies able to undertake research programmes.

Under the auspices of the Schuster panel the National Institute of Industrial Psychology (NIIP) carried out research into methods of foremanship. Joint consultation was the subject of two projects, one conducted by the NIIP and the other from a sociological standpoint by Liverpool University. Cyril Sofer (1972) describes the way in which out of the Tavistock Clinic grew a postwar sister institution, the *Tavistock Institute of Human Relations*. Sofer says that the very

1. The position of shop stewards needs to be explained. In most factories in which trade unions are strong their members in each workshop choose one of their number to speak for them. If there is more than one union, each usually has its own representative, although in some instances one representative speaks for two or more unions. Such people are usually called shop stewards and their tasks include recruitment of new members, collecting subscriptions, communications between unions and members, and helping to regulate pay and conditions in discussions with management.

composition of the group – psychiatrists, psychologists, and anthropologists – ‘showed the way things were moving in the understanding of men at work’. The Tavistock made a major study of the human effects of technological change in the coal mines in the early fifties (Trist et al. 1963). Before mechanization a small working group had been responsible for the whole cycle involved in coal getting. Under the new method this cycle was extended over three shifts, with each shift only responsible for one part. It was found that the workers no longer felt responsible for the completion of the job or had feelings of responsibility towards the workers on the other shifts whom they never met on the job. The work suffered in various ways, and the expected increase in productivity did not materialize. This study gave rise to the concept of ‘sociotechnical systems’.

A study carried out in 1958 at the South-East Essex Technical College began as an attempt to assess the results achieved by the management training given at the college (Woodward 1958). The team wanted to see whether businesses which were run according to the principles taught were more successful than those which were not. To this end they took a hundred firms in the area and grouped them, according to a number of criteria, into three broad categories of success: average, below average, and above average. They then looked at the firms in some detail to see what characteristics of organization the successful ones had in common – such things as number of levels in the hierarchy, size of the span of control, and so on. However, no such patterns were found. What the team did find was that if the firms were ranged according to the complexity of their technology – from unit production through small batch, large batch, and mass production to process production, then patterns of organization appeared which were common to each of these stages. Within each stage successful firms tended to be those which were nearest to the particular pattern common to the group, and unsuccessful firms tended to be those which deviated from the pattern, which suggests that technology imposes its appropriate pattern of organization. Although the findings may sound obvious, they cut across a great deal of management training.

In Scotland Burns and Stalker (1961) studied some companies in the electronics industry, during the late 1950's, and distinguished two kinds of management organization: one called mechanistic, with a clear-cut hierarchy, clearly defined roles and relationships, rights and duties, and this was deemed appropriate to organizations where things are not changing very fast. The other is termed organic, where jobs are not clearly defined, and lines of communication are fluid. This, was found to be a more effective way of running things in the rapidly changing commercial and technical world of the electronics industry, where many concepts of good management, such as the division into specialized functions, the idea that a departmental manager should be self-reliant, and the idea of reducing skills at operator level, were more of a hindrance than a help.

During the 1960's some large, multinational organizations employed behavioural scientists to work in a variety of fields. Two examples of the application of ideas from the human sciences within industry are C. P. Hill's description (1972) of organizational change in Shell U.K. Ltd., and L. Klein's book (1975) on her work in Esso Petroleum Ltd. However, given the nature of the problems being encountered – including high absence and labour turnover and low quality, comparatively little effort or resources were being expended.

The Tavistock Institute also launched the pioneering studies in the Glacier Metal Company, from which emerged the new approach to management problems associated with Glacier, and the setting up of the Glacier Institute of Management. This was also the first instance of a full-time social science consultant working with a firm. The fact that the consultant was a psychoanalyst brought new types of insight, knowledge and new techniques to bear on the human problems of industry. Not least among them was the realization that the mere uncovering of a problem and making it explicit can in itself be part of the solution. The Glacier study was also breaking new ground in that it was looking at problems of organization and the proper definition of roles and relationships within a company. Altogether there has been a shift since the war, from

looking at the worker to looking at management problems or whole organizations, for instance at the ways in which organizations adapt to change.

The contemporary projects which go to make up the area of work of the Tavistock Institute can be categorized as industrial democracy and industrial relations, organizational analysis, design and development, management development, studies of the workplace, and manpower planning. Examples of work in this area are:

1. Discipline at sea;
2. Human relations policy in a large insurance company;
3. Monitoring British experiments in worker-management participation;
4. Work organization in a new factory;
5. Organization development in an international company;
6. Work on organizational change in a computer bureau;
7. The humanization of work, in conjunction with the Federal Ministry of Research and Technology in Bonn;
8. Work organization in banking;
9. Work design and management training in the electronics industry.²

During the 1970's the Tavistock Institute is therefore continuing to be involved in the whole range of activities concerning the quality of life at work as well as outside work. Many links exist with other agencies and institutions who are involved in the same area of interest, including a direct relationship with the Department of Employment's 'Work Research Unit', in the form of one of its ten research fellowships.

The proposed future work of the institute will continue to include the application of a multidisciplinary approach to issues concerning individuals and groups within the work structure.

2. A fuller description can be obtained from the Tavistock Institute, (120 Belsize Lane, London N.W.3.) in its annual reports.

Setting up the Work Research Unit

In 1970 the Department of Employment commissioned a study of some of the industrial and social changes which affect the behaviour and attitudes of people at work, the report of which was published in 1973 (Wilson 1973). The two major recommendations of that report were that:

1. A body be set up 'to work out the needs for a coordinated programme of development in industrial and commercial settings', and;
2. That a coordinated research programme should be instigated to consider the effects of work systems on people with particular reference to job satisfaction.

On the basis of the first recommendation the Work Research Unit of the Department of Employment was set up in December 1974. It is steered by a joint steering group consisting of representatives from the Trades Union Congress (TUC), the Confederation of British Industry (CBI), and the government.

The overall task of the unit is to promote work systems which take full account of people's needs and capacities, and this is being achieved through a number of integrated programmes carried out by a staff of some fourteen consultants professionally qualified in relevant fields. The programmes are:

1. Promotional activities of the unit and the subject of job satisfaction and job restructuring;
2. Consultancy and advice to companies;
3. Writing reports, papers and notes on issues and examples relating to job satisfaction and job design;³
4. Keeping information on what is being done in the U.K. and other countries;

3. The unit has produced some 25 papers, notes and reports on many aspects of job design and job satisfaction. These are available from the Work Research Unit, Steel House, 11 Tothill Street, London S.W.1, and are free.

5. Providing training courses and appreciation courses to individual and specific companies.

Underpinning all these is a programme of research which was set up on the basis of the second major recommendation of the Wilson report. This is known as the Job Satisfaction Research Programme, and is concerned with improving the technology of change processes and evaluating the effects of changes intended to improve the quality of working life and examining new forms of work organization. Ten projects have been sponsored and cover a variety of occupations and industries, including those in Table 1.

Table 1. Projects sponsored under the Job Satisfaction Research Programme.

| Industry | Occupations | Location |
|-------------------------------------|--------------------------------|-------------------------|
| Garage | Repair mechanics | Midlands and South-West |
| Hospitals | Nursing staff | South Wales |
| Retail distribution and warehousing | Sales and clerical staff | National |
| Baking | Process workers | South Midlands |
| Precision engineering | Assembly and machine operating | Midlands and South-East |
| Footwear | Closing room operatives | East Midlands |
| Light electrical assembly | Assembly workers | Scotland |
| Building construction | Craftsmen and others | South-East England |

Just over £200,000 has been allocated to the project, and *on average* each project receives £30,000. Nearly all the projects last for three years. The first project began in 1974 and will finish in September 1977. Most projects will finish at the end of 1979. It is intended that the projects will provide well documented accounts of work restructuring, of the strategies and the processes that will also be of use to other organizations. The central focus of the programme is the content of people's jobs, the way they are organized and the effects on individual well-being. This is not to ignore other aspects like pay or security of employment, nor is the programme concerned with strategies for improving job satisfaction alone. It is concerned with strategies which do this but which also maintain and

in some cases can be expected to improve the effectiveness of the organization as a whole, certainly in the longer term.

An essential feature of all the projects is that all who are affected by the proposed change should be consulted either directly or through representatives, so that people in the organizations are aware and accept the conditions and implications of taking part in the project, and that the actual changes are designed in conjunction with people whose jobs are affected. Project directors have to inform the head offices of the trade unions whose members are involved in the project. This applies both to the research project and to consultancy activities undertaken by the unit.

One of the projects that can be reported on in more detail that being undertaken by the Administrative Staff College at Henley whose Work Research Group has assisted personnel at Associated Biscuits, Bermondsey, in a job redesign exercise since February 1975. An initial exercise was carried out involving 25 male and female operatives in a secondary processing area on one biscuit production line. The jobs themselves were perceived by both management and trade union as offering only very limited opportunities for satisfaction amongst the work people and as one factor contributing to a problem of labour attraction. Generally work in the factory is low-skilled, machine-paced and repetitive, although there is some opportunity for social interaction during working hours. Workers have only low levels of responsibility and accountability, the supervisor being responsible for organizing most aspects of work in the area. Workers are also unable to regulate physical conditions, which tend to be uncomfortable, particularly during periods of hot weather. The factory has no low-level windows and workers report a feeling of being 'enclosed'. The object of the exercise was to investigate the applicability of a participative approach to redesigning jobs and to examine the impact on the motivation of workers of any changes introduced.

A participative planning group (job design development group) was established, comprising a supervisor, training manager, industrial engineer, quality manager, senior shop steward of the Bakers' Union, and two workers from the area. Following general introduc-

tions the researchers explained the nature of their work. Specific problems relating to the section were then identified and discussed, including such topics as poor quality, machine breakdowns, supervision and the initiation of new employees. Later discussion centred on means for developing team spirit in the area and particularly the creation of a more permanent group of workers to man the section. The development group saw this as an essential prerequisite to other changes aimed at increasing worker involvement. Other changes were recommended with the objective of increasing work-group autonomy. The development group submitted a written report to both management and union. The report was presented verbally to junior managers, the departmental consultative committee and each worker in the immediate work area.

Following further discussions with both supervision and workers, implementation began in October 1975. Specific changes were:

- Relief workers, instead of being organized centrally by the supervisor, were assigned permanently to the work group.
- The work group accepted responsibility for organizing breaks and training of new members.
- The opportunity was created for workers to rotate jobs by mutual arrangement without recourse to supervision.
- An awareness programme was undertaken, aimed at increasing the knowledge of workers about the total manufacturing process.
- Further information was made available to workers on plant performance and breakdowns, sales and general matters.

Later changes concentrated on improving communications between workers in the various sections of the plant, as well as between workers and management. A plant consultative committee was established in April 1976 consisting of the section manager, the supervisor, the local trade union steward, and a worker from each of the three sections: baking, creaming and packing. This committee at its fortnightly meetings is extending the work of the job design development group by reexamining means for improving job

satisfaction throughout the plant. Similar changes to those initially introduced in the creaming section have been implemented in the packing area.

Workers, through representatives, have been able to influence changes in the organization of work in order to increase the opportunities for personal involvement; and the changes introduced to date offer greater scope for worker involvement in decision making than existed previously. The local consultative committee permits an on-going review of the extent to which the changes meet the needs of individual workers for participation, and discussions at these meetings are indicating a desire for greater involvement on the part of both workers and local management in other decisions affecting their working lives. It is anticipated that ultimately these developments will have an impact on the structure and management of the existing consultative machinery. Evidence also indicates that benefits are resulting in terms of improved operating performance and reduced levels of absenteeism.

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6. A general overview of the current Q.W.L. scene in Italy: Notes on the situation in 1974, 1975 and 1977

Federico Butera *

The three notes which follow attempt to give an idea of the Italian quality of working life situation. They try to describe a very general phenomenon, but within an Italian setting – that is, the rise of a fashionable ideology, its subsequent decline, with the growth of unplanned changes and ‘unlabelled’ activities which could affect the quality of life of people at work. We attempt to make sense of this puzzling scenario, to study deeply enigmatic phenomena and, through helping with concrete changes in people’s involvement, to establish a professional strategy in the field.

The position at March 1974

In very few countries have the problems of the quality of working life attracted so much attention and been so widely debated as in Italy. ‘Change in the organization of work,’ ‘the new way of making the automobile,’ ‘humanization of work’, were becoming everyday expressions. If one were to begin by listing and evaluating the changes, studies and institutions involved in this, it is important to recognize that one of the most distinctive characteristics of the Italian situation is the strong commitment of the trade unions (mainly the metal workers) in seeking to modify the present organization of work. We shall begin from this point.

1. The role and attitude of the unions

To speak of ‘trade union commitment to the quality of working life’

* Director of the Istituto di Ricerca Intervento sui Sistemi Organizzativi [Institute of Action Research on Organizational Systems], Milan.

could be misleading for foreign observers if we do not make clear what these words mean in the Italian context. Let us try to clarify some points.

Union criticism of traditional work organization

In this area the criticism developed by the Italian unions covers a much wider range than the topics which find an audience among managers. Unions are not concerned with the lack of motivation and commitment of employees, but with those components of a poor quality of working life which, in one way or another, represent a threat to the health, the economic and professional growth, and the power of the workers. These criteria are not identified in any abstract way but in concrete terms: for the unions, quality of working life is poor when it becomes the object of complaints conveyed to the unions or by spontaneous *collective* action. On this basis they have come to criticize:

1. the poor physical environment of work, the lack of safety (Italy has the highest proportion of accidents at work in the Western world) and threats to mental health (monotony, repetition, and so on), as aspects of economic exploitation;
2. the lack of learning opportunities, 'deprofessionalization' and limitation of vertical mobility as phenomena weakening individual growth, earning opportunities, and workers' influence on the internal and external labour market;
3. lack of power in respect of scientific knowledge of the production process, of the hierarchy, and of the major economic and social decisions of the entrepreneur.

If the assembly line has become, in this country as elsewhere, the symbol of the poor quality of working life, the Italian unions declare, however, that abolition of monotonous and stupid jobs will not be enough for them: they insist on the indivisibility of actions to eliminate 'alienated jobs' from actions to eliminate both the physical and mental dangers, to improve individual and collective in-

fluence, and to raise the level of employment. This means that, for them, desirable changes are those which improve one or more of these factors, without making the others worse, immediately or in future.

For these reasons they are very sceptical and suspicious about some of the North American psychosociological 'gospels' about improvement of Q.W.L. through 'putting motivators into the individual jobs'.

Goals

The unions have not asked for development towards definite models of redesign of jobs and work organization, and presumably they will not do so in the future. Although terms like 'rotation', 'structuring' and 'enrichment' of jobs may frequently be found in the unions' specific demands or in their final agreement with employers, they remain doubtful about the available models and possibilities and point out – more or less clearly – the ambivalence of some changes in relation to their overall goals: for instance, they argue that whilst job enrichment in certain areas could reduce monotony and deprofessionalization, at the same time it could reduce the level of employment or transfer poor jobs to smaller and weaker companies. Autonomous work groups could improve self-determination at the shop floor level but could be utilized by management to get agreement on management's concept of productivity, or to fragment the work force. In addition, unions are afraid of the 'advertising' or ideological use by management of Q.W.L. experiments, whether the results are unsatisfactory or not.

In general, unions feel a great need for a better understanding of the content, implications, and prospects of the changes, to become more familiar with the opportunities of sociotechnical design, and to define their own indicators of the quality of working life.

Means

The unions regard as their main lever a system of agreements which could force management to change. For instance, the recent agreement on the unification of white-collar and blue-collar employees in

a single grading system (*inquadramento unico*) is seen as a means to induce managers to reshape jobs, and to make the professional content consistent with the higher formal grades obtained by the workers. There are also cases in which they have asked for specific changes.

When management introduces changes, unions usually bargain on the traditional aspects – wages, time, employment, formal grades – but they are aware of the need for more complex indicators of quality of working life – indicators which could be intelligible to workers, useful for framing specific demands, and unequivocal in respect to workers' interests.

On involvement in design or redesign experiments on jobs and work organization, unions have officially said 'no' to joint committees with management, or to 'sheltered' experiments. But there are different opinions within the central staff of unions, if only because it is not clear in practice what happens when workers are involved in these experiments. This could explain why, in spite of the official attitude, there are many cases of groups of workers and local union delegates working with middle management and researchers in studies oriented towards change.

Agreements and studies

Agreements explicitly affecting some aspects of work organization (job content, training, career developments, safety; and so on) have recently been signed between unions and companies (Olivetti, Fiat, Breda, Finsider and Philips, for example).

Many interesting articles come directly from union officers but more frequently they are written by intellectuals who speak from the union position. The largest conference on these themes (1,000 participants, highly qualified in different fields) was held by the Istituto Gramsci, having as a main point of reference union activity in this area. Other conferences have been organized by unions on the basis of a specific productive activity. Finally, numerous surveys have been sponsored or actually made by unions, in different contexts.

2. Management attitude and initiative

In taking action to improve the quality of work, management seems influenced more by the concern of the union than by other reasons. In general, managerial debate appears to stem largely from union demands, but involves 'translation' of these demands into the alien terminology of psychosociology. In recent years Italian management has been faced with a series of severe difficulties, among which, it often seems, only the disaffection of workers has been strongly felt. In these circumstances, the management desire to get consensus and motivation among employees becomes dominant, and other, perhaps stronger, reasons for changing are often underestimated. The increasing managerial interest in the topic and a series of interesting initiatives are often associated, therefore, with the feeling of being forced to do something necessary but unprofitable, and contrary to 'technical and organizational rationality'. This has had several negative results. For example:

1. There is difficulty in developing a 'rethink' and a revised managerial philosophy because 'job reorganization' is viewed as a specialized topic.
2. There is lack of recognition of many 'unplanned' changes, arising from adaptation to a changing environment, as events falling into the same category and trend of organizational transformation.
3. To this must be added a tendency to limit changes to what could just satisfy, but no more, the union demands.

It may also be said that a large part of industrial management, sponsoring the rise of a new ideology of work reorganization, regards it as an industrial relations tool: a situation which generates 'vacuum' talks and fake 'experiments'. On the other hand, a restricted but increasing number of companies are aware of the complexity and multidimensional feature of problems of work organization and are initiating realistic experiments and properly designed research. Moreover, a movement has started which, independently of its initial motivation, cannot be interrupted, or left merely in the

world of words, since many younger members of middle management are becoming increasingly concerned with these matters in a very serious way. With this scenario as a starting point we can try to identify some points useful in understanding what management is doing in this field and how it is doing it.

Diffusion

Half a dozen general surveys of changes in work organization, more than twenty collective trips to Sweden and Norway, a dozen seminars, lectures and round table discussions, have been sponsored by individual firms, employer federations, or managerial institutions. There is great encouragement to the public press to print information about the field.

A large conference of about 300 members was recently sponsored by the Democratic Industrial Managers Association (UDDA) in which experiments, points of view, and perspectives were examined. Academics and unions officers were also invited.

General attitudes

Even though no definite pattern of development is identifiable, and no irreversible plans are under way, it is nevertheless true that both employer federations and single large corporations have declared that new ways for improving the quality of working life, compatible with efficiency, must be found. This is, at least, a sign that the stage has been passed of convincing people that something must and can be done.

Planned changes

Procter and Gamble, IBM, Olivetti, Fiat, Italsider and Philips, have up to now made more or less extensive changes and in several cases have negotiated them with unions. Some reports are available. Terni and Dalmine (steel), Facis (textiles), Zanussi and Candy (refrigerators), Selenia (electronics), and Rinascente (large stores) are making preparatory studies, more or less basic, towards change.

In summary, no radical changes have been introduced so far in terms of quality of working life; but in many cases what was done is

a result of profound financial and sociocultural effort by the companies concerned. There is a growing awareness of the need to go beyond consideration of various 'models' to pass from the search for 'the' solution to a more open experimental approach. This seems the main result of the changes in the managerial outlook.

In parallel, opportunities for bringing organizational culture up to date seem to be confirmed by the diffusion of new concepts, in and by, management training schools. The state-owned oil industry (ENI), Fiat, Montedison (the largest Italian chemical company), IFAP (the IRI school), Olivetti – all are devoting more and more time and attention to these problems. Italian and foreign scholars and practitioners are now frequently invited to these schools (after the visit of Lou Davis and Einar Thorsrud to Italy, Hansson, Hedberg, Guest, Ketchum, J. Galbraith and others have also given seminars here).

3. Research activities

In addition to the activities mentioned above, of diffusion and cultural exchange, others are developing – though at a lesser speed – activities concerned with empirical research and with action research. They are mainly concentrated in four areas:

1. Teams within companies engaged in action research, supported by external consultants (more than 10 examples);
2. Research groups of union representatives and workers, supported by external consultants (more than 20 examples);
3. Universities (a few sites);
4. Private groups (one research company working for management, a politically radical research centre, and a few individual researchers and consultants).

Individuals and people in universities often work in the first two of the four areas. Some consultant companies want to go into the field, but do not have the resources and orientation for anything other than 'package selling' or 'training'.

4. Other institutions concerned

Government: very little interest, with the exception of the Minister for Labour, who has sometimes spoken about the quality of working life.

Political parties: these do not seem to be operationally involved.

Large circulation press: nearly all the daily papers and popular magazines have published some articles about the Olivetti, Fiat and Swedish experiments, and about problems of the quality of working life. The national television has broadcast a long programme entitled 'The Trial of F. W. Taylor'.

Conclusion: 1974

In Italy the enhancement of the quality of working life is a central topic for management and unions, even though they hold different perspectives on it. Several special features have to be considered: first of all, as mentioned earlier, the difference in ultimate goals of management and unions; second, the fact that for both, job redesign is seen as inextricably linked to larger aspects of industrial development and social change, and this means, at the least, a greater effort of theoretic explanation about what could or should be done; third, the tendency to transform this issue into a game for building ideologies, which means that action research has to be strong enough to avoid being used as a tool to create a popular culture and a set of ideas which legitimizes leaving things as they are.

The position at January 1975

The changing attitudes of management and trade unions and the role of the Institute of Action Research on Organizational Systems

The severe economic, social and political crisis in this country is affecting developments in Q.W.L. in the way forecast a year ago. In fact, companies active in 'talking' about quality of working life, simply for industrial relations purposes, feeling weakening pressure from the unions, are losing interest in Q.W.L. issues and regard

them as 'old-fashioned'. An irrational 'revanche' attitude is growing among many managers: 'Now the workers have to be aware of their job security, and will have to stop playing with these fancy issues.' Where the emphasis lay more upon discussion and where less actual change has occurred, Q.W.L. is becoming a taboo issue (regarded as being somewhere between a moralistic and a radical political question). This does not exclude the fact that a large number of unplanned changes are taking place in most Italian companies.

However, a few large companies (for instance, the state-owned steel industry, some oil conglomerates, and Olivetti) which went more deeply through an actual process of change and which had developed an organizational culture enabling them to understand the 'causal texture of organizational environment', are going ahead with these experiments. This was not without difficulties, which could be summarised as follows:

- insufficient commitment by top managers;
- difficulty in identifying links between macro and micro organizational change;
- on occasion, lack of project 'ownership' by technical management;
- no clear methodology in the management/union relationship.

At best the most promising developments may still suffer from the lack of global strategy in top management, or from the increasingly conservative atmosphere, or from the uncertainties of the unions, but the structural pressures for change are now stronger in those companies as well as in those less active. The really critical variable is perhaps the insufficient 'cultural accumulation' in terms of substantive knowledge and methodology. The unions, for their part, are urged on by the dramatic problems of unemployment and the rising cost of living. They have not the same strength as in the past year, when they could allow themselves to deal with such an untraditional and immeasurable issue as change in work organization. Internal tendencies to depict this issue as 'not pertinent to the union'

are now more vigorous than before; for it is, generally speaking, understandably more difficult for unions to claim something in the Q.W.L. area when other and more urgent issues are on the table.

In summary, while in many trade sections of the unions the organization of work is an 'untouchable issue', or is given purely formal attention, in others (like the metalworkers section, the biggest, most unified and most important one) concern is high and the emerging tendency is to find ways of linking demands for changes in organization of work to other issues (safety, investment plans, and so on). In seeking to plan to 'do something concrete' the unions meet the same problem as companies: the insufficient body of knowledge and of skilled people. The unions, moreover, have the additional problem of making less distant and casual the relation between achieved agreements and desired change. Ambivalence towards the available patterns of organization, the multiplicity of strategies to achieve them, the forest of unintended consequences which can follow change, lack of knowledge of the relation between relevant phenomena – all are raising a troubled demand for cultural 'search', summarized in a certain sense by the basic question circulating among the union intellectuals: 'Is it possible to have a workers' project on the organization of work?'

The popular debate in the newspapers and magazines is thinning down, while most consultants are becoming aware that Q.W.L. is not a profitable business and will simply utilize some of the cultural products of its international development as cherries on their traditional cakes (somebody, for instance, is selling 'M.T.M. and job enrichment'). The academic world does little more than lazy historical and philosophic work on the division of labour.

Does the end of a fashion mean the end of activities? Are the Q.W.L. initiatives closing up? The answer is negative. In fact:

1. Dramatic changes in the environment are occurring; they are producing, and will produce, consequences in terms of creating more flexible and 'systems-oriented' organizations, based upon a higher level of employee autonomy.
2. Relevant organizational changes (many unplanned, some plan-

ned) are actually taking place; most of them take into account the needs of the social system.

3. The irreversibility of already implemented changes can be regarded as proven.
4. The social system (and particularly the attitudes of people) is profoundly different; the quality of working life is widely perceived as a real problem.
5. The fall of the 'advertising/fashionable/ideological' approach to Q.W.L. issues is to be considered a positive clarification.

In the Italian industrial context, there is hard and serious work to be done among selected change agents, with people who are really committed, aware of the conceptual difficulties and able and willing to induce actual changes. There is also much work to be done to bring the thousands of examples of unplanned change into the frame of reference of Q.W.L. development. This means their identification, analysis and explanation, with diffusion of the results.

Diagnosis on actions to be taken

The diagnosis made above stresses the need for a strong 'cultural initiative', or more clearly, for what is implied in the last paragraph: 'hard work' in depth (in the field, in selected sites which display positive opportunities) and a considered approach to diffusion. In concrete terms:

1. The social operators really committed to work in inducing changes in work organization, in terms of human needs and productivity, should be offered help in dealing with the intricate matters which this involves. They need information, training, examples, findings, and, beyond this, help in making a 'cultural accumulation' that could make sense in their organizations. This type of activity does not grow spontaneously. It needs, in my opinion, some 'nodes', both within and outside organizations. For these nodes it is not enough to be willing to help or to try things out to gain experience; it is necessary to control the experiments, and to accumulate, elaborate and diffuse knowledge.

2. Diffusion of thin generalizations, vague statements, or poor cases, is not appropriate. A powerful effort has to be made (at least in Italy) to review concepts, acquire evidence on relevant phenomena, identify correlations among them, and to develop basic methodologies, and so on; and moreover to follow up planned and unplanned changes. This second type of concrete activity may be thought of as arising from the intellectual concerns and orientations of Italian social operators, or from their defensive need of a conceptual clarity which will make implementation slow; but it is also necessary because, in Italian society, available scientific explanations often do not really explain enough.

Role of the Institute of Action Research on Organizational Systems (Milan) in this 'scenario'

The Istituto di Ricerca Intervento sui Sistemi Organizzativi has the following basic characteristics:

1. An explicit identity as a scientific body with a clear position on values, seen with interest and respect by management, unions and university people – it is committed to technical and moral standards of the best public scientific research.
2. An action research orientation from which to derive:
 - hypotheses and evidence for other kinds of research in the field;
 - bases for training;
 - information and experience for diffusion.
3. A matrix organization, which means that, apart from a core of social scientists coming from university, management and unions, members of the institute will be people who continue to work in other institutions. This also means that it will not compete with other bodies operating in the field but will try to integrate itself with them.
4. A non-profit organization, self-financing, and independent of financial power centres, serving as a facilitator for developing new sources of interest and activity.
5. A low-profile organization: it starts with a core of four senior

people, four junior people and a secretary, with a developing network of professionals working in management, unions and university.

The position at January 1977

The popularity of Q.W.L. has totally declined: the main reason seems to be the fact that, by contrast with Sweden, this issue did not become a basis for building up new industrial relations systems; nor, as happened in the U.S.A., has it become part of the managerial culture. The dramatic economic and social crisis of the country is presently far from being overcome, and most people argue that Q.W.L. is a peripheral problem. As a result, very little attention is paid by employers, trade unions or governmental agencies to the implications of these problems or their strategies. Very few projects have the minimal level of ambition to solve problems of people at work and to be exemplar in any way.

Most of the practitioners formerly engaged in introducing new patterns of organization or in diffusing new ideas or 'gospels' have already changed jobs. Most academics do not have any access to the field and consequently do not participate in any empirical research. It is only rarely that management or trade unions initiate training in this field (whilst requests were frequent in the past) and when they ask, usually want 'ceremonial events' only.

Despite this apparently black picture, the situation over work organization in this country remains one of the most important aspects of the economic and social changes occurring at present. In fact:

1. A very large number of small and not-so-small changes in work organization have been introduced into most Italian companies: they have no 'labels' but exhibit patterns similar to the popular anti-Tayloristic 'recipes' (longer cycles, new jobs integrating operational maintenance and quality control, job rotation, new communication systems managed by people themselves, group-

based organization, and so on). Most of these changes have been introduced without either a general strategy or a plan, but through conventional procedures. Sometimes they are negotiated between unions and management. The causes of these changes are, broadly speaking, the need to adapt to an increasingly turbulent environment and the application of labour-management agreements on formal qualifications.

2. The rapid changes in technology, in the settlement of industries in the southern part of the country, in the vocational training system, and in emerging patterns of union-management-government relationships about industrial policy at national level, are already introducing additional changes in methods of recruitment, training, managing people and in the organizational design of production systems. As a general tendency we can see a quest for a higher level of professional development and contribution by the people at shop-floor level.
3. Experiments in participation, by the people concerned, in the design of technology, of organizations, and of social services, have spread all over the country not as exercises of innovative job design but as results of different events, for example, activities influencing the improvement of physical work conditions, negotiations of formal job grades and work mobility plans, negotiations on plans for restructuring of industrial activities, community action about social services, and so on. It is quite impossible to provide an exhaustive list of all the available cases.
4. In the past two years, projects of the Institute of Action Research on Organizational Systems, in ten different technological contexts and starting from very varied change strategies and objectives, have revealed another important phenomenon. In the study of that which is beyond the formal organization, and using rigorous sociotechnical and participative methods, we have discovered that there is something more and different beyond what has usually been called the 'informal organization'. We have empirically identified a 'real organization', an existing but latent social organization which is oriented towards joint optimization of workers' protection and the technico-economic results of pro-

duction, redefined through 'hidden negotiation' with the management. This 'real organization' is not only different in structure from the formal or 'informal' organizations as usually understood; it is also different in its underlying principles. The most important of these principles is the 'intrinsic cooperation' visible in self-determination in ways of doing things, in controlling the production process, in allocating work to people and over innovating technologies. It is based also on a social and cultural recomposition of the work force.

There is empirical evidence for the existence of this phenomenon (it is to be distinguished from the 'informal organization') in as many as four cases which have been examined in depth. The 'maturity' of this emerging organization differs from case to case and in no case is it a self-sufficient one: on the contrary it is contradictory to the formal one (and this also explains many of the organizational troubles of which complaint is made).

Our conclusion is that no spontaneous growth of this phenomenon could be foreseen: on the contrary it remains a subordinate one. But the identification of the concrete real organization within a particular factory could be a basis (and an indication) for a conscious organizational design appropriate to the situation and stemming from the participation and the culture of the people concerned. These conclusions are both the basis of:

1. An approach to organizational design developed by the institute and followed, in some way, by an increasing number of professional and nonprofessional helpers in job redesign processes; and of
2. Scientific findings which have been discussed by scientists and policy makers (even those, the majority, who do not want to discuss Q.W.L. programmes).

In conclusion: first, formal and informal patterns of more autonomous and responsible forms of work are emerging, as responses to workers' needs and to pressures for preserving companies, and

the country, from economic bankruptcy; and second, less restricted procedures concerning professional help with organizational training and the reformulation of concrete problems posed by the various social partners concerned have been developed.

7. Problems of middle management in France: Their special position regarding work reorganization

Josephine Poirot *

Starting from an example of work reorganization in a factory belonging to a large industrial group with diversified activities, this contribution poses the more general problem of management demands at various levels, namely, concerning that very particular category called 'middle management'. In France, there are approximately three broadly distinguishable categories of management: top management, middle management, and supervisors. Top management consists of the very few people who actually have decision-making power. In a large industrial group, only a few directors are a part of top management; they are in charge of all the group's factories from company headquarters. The middle management staff is made up of all persons, whether functional or operational, who, because of their qualifications or seniority, have been able to rise to a certain status (level and conditions of remuneration, employment security, retirement) that has advantages over the supervisory or worker levels. In a large industrial group, this includes factory managers and their engineering or administrative assistants, and functional specialists from headquarters. Supervisors, who comprise the first and second hierarchical levels of direct management on the shop floor, are regarded as a different group. Very often, at least in the past, they were former workers who had risen from the ranks.

* Member of the French 'Group of Seven'.

Middle management as 'brakes' or 'motors' for social evolution in France

On one work site, an experiment began in 1970 in Factory B, in Reims (where champagne bottles are made) with the formation of an 'information group', made up of supervisors in a particular division, which called into question the whole structure of the factory's production. Preliminary studies carried out by the organization and training division were aimed at creating three small factories, within this factory of 1,000 people, around each furnace – a main technical component – and then within these new units other small factories by groups of two production lines each.

This new structure of units and interlinking sub-units corresponded to the idea of creating an organization which would encourage the gradual setting up of autonomous production teams within which production workers might have 'polyvalent' (multiskilled) functions. All these projects were the objects of various group efforts among middle managers and supervisors, during which modes of applying these simple ideas were gradually brought out. During this group effort, the processes of apprenticeship, negotiation and, especially, approval of the project by the management team were put into operation. This phenomenon proved to be fundamental for the pursuit of the experiment; first, in order to pass from the study stage to the stage of actual application on furnaces 2 and 3; and, second, in that it confronted all the new tensions that this type of organization aroused in the company. Actually, the other eight factories, with the same economic objectives, maintained their former structure; and for this reason, six years later, we can accept that the experiment has reached the point of no return. Much could be said about the middle managers' reactions during the various phases of the operation, but this is not the object of this paper. What is interesting are the new demands that middle managers then imposed on this experiment:

- to do research on new production methods;
- to determine future plans, for the next five or ten years;

- to have more independence in managing the factory;
- to manage relations with their social partners (trades union representatives) by themselves;
- to have some real responsibility in the management of their personnel;
- to have control over management information and over criteria for assessing performance.

Such demands call into question the relationship between the factory and the headquarters, and within a whole series of decision-making levels between top management of the group, departmental management, factory management, and the middle managers themselves. If we take a look at the most well-known experiments in France, and consider the fifteen experiments which stand out in the field and are constantly used as references, one can classify them into three types, if one attempts to see why they exist and who carried them out (see Table 1).

Table 1. Three types of social evolution experiments in France

| Motive of experiments | Initiative for experiments | Experiment | Impact of experiment | |
|------------------------------------------------------------------------------------|-----------------------------------------|-----------------------------------------------------|------------------------------------------------------------------|-------|
| Personal ethic Social philosophy | Director himself | Guillet Faiveley Leroy Somer | Experience spread through whole company | } I |
| Anticipation of future problems or perception of latent problems | Factory director or large division head | B.S.N. (Reims) Esso Cebal | Awareness of problem spreading within company | |
| Serious conflict Prolonged strikes Deteriorating atmosphere of social crisis | Factory director Rescuer | Rhone Poulenc Textiles Bel Snias Marignane | Innovators status disputed after the end of crisis | } II |
| Experimentation with new ideas | Men in functional roles Academics | Renault | Acceptance of ideas, difficulty of finding fields of application | } III |

First type

The change situation in itself is not restricted to a modification in work relations or a reorganization of structures. As always, there are problems, no more or less than usual, nor more serious or severe than anywhere else. The initiative then stems from the director, the highest centre of decision making in small and medium-sized companies, or from the head of a factory or a large division in large companies.

The motive in such a situation springs more from the head of the company's or establishment's concept of work relations and from a personal ethic. This man finds himself one day in a position to apply his ideas. In the case of small and medium-sized companies, putting something into practice is relatively easy if the director enables the middle management staff surrounding him to have a share in his project. However this can only happen if those in positions of responsibility have a great impact on support staff, or else have managed to create a team around them. In the case of a factory director or the person responsible for a large division within a large company, this man must have at his disposal a large amount of freedom to act, either because he has created it, or because he enjoys good relations with central headquarters, or because the structure is rather decentralized. A problem may eventually arise when the time comes to transfer the successful experiment to other companies or divisions, or when it becomes so widespread that the existing situation is threatened or called into question.

Second type

Serious social phenomena influence the balance or economic survival of an industrial unit. In this case generally two definite actors are found confronting each other: management and trade unions. The situation seems to be at a stalemate. At this point, a high-ranking manager from headquarters accepts responsibility for loosening things up, but in return asks to be granted full power and to have real support on a wide basis. Gradually the unit starts up again, beginning with social innovations introduced with the tacit approval of the more or less expectant social partners.

Third type

The innovations are introduced by functional people (directors of social relations, heads of personnel, organizers, company doctors) who possess a fairly wide knowledge of experiments taking place elsewhere, and seek fields for application or experimentation of new approaches to social problems. Everything then depends upon their ability to convince one or a number of operational people to allow them access to the field. The 'staff' or 'line balance' becomes an essential element in such an operation.

In all these situations described, no promoter of new ideas, whether supported by a context of crisis or not, can successfully conduct an experiment all alone. He is thus obliged to have recourse to the natural channels of negotiation between the workers and management. He is thus 'condemned' to a certain type of alliance with the middle managerial classes, or with intermediary bodies who may or may not be motivated to put new ideas into practice. Everything rests upon the subtle balance between authority, the motivation and interests of each party present – worker personnel, unions, supervisors, middle management, and general directors. In all classic cases, the middle managerial classes are by definition in pivotal positions (see Figure 1); and they can act either as brakes or motors in social innovation, according to their view of their own interests.

But in France, middle managers see themselves as a particular social category with their own specific status, advantages and problems. This consciousness of being a separate social class stems from a series of legislative and contractual arrangements which were instituted after the Second World War, and which lead middle managers to see themselves as a very different category from supervisors. In the past few years much has been said about 'supervisors' malaise'. Now we are beginning to see a 'middle management malaise' emerge. The first analyses on this subject provide very complex data: 'proletarianization of middle management', their difficulty in locating themselves in the social framework, personal stress, erosion of their specific advantages, increasing 'Taylorization' of their functions, and demands about their own conditions of work in

positions which are often far from the main decision-making centres of the organization.

Middle management choice – a new social and political stake

Thus, on the whole this category of middle managers tends to be rather reticent about social innovation, which is inclined to favour the worker or supervisory levels, and sees itself sandwiched between these and the higher-ups, and paying the price of the new forms of organization. This leads them, more or less elicitly, either to be unmoved by proposals for social innovation, or to make corporate preconditions for their introduction. Given that working conditions of operatives are going to be an important factor for the

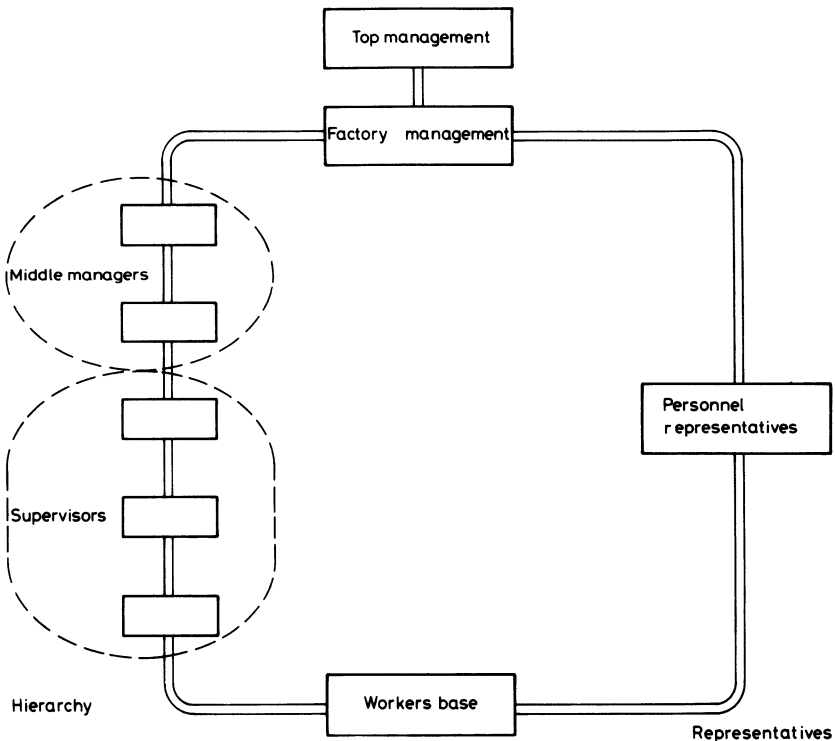


Figure 1. The pivotal position of middle management.

legislative elections in 1978, the various political coalitions are going to try to win over middle management votes. The government, the political parties, and the main unions are all trying to take into their own hands the task of raising this consciousness of being a pivotal class and to seek their support, since their behaviour, for the time being, remains uncertain and ambivalent.

Thus, for the spread of all new forms of work organization in France, it is necessary to include an exploration of, and a solution for, the social and political behaviour of this social category. Certainly this will lead the highly centralized structures of the majority of French firms to be called into question.

SECTION THREE

ACTION RESEARCH REPORTS: PRODUCTION AND TECHNICAL UNITS

8. Warehouse workers reorganize their own work organization

Andreas Alioth *

The present project of job design took place in a big, newly constructed warehouse and distributing centre of a Swiss supermarket chain. What called forth the project was a change in the company's philosophy: the relevant issues for the project were participation and design of meaningful jobs. This change was promoted especially by one member of the company's top management team. For the purpose of demonstrating a concrete example of these issues, the implementation of semi-autonomous work groups in this warehouse and distributing centre was planned, and three researchers of the Swiss Federal Institute of Technology, Zurich, were asked to take charge of it. The fact that social scientists became involved in job design and changing work organization in a company was quite unusual in Switzerland.

As a matter of course the project was much supported by the top manager mentioned above as well as by the head of the warehouse and distributing centre, who was a direct subordinate of the former. However, there was no union official involved in the project: actually only very few employees of the company were union members and in the plant where the project was carried on, nobody was unionized. As a matter of fact, no worker representative systems, in terms of workers' councils, joint committees, and so on, are institutionalized in Switzerland.

The course of the project was linked to just one person; and this was a weak point. In fact, when the top manager, for personal

* Swiss Federal Institute of Technology, Zurich. This report is based mainly on a paper presented at the Sixth Congress of the International Association of Ergonomics in Washington (Alioth et al. 1976).

reasons, left the company, the project was stopped. This report describes the period from the beginning of the project in Autumn 1974 until its end in Spring 1976.

Some information about the plant

The task of the warehouse and distribution centre within the company is to collect the goods from the suppliers, to store them and to redistribute them to the company's shops and supermarkets. The daily turnover of goods averages about 10,000 pallets. By the end of 1975 the centre employed approximately 300 people. The centre is very much dependent on its client environment, i.e., the company's shops and supermarkets. Its highest priority objective is to give them immediate service. The orders are usually communicated on-line the night before delivery. Careful scheduling of the daily work was hardly possible as the plant did not have any relevant experience yet, so the organization could not be adapted to the considerable daily fluctuation (over 100 per cent) of the work volume. The management style in the centre was heavily determined by this outside dependency: it consisted more of improvisation than of planned action. These circumstances had quite an impact on the change process during the project.

Strategy of implementation

As a first step of implementation, a project group was constituted including five workers, three supervisors and three researchers. The main role of this group was to introduce the change process in the different departments of the centre and to act as consultant to the people involved. As at the time no system for workers' representation existed, the five workers had the task of representing the opinions of their colleagues as far as they could. Without an institutionalized background such as a workers' council this task was likely to create interpersonal conflict; and this was perhaps a reason

for the time it took, about three months, for the project group to find its identity. The head of the centre joined the project group after one year, since it became necessary during the course of the development of the two experimental units that the management should be more involved in evaluating the change process.

As its first task, under the guidance of the researchers, the project group worked out a concept of change. The development of this concept was based on Gulowsen's criteria of autonomy (1972) and consisted mainly of adapting these criteria to the constraints of the plant. The outcome had not the character of a rigid plan, but had the function of guidelines for the project group. It was clear that the concrete changes had to come from the actual situation.

Applying a stepwise strategy, at first just two departments were chosen for the implementation of the change process, namely, the crane-store department and the flower department. The main reason for this choice was the positive attitude of their supervisors towards the project. During a seminar with the workers of these departments, the researchers gave an introduction in participative job design. As a model for the seminar the participative design workshop of Emery and Emery (1976) was used. According to this model, the workers had to rate their different jobs from zero to ten points for each of the six criteria of work, listed in Table 1. The rule

Table 1. Task ratings of the crane-store department.

| Criteria of work | Picking. household | Picking. textile | Operating distribu- tion car | Conden- sation of pallets | Forklift driver | Coordina- ting con- densation | Adminis- tration |
|----------------------------------------------------|-----------------------|---------------------|------------------------------------|---------------------------------|--------------------|-------------------------------------|---------------------|
| A. Decision making: adequate elbow-room | 5 | 5 | 3 | 7 | 6 | 8 | 9 |
| B. Level of variety | 7 | 6 | 1 | 8 | 7 | 9 | 8 |
| C. Chances of learning on the job | 3 | 3 | 1 | 5 | 5 | 5 | 9 |
| D. Mutual support and respect from work colleagues | 8 | 8 | 9 | 8 | 8 | 8 | 8 |
| E. Meaningfulness of work | 9 | 9 | 9 | 9 | 9 | 9 | 9 |
| F. Desirable future | 2 | 2 | 2 | 2 | 2 | 4 | 5 |
| Total | 34 | 33 | 25 | 39 | 37 | 43 | 48 |

of the game was to do this in groups without expert or supervisor. Table 1 shows the result in the crane-store department.

The maximum possible rating score is sixty points per job. These workers rated their 'poorest' task with 25 points (the same in the flower department) and their 'richest' one with 48 (47 respectively) points. This kind of subjective job analysis was a first step in reflecting upon their own jobs. As a second step the workers had to work out proposals for enriching the 'poor' jobs without impoverishing the 'rich' ones. This was in many cases not possible without changing the work organization, and this is where the change process started.

Case 1: the crane-store department

The technical system of the crane-store department consists of 23 crane corridors of 65m length and 9m height with shelves on both sides. Only 17 cranes were in operation at the time, as the centre was still in a developing phase. Each corridor can be run by one operator only. Consequently a worker with a high work load in his corridor cannot get support from his colleagues. Also refilling of the shelves cannot be done while a worker has to collect goods. After the seminar a process of development started and went through phases of high motivation and strong group culture, of disintegration, or searching and conflict, and of reorientation.

Phase of high motivation and strong group culture. As a consequence of the seminar, the work group developed a strong socio-emotional cohesiveness. The workers met quite frequently after work. The development of the work organization went in the direction indicated by the proposals made during the seminar. The workers took over their own distribution of tasks and they partly rotated between the different work places. Moreover, an agreement was fixed that the workers could plan the working time on their own and they they could have an influence on when to engage new workers. The problems were solved in group discussions where most of the workers actively took part. In those group discussions the supervisor had the function of a moderator. During this phase the group

reached a fairly high degree of autonomy and a good sense of group responsibility. This coincided, however, with the beginning of the department's operation, when only a relatively low output per man had to be performed (see Figure 1).

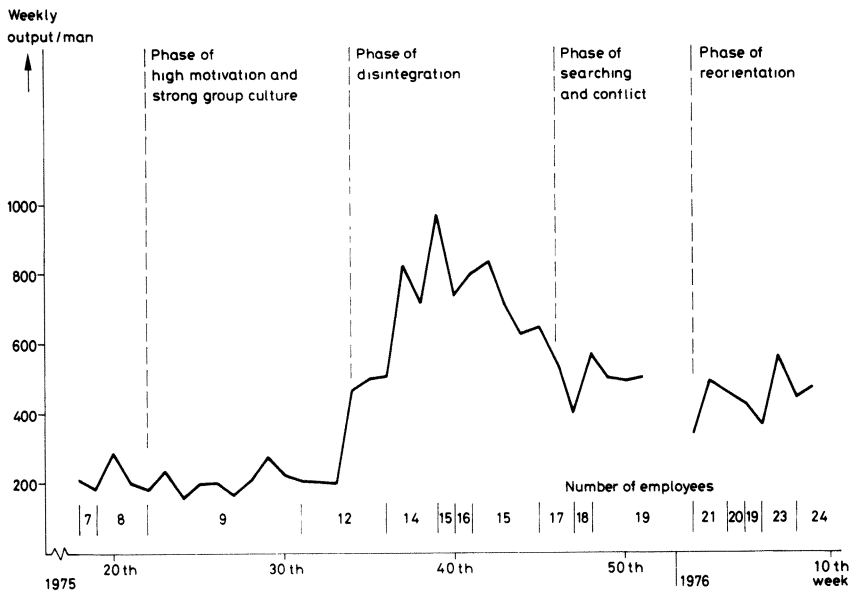


Figure 1. Development of work load and personnel in the crane-store department.

Phase of disintegration. In this phase the volume of orders increased heavily; the increase of personnel was much lower. Consequently the work load per man increased in about one month from an unusually low level to a level which has not been reached since (see Figure 1). The average overtime per month rose to 12 per cent. Under these conditions newly employed workers could not be trained thoroughly, and as a matter of course the quota mistakes increased. The researchers advised the management to protect the department from this stress situation, as the training of new workers is essential to maintain self-regulation. However, under the pressure of the company's marketing division, which pushed for the immediate service goal only, the management reacted with in-

creased control. In this phase the danger of the inflexibility of the technical system became evident. It allowed no *Organizational choice* (Trist et al. 1963) for developing special strategies to overcome stress situations of the present kind. On the one hand adequate work scheduling was not possible. On the other hand, the workers could not get effective support from each other. Under these conditions uneven distribution of work load was inevitable and, consequently, group cohesiveness decreased.

Phase of searching and conflict. The work load reached a normal level after about two months. By that time a group of four workers who participated at the initial seminar were very active in recultivating self-regulation. But during the last two months of disintegration, a few cliques were formed which were quite hostile to each other. In informal interviews it became evident that those who participated at the initial seminar had a more accurate notion of how to reorganize the department than those who joined the department later. One can assume that taking part in the change process during the first phase had an impact on the aspiration level. The disagreement between the workers could not be solved at the time. The researchers who were called in could not help in solving the conflict at once, but they indicated that the department had become too large in relation to the technical system for such conflicts to be solved; and they proposed to reorganize the department into a few smaller groups.

Phase of reorientation. The supervisor proposed to organize the department according to the three categories of goods stored there. This proposition was applied, although many workers did not agree. The workers could choose their colleagues by means of a sociographic questionnaire. Nevertheless, in the different groups, cohesiveness developed quickly, for the cliques which came out of the phase of disintegration could now work as formal groups. At that stage the conditions for reinforcing self-regulation were quite helpful. However, when the relevant top manager left the company at that time, the project was stopped.

Case 2: the flower department

The flower department has two main tasks: first, the redistribution of flowers arriving from the suppliers for delivery to the company's shops and supermarkets; and second, bundling flowers in bunches before delivery. The work in this department is characterized by the interdependency of the different work places. The workers are interrelated through the work flow: group working is indicated by the technical system itself. A problem of the department is that the marketing people who are technically in charge of it work 75km away from the centre. The development of the change process after the seminar went through phases of learning, of pride and high motivation, and of need of protection.

Phase of learning. To realize the proposals made during the seminar – namely, to take charge of administrative and control functions – it was necessary that the workers should be trained in some supervisory tasks; and to organize the daily work on their own, they had to learn more about flowers. The supervisor, having a very positive attitude towards the change process, set up a thorough training programme. After four months, the workers were able to manage the whole department on their own. At that time the supervisor left the plant (for reasons outside the project) and because of the development within the department, he was not replaced, this being a strong wish of the workers.

Phase of pride and high motivation. The workers were subsequently very proud of being able to manage the department without a supervisor. They developed a high sense of responsibility and took care to produce good results. They wanted to show that they were 'able to manage the department on their own', as mentioned by one girl. The quality of the work performed has been maintained since the supervisor left. Nevertheless, the marketing people in charge of the flower department were not in favour of this autonomous management; they liked to have one person responsible for the department. This caused conflicts which were difficult to solve due to the geographical separation. The centre's management, being highly

dependent on the marketing division, insufficiently protected or promoted the flower department. But the workers were, apparently, still highly motivated to manage the department on their own.

Phase of need for protection. More and more the workers felt squeezed between the marketing people and the centre's management. While being interviewed they indicated that their work was never appreciated. Therefore their interest in the performance of the department declined and so did their sense of common responsibility. The workers were not so prepared to do overtime or to help their colleagues as before: with the decline of interest in their department, individual interests became more important. Moreover, most of the workers wished to have a boss again, after having strongly rejected this idea for more than three months. However, in interviews the workers stated clearly that they did not want to give up working autonomously, but they wanted somebody to protect them from the outside, from the quarrels with the marketing people, and to help them in solving conflicts with the group. The integration of new workers caused some difficulties, but a disintegration of the group, as in Case 1, never happened. We assume that the technical system, which provided a set of interdependent tasks in this department, contributed positively to a work-related cohesiveness. When the project was stopped, the development of skills necessary for self-regulation was considerable (see Figure 2). The new supervisor, therefore, will have had good reasons for not having changed too much the work organization developed at that time.

Finally, an interesting finding gathered from the interviews was the differences in work-related attitudes between the workers who went through the whole change process and workers who were only with the department for one or two months. The former group had a very thorough view of the problems and showed a critical attitude in this phase. The latter group (3 out of 4) experienced the present autonomy in a highly positive way; but they did not expect as much 'elbow-room' when joining the centre. Apparently, the aspiration level of the former rose during the change process.

Figure 2. Range of competence in the flower department.

| Jobs, responsibilities, skills | Workers employed before change | | | | | | Workers employed during change | | | | |
|--------------------------------|--------------------------------|----|----|----|----|----|--------------------------------|----|----|----|----|
| | Nü | Ge | Gr | Br | Ro | We | Gh | Ba | Nu | Ze | Ru |
| Bundling I | • | • | • | • | • | • | ○ | ○ | ○ | ○ | ○ |
| Bundling II | ○ | | | | ○ | • | | ○ | | ○ | |
| Distributing | • | ○ | ○ | ■ | | | | | | | |
| Cleaning | • | • | • | • | • | | ○ | ○ | ○ | ○ | ○ |
| Administration | ○ | ■ | | ■ | ○ | | | | ■ | | |
| Tele-communication | ○ | ○ | ○ | | ○ | ○ | | | ○ | | |
| Coordination | ○ | ○ | ○ | ○ | ○ | ○ | | | | | |
| Supplementary tasks | ■ | ■ | | | ■ | ○ | ■ | | | | |
| Training | ○ | ○ | ○ | ○ | ○ | | | | | | |
| Quality of flowers | ○ | | | | | | | | | | |

• Skills before change
 ○ Skills acquired during change
 ■ Partly acquired skills during change

Some conclusions

1. Both cases confirmed that the participative job design approach is an adequate strategy for starting up a process for developing self-regulation. We assume that this kind of strategy has a great impact on the rise of the aspiration level of the people concerned.
2. The conclusions concerning diffusion by Qvale (1976) and Roggema (1977) were confirmed: the change process did not diffuse from the bottom up.
3. Both cases showed that high stress in the beginning of the development of self-regulation hinders this development and may cause resignation. Stress protection can be essential in early phases of the development (Ulich and Alioth 1977).
4. Group cohesiveness that is mainly based on a socio-emotional relationship proved to be more affected by a stress situation than group cohesiveness which is mainly work related. Therefore, the technical system should preferably provide an interdependent task structure.

5. The shorter the scheduling time is, the more flexible should be the technical system. In Case 1 the rigidity of the technical system led to an uneven distribution of stress; this was a source of conflict.
6. Case 2 showed that a work group with a great extent of outside interaction needs a strong boundary protection.
7. Careful integration and serious training of new workers is essential to maintain collective self-regulation of a work group and to prevent the formation of cliques within the group.
8. Autonomous group working demands a change of supervisory role. Boundary protection, including the supply of information and material needed, moderation of group problem-solving, and help for conflict solving, are the main new functions.

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9. The Volkswagenwerk AG project within the framework of the research programme 'Humanization of Working Life' of the Federal Ministry for Research and Technology: Comparison of work structures in machine production (engine assembly)

Michael Granel *

This project was conceived with the objective of making possible a comparison of different work structures in engine assembly. The investigation concerns a comprehensive approach including both aspects relating to the workers concerned, and economic aspects. Moreover, within this approach individual influences are 'controlled' and the product was kept constant within the comparative framework of study. The project covers new ground in various areas; for realization of the objective account had to be taken of interdisciplinary needs, in terms of personnel and organization, thus a project team was formed which consisted of representatives of:

1. The Institute of Ergonomics of the Technical University of Darmstadt (Professor W. Rohmert);
2. The Chair of Industrial Psychology of the Swiss Federal Institute of Technology of Zurich (Professor E. Ulich); and
3. The Volkswagenwerk Aktiengesellschaft.¹

For comparison of work structures, the assembly of four-cylinder in-line engines was chosen. In the past this job was carried out on so-

* Project Manager, Humanization of Working Life Project, Volkswagenwerk AG.

1. A project team including academic institutions responsible for academic investigations is a prerequisite for projects sponsored by the government within the humanization programme.

called apron conveyors, and more recently transfer assembly lines were introduced. Besides these two existing structures, a third, 'semi-autonomous group working' was to be developed and investigated within the framework of the project. The most important characteristics of the three structures mentioned need to be explained (see Figure 1).

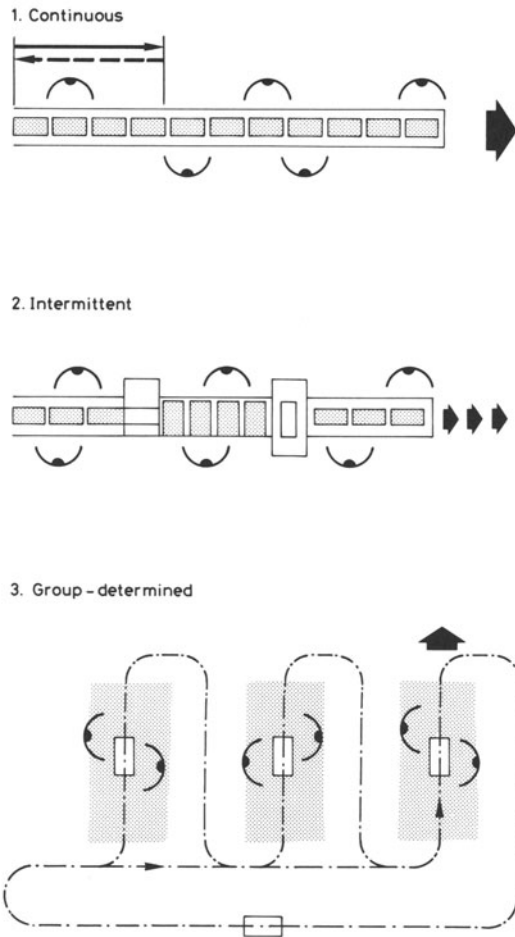


Figure 1. Work flow in engine assembly shops.

Apron conveyer

The workpiece or component (engine) is moved continuously forward. The speed of the apron conveyor is set in accordance with the day's agreed nominal output. The worker moves along with the workpiece. The tools (all-purpose or specialized tools according to the degree of mechanization) are so arranged that they can be used on a particular section of the conveyor. The assembly material is likewise allocated to a section of the conveyor. The cycle times of the apron conveyors are between 1.5 and 3 minutes and are determined by the programme for the day.

Transfer assembly line

The workpiece (engine) is moved in phases from one work place to another. While the work is being carried out the workpiece comes to a halt. While it is stopped, on the one hand automatic assembly devices are brought into use, and on the other hand the remaining manual processes are carried out. The tools are fixed (automatic stations). The cycle times are between 0.8 and 1.2 minutes depending on the planned output.

Semi-autonomous group working

The work tasks envisaged comprise the complete assembly of an engine (45-60 minutes cycle), the running-in and testing of the engines, and other planning and monitoring tasks. Moreover, by applying a participative job design approach, all the workers involved in the assembly structure are to receive a high degree of autonomy. The intention is to leave it up to the groups to self-regulate the work organization and the distribution of tasks; that is, the fulfilment of a weekly programme, the regulation of breaks arising from the individual time spreads and the outside representation of the group. It is intended to give the groups a say in changes

of staff within the group and in the development and introduction of new tools and equipment.

The realization of this complex investigation was approached in three project phases. A prerequisite for the implementation of such a plan was the willingness of our co-workers to cooperate in this project. After a majority of those employed in engine assembly (approximately 60 per cent) had said that they agreed to participate in the project, the appropriate preconditions could be laid down.

To maintain the requirements of the objectives, it was necessary to form a group participating in the project (50 workers) who were assigned to all three structures to be investigated. Ten workers out of this group were moreover chosen for physiological examination.

The development of the new work structure represents a common task of all parties involved, and it is difficult to organize within the rigid organizational structures of the company. Therefore, a special project organization was developed with steering groups at company level as well as at plant level. In the steering group at our plant in Salzgitter, members from the respective line and staff departments, representatives of the works council, and the group spokesmen from the work groups collaborate with the external researchers from the institutes mentioned earlier. The prerequisites for the project and especially for the development of the new work structure were given after the formulation of the project objectives and the creation of the project organization. The following project phases deal with the investigation activities concerning the three work structures.

Phase 1

The investigations and statistics on the 'apron conveyor' structure were carried out in project Phase 1. For this purpose the workers participating in the project were introduced to this structure. The workers were placed in typical work places for this structure from which physiological data were to be deducted after an initial medical examination. The subjective attitudes of the workers to their working situation were recorded by means of questionnaires both for the workers participating in the project and for approximately a

further 160 workers who remained within their normal work structures. The latter thus constituted the control group. The investigations were concluded in July 1975.

Phase 2

The investigations and statistics on the transfer assembly line were carried out in the same way as in Phase 1.

Phase 3

Phase 3 of the project comprises the development of the new work structure, that is 'semi-autonomous group work', and its subsequent analysis. Since the development process and the work itself in this new structure are of great significance, they will be described in some detail.

Within the project organization described above, a start was made, in accordance with a participative job design approach, to create the prerequisites for the technical and organizational conditions of group assembly. The task was 'with regard to the aspects of semi-autonomy to develop a work structure (the technical structure may be further developed) which makes the daily production of 100 engines possible in accordance with the range of tasks conceived.'

The development of the structure, with the participation of all the workers, required an early decision with regard to the determination of the number of workers operating within this structure. Four groups of seven workers each were planned, of which each group was to produce 25 engines per working day.

The formation of the groups took place on the recommendation of the researchers, to the exclusion and without the influence of the company. In this process the size of the groups was also extended for the duration of the project by three workers, called 'substitutes'. This was to ensure a continuity in the development of the project in the case of staff changes.

The group formation process led to the setting up of the required four groups; however, some of the workers who were originally part of the group participating in the project dropped out for various

reasons. Also representation of the groups had to be organized: that is, election of group spokesman and their substitutes took place.

The main responsibility for the group development process was in the hands of the Department of Industrial Psychology of the Swiss Federal Institute of Technology, Zurich, in order to exclude possible mistakes in this phase, which was very important for the development of the project. All the group discussions were held under the guidance of one researcher. Persons belonging to the company or other persons were invited on the sole responsibility of the groups. All the areas represented in the project organization declared their willingness to give information to the groups if requested.

In accordance with the chosen form of group representation, the group spokesmen were then taken into the project organization. All the members of the groups were kept informed by means of group discussions, which took place fortnightly. The process of forming and developing the groups took place in October and November 1975. Since then members of work groups have also been included in the technical development of the new work structure.

In the period which then followed, two important tasks had particularly to be carried out:

1. The development of the technical concept, and;
 2. The 'equalization' of the information level of all those participating in the project.
-
1. The main objectives of all parties involved in the project were taken into consideration in the development of the technical concept. In the development phase, two different assembly concepts were respectively developed and compared. It should be mentioned here that one draft originated from the proposals and ideas of a group spokesman.
 2. The period which followed made it clear that, as a result of a possibly varied level of information, the decision-making process on the technical operations stretched out over a very long period of time. The proposals for the layout and the technical possi-

bilities were demonstrated in November but a final decision could not be made until the end of May 1976. As a result of the length of time it took to make a decision, assembly in groups was started under provisional conditions. This put us in a position to train the workers and to carry out the technical development of the assembly structure simultaneously, and, therefore, to balance out the loss of time which had occurred.

An instruction and learning programme was planned for the preparation of the workers for their new task; it was developed by the psychologist researchers. One had to start with an extremely varied skill level since the workers came from different jobs. The main objective, however, was to prepare those workers with a relatively low skill level (one or several sections in the field of engine assembly) for taking over the complete assembly of an engine. Thus, new training methods, such as mental training, had to be used. In the course of the project the researchers and the company, Volkswagen, spared no effort to ensure the comprehensive preparation and familiarization of those working in the new structure. This was helped by the fact that during this period of the project the assembly line only was covered (running in and testing were to be included at a later date).

Semi-autonomous group work: the present state of the project

Up to the present time the development of the technical structure was concluded for the pure assembly of the engines only. At the beginning of April two groups started work under provisional conditions, that is, as part of a 'learning process'. From June 1976 all four groups were able to start work in the new structure. Now the complete assembly of the engine (except preassembly) and the preparation of material required belonged to the range of group tasks.

The question of the supervisory duties remained a problem up to this point. At the beginning of the project no rigid organizational structure was planned in order to make 'space' available. Thus, the

advice of the groups not to appoint anyone to the supervisory role was followed. During the development stage it was also made clear several times that the groups were at least partially unprepared to accept a supervisor.

However, under these circumstances the distribution of tasks, which had not been defined in time, had to be transferred for a short period to the appropriate supervisory staff (foremen, chargehands, inspection staff). This was made more difficult by the fact that previous role behaviour could not easily be applied (as a consequence of the autonomy sought) nor were clear job definitions given in order to distribute the tasks within the new structure. These unfavourable circumstances demanded considerable sensitivity, particularly from the supervisory staff designated for these positions.

In spite of this, it can be said that all the groups developed in a positive manner. Not all the objectives (performance and quality) were reached, however; developments showed, particularly in October 1976, that the breaking-in process was not yet completed and, therefore, an improvement in the situation could still be anticipated. As soon as the conditions for an expansion of the job are fulfilled, the job will be expanded step by step taking into consideration the more marginal aspects, such as the running in of engines.

What results can be expected?

First of all, data which can be regarded as scientifically verifiable will be acquired from this comparison of different structures. It seems particularly important that a structural difference was worked out by keeping constant the dependent factors, such as personnel and production. No evaluated results are as yet available, but the first data already show that very good possibilities of assessment are being opened up here.

It was made clear in the course of the project that certain conditions are necessary for the development and introduction of new

work structures, and these cannot be created exclusively by the company. It is, at least in my opinion, quite doubtful that, in future, a process can be brought into being in which every person concerned participates unless a balancing out of the level of information has occurred beforehand. The fulfilment of this condition necessitates an early decision with regard to staff, within the long-term planning processes. Moreover, workers who are put into the position of using 'free organizational spaces' need to be prepared for this situation accordingly. This requires, of course, the willingness of the workers to undergo a learning process.

The questions relating to economic aspects of these developments can only be assessed after a fairly long period of production; however, it can already be seen that job value increases with the expansion of tasks and leads to a corresponding rise of wage levels. The development of a wage system that corresponds to the realities of the new work structure is a very important problem with which the bargaining parties are presently concerned. In order to make the conceived comparison of production costs, a dynamic economical analysis of the three work structures is planned. Apart from the question of economics, we are especially concerned with questions related to the workers themselves. By a critical examination of ergonomic, psychological and economic data, we hope to make an important contribution for the enhancement of the quality of working life.

Editorial note: the position at and after May 1977

In December 1976 there was an important meeting of the two bargaining parties at company level. The special issues that had arisen were the new grading of wages for the workers in the group assembly, and the rights and tasks of the bargaining parties (especially union's rights) in planning and developing new forms of work organization. In fact, this was rather a late date to discuss such matters, but they obviously did not want to decide before having had some concrete experience within the project. Since late Summer 1976 problems of coordination and (self-) management had been predominant, so that the social and organizational skills had not been developed as quickly as the technical ones.

As there was no special agreement for the project, the relevant paragraphs of the Co-determination law (*Betriebsverfassungsgesetz*) had to be interpreted and brought into play. At that meeting the union and the works council declared that

work group autonomy, as developed in the project, and the election of spokesmen, were against the law, in spite of having previously agreed to these. As a matter of fact, representatives of the works council participated in the steering committees which were responsible for the planning and implementation of the project, and the union is part of the tripartite supervisory board for the humanization of work project. In line with this decision, the steering committees have been dissolved. The planning of the project is now done by management only with the works council using its traditional veto right. The researchers who have been actively involved in the developing process have now the role of a consultant to both parties separately. The workers who had participated in designing the work structure have now no say for their further development; apparently they are quite frustrated and anxious about their future.

The consequences for the project are that it runs now as a job enrichment programme without any changes to the organizational principle of 'one man, one job'. Nevertheless the project leads to a considerably better-qualified worker in the areas concerned, as well as to a demonstration of a technically realistic alternative to the assembly line. The consequence on national level for union policy towards quality of work life might be highly important but cannot as yet be forecast.

10. Breaking the deadlock: The search for new strategies for Q.W.L.

J. F. den Hertog and H. J. J. de Vries*

This study deals with programmes in the field of 'work structuring' within a Dutch television factory which employs about a thousand workers and belongs to the 'video' division of Philips Electrical Industries. It covers a period of fifteen years: 1961 to 1976. During that period a rough estimate shows that some four thousand people have been involved in some sixty projects. The main objective is to analyse what can be learned from the successes and failures of these projects to break the deadlock. The study is based on documents and interviews and on the experience of the writers as consultants and researchers in this specific organisation.

Background

Work structuring

At the end of the 1950's Philips was in a period of enormous expansion. At that time top management became aware of a number of vast problems facing the organization. There was a fast-growing gap between the expectations and capacities of workers and potential workers, on the one hand, and the quality of the work offered on the other. It created the problem of 'attracting and holding workers' (van der Graaf 1964). At the same time it was becoming clear that the traditional production systems and staff/line relations were limiting the organization's ability to respond adequately to the environmental demands; and a number of organizational renewal

* Industrial Psychology/Video, Philips' Gloeilampenfabrieken, Eindhoven. This account is taken from a longer paper of the same name, which provides further details of the background to work structuring and its development in Philips N.V., Holland.

projects were started, projects in various places, differing in scope and content.

Job design, or 'work structuring', as it is called within Philips, is one of the main areas in which these efforts are undertaken and are still going on. In 1970 the president of the company pointed out in a letter of intent that work structuring was a central element in company policy. According to its formal definition, work structuring is aimed at: 'The organization of work and work situation in such a way that, while efficiency is maintained or improved, job content accords as closely as possible with the capacities and ambitions of the individual employee'.

In practice, work structuring consists of a set of elements, as follows:

1. *Job enlargement (horizontal lead)*. The work cycle is enlarged by adding more tasks of the same level. The work becomes a module, with a certain identity. The number of people working in a group can be reduced.
2. *Job enrichment (vertical lead)*. Job enrichment refers to the qualitative change in the job. Work formerly done by the foreman and by people from other staff and auxiliary departments is brought to the shop floor.
3. *Job rotation*. Group members take over each other's jobs for a certain period of time. They learn more tasks and rotate in accordance with a roster or by mutual arrangement.
4. *Feedback on quality and output*. Inspection of their own work and short feedback loops create conditions in which workers learn. The workers are given an opportunity to see the process as a whole and to take decisions.
5. *Small product groups*. Production is organized in small stable groups, each making a product that is complete in itself.
6. *Job consultation*. Job consultation is a central element of work structuring. Once every two or three weeks the workers and their supervisors meet in groups to discuss the problems of the last period and possibilities for improvement.
7. *Deverticalization*. The shortening of the organizational hierarchy

makes it possible to delegate responsibility to the production workers. The most usual deverticalization is illustrated in Figure 1. The head of a group has a supporting rather than a controlling function.

It is stressed that the local production unit has to find for itself the most appropriate form of work structuring.

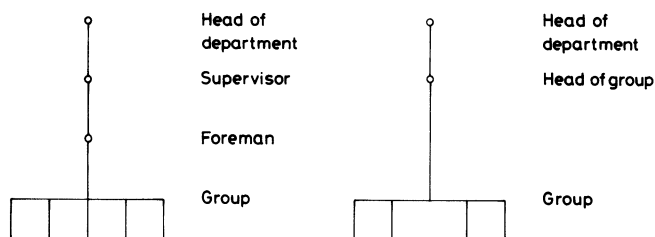


Figure 1. A common form of deverticalization

Experimental 'gardens'

At the end of the 1950's the management of the television assembly plant faced a number of cumulative problems. On the one hand they were being pressed by the commercial department for greater production and flexibility. On the other, they were confronted with low morale among the workers and high labour turnover, a rising level of assembly faults and a production system that was extremely sensitive to disturbances in the material flow, the conveyor system and in the composition of the work crew.

Management was beginning to realize that classical approaches such as leadership training, selection and work study were not enough to solve their problems. The production system itself had to be reexamined. The first experiment was set up in 1960. At that time television sets were assembled on a long belt on which assembly boards were slid from one work station to the next every one and a half minutes upon a signal from a lamp or a buzzer, with the regularity of a clock. In this project, in which the industrial psychologist played an important role, the core of the system, the long

linked line, stayed intact. The change consisted in (1) forming five sub-groups, (2) introducing buffer stocks between groups, and (3) distributing the quality inspectors over the five groups (in the old system they were located at the end of the line).

The experiment was a success with regard to both production performance and attitudes. The workers felt more free to determine their own pace. A survey showed that they experienced less tension and that they were also more satisfied with their job than workers on traditional belts without buffer stocks. Economically, too, the effects of the new system were very positive. Waiting times due to holdups in the supply of materials were reduced by 55 per cent. Less time was lost in 'balancing' the individual jobs within the line and, finally, there was a noticeable drop in the number of assembly faults.

This first project performed three important functions. It showed that in setting up new production systems it was possible to think in terms of organizational choice rather than to follow well-trodden paths. Secondly, it demonstrated the importance of the human factor in the performance of the system. 'Balancing the line' had always been regarded as a 'technical problem'. Van Beek (1964) showed, however, that the 'human factor' was the key to the problem, namely, variations in the average tempo of individual workers and variations in the speed of individual workers with time. Finally, the project made clear how useful the contribution of behavioural scientists could be in solving production problems. A number of projects followed. In the most important of these, between 1970 and 1973, two semi-autonomous work groups were established. Only fourteen people were involved. At the same time one traditional line with about twenty-five workers assembled the same television set in the same factory.

The deadlock

The experiment with the two semi-autonomous groups received a lot of attention both inside and outside Philips. Views generally

were optimistic. Many people considered the experiment a 'real breakthrough', a realistic alternative to the traditional mass-production systems. Numerous articles appeared in the international press, but journalists often forgot to mention that only fourteen people were involved in the experiment.

When management decided to stop production of this particular television set, for planning reasons, many supporters of work structuring in the plant were suddenly confronted with the facts. Suddenly they realized that the experiment was at that moment the only existing work structuring project within the factory. They realized that foreign television production centres had taken over hardly any elements or ideas from the experiment. It also dawned on them that the steering group which had the task of supervising work structuring projects had quietly vanished (Geerts 1976).

Management made it clear that the development of work structuring within the factory was very important and would go on. First, it was decided to evaluate the project, which by now had entered its last phase, and that future developments would be based upon the experience gained from this project (which had been so successful).

The evaluation job was given to a task force composed of heads of production departments and specialists from staff departments. Being totally unaccustomed to working in an interdisciplinary team the group started in a Babylonian confusion. It was at this moment that real attitudes towards the project became manifest. To overcome the problem the task was delegated to an industrial psychologist from a central department and a company specialist from the organization and efficiency department in the plant. Together they produced an extensive report, based upon an analysis of production data, questionnaires, interviews and observations (Van Broekhoven 1973; den Hertog and Kerkhoff 1973). The group that was still working in the orthodox way was used as a contrast group ($N=24$). The results were fairly positive.

The 'experimental' workers no longer considered the old situation acceptable. They were more satisfied with their work than the workers in the contrast group. At the same time, however, they

made clear their view that only the first few steps had been taken along the path to participation and autonomy. Although workers in the semi-autonomous groups took a more favourable view of their work, it was also clear that they expected more from it. A need was felt to progress further in the chosen direction. An extensive economic evaluation revealed that the factory cost price of the sets assembled in the experimental groups was slightly lower than that of sets produced on the orthodox lines. In contrast to the elaborate evaluation of the direct effects, strategic questions were not discussed. Nowhere in the bulky reports was it mentioned that the experiment had to be stopped for planning reasons. Nowhere was it mentioned how little impact the experiment had had on the organization of work in the rest of the factory or in other television factories. Nowhere were the conditions under which the experiment had been set up discussed. Nowhere was it mentioned how intensively the experiment had been coached and what the effects of this 'intensive care' had been. Gradually, management and staff became aware of the need for an adequate strategy for the diffusion of work structuring within the factory. The process was accelerated within the factory in the course of a new project. Again an individual department head took the initiative in implementing ideas about work structuring in the setting up of a new production line. He made it very clear, however, that he was going to do it in his own way. In practice, this meant no 'soft' behavioural approach, no extra attention, and no staff people hanging around.

About the same time the factory management became convinced that work structuring needed a new impetus. They therefore created a new staff position called 'work structuring coordinator', reporting directly to the production manager. The department head who had started the experiment with the two semi-autonomous groups was appointed to this position. Together with a sociologist from the personnel department he was given the task of promoting and creating conditions for work structuring. The ends of production interpreted, however, their role as a controlling rather than a helping one.

The new project experienced difficulty. The new product (colour

television) was very complicated and all the technological problems had not yet been solved. The department head felt that the workers were not very satisfied with their new situation. He wanted to know why. Bypassing the internal staff, he asked an outside psychologist to help him find out. Interviewers (Kuipers and de Vries 1973) showed that the workers were unhappy with the way the project was being run. Consultation with supervisors and the department head was regarded largely as one-way communication. In addition, there were problems with the work pace and the relations between subgroups.

At this point it seemed clear that work structuring had reached a deadlock, notwithstanding the efforts and good intentions of a lot of people. The facts could be ignored no longer. Although there was little agreement about the way to overcome the deadlock, one thing was clear: for the advocates of work structuring fundamental discussion was needed in order to ensure responsibility of staff and line for the further development of work structuring within the plant.

Towards shared responsibility

A Workshop

The work-structuring coordinator felt that new stimuli were needed. He suggested bringing the heads of production departments and relevant people from the staff departments together at a meeting. The factory manager gave him support in organizing a two-day off-site workshop. The objective of the workshop was to exchange ideas and experiences and to prepare a scenario for future development of work structuring within the plant.

One outcome was that the group came to important conclusions with regard to the content of work structuring. They pointed out that it was time to leave the 'experimental stage'. Work structuring had to be incorporated into the daily practice of production management. Every new set-up of a production line in the factory had to be discussed in terms of work structuring. The general philosophy of the group was that it was better to implement fairly

moderate changes over a broad front than to achieve success with more drastic changes in a very limited area. Special attention had to be given to materials management, layout, tools, and machinery, and to the design of the product. Task forces were formed to tackle these factors because it was the general opinion that they largely determined the degrees of freedom for work structuring in the factory. Finally it was agreed that the department heads should work more directly with specialists from staff departments. The aim should be a situation in which each of them had his own liaison arrangements within quality control, production engineering, the organization and efficiency department, and so on.

The factory manager reacted very positively to the outcome of the workshop. He was enthusiastic about the spirit in the group. At the same time, however, he stated that his time schedule did not permit him to act as a chairman of the group at that moment. He also told the group that in his view the planned frequency of their meetings was on the high side. Some new obstacles had to be overcome in the meetings which followed. Discussing mistakes and problems in a concrete case proved to be far greater as a source of danger than speaking in general terms. Discussion and evaluation of the problem-beset colour television project formed a good learning situation. A great deal of emotional energy had to be expended by the members of the group before the basic elements of the problems could be put on the table. A recriminating attitude changed, in the course of the discussions, into a 'learning attitude'.

Official recognition of the group

Another blockage originated from the nonacceptance of the existence of the work-structuring group by people in its environment. Little was done to give the group's activities any official standing within the plant. Outsiders saw the group as a 'hobby club' doing no 'real business' and talking all day long about such 'half-baked' ideas as work structuring. The outside comments were very sceptical. In the plant there had always been a 'real production culture'; getting

things done yesterday instead of tomorrow was the watchword. Off-site discussion, focused on *how* things should be done, did not fit into this cultural pattern. The attendance of group members at meetings became a problem. A proposal to strengthen group cohesion by means of a training course in group behaviour was put forward, based on a diagnosis that the attendance problem was a matter for outside acceptance and for official recognition of the group's activities.

In the following year official status for this was obtained; the new factory manager became chairman of the group. At the same time the group gradually transformed itself into a 'middle management team', focusing on a larger range of affairs. Work structuring was one of the main themes, but not a subject isolated from the day-to-day, real-life production process. The discussions gradually fitted better with the needs of production management. Another impetus came from the few new projects that had been started and were adopted by the group.

By the end of the first year the group had achieved an effective allocation of tasks. The 'W.S.' group, as it was now known, started a number of studies of 'conditioning' factors such as materials management, layout and production equipment. Other activities were connected with three concrete change projects within the factory. The group had formulated its objective as follows: the development of relations at middle management level between staff and line in order to advise factory and divisional management in their work structuring policy and to support lower management levels in the actual practice of work structuring and in related Q.W.L. matters.

Effects on the organization

It is now three and a half years since the initiative of the W.S. group began. It has proved not to be an ephemeral phenomenon in the organization, over-dependent upon the commitment of individual members. Three and a half years is long enough to enable a balance

sheet to be drawn up. In our opinion, one of the essential accomplishments of the W.S. group is that the setting up of each new product line is discussed in the group and checked against Q.W.L. criteria, which means that work structuring is brought in before the system starts working.

It is not just the moment of intervention that has changed with time; the level of intervention has also changed. The W.S. group was primarily concerned with the conditions for work structuring. One of these conditions is to be found in the micro-layout: furniture, pallets, and so on. Cupboards, racks and production tables are now designed in such a way that workers can communicate with each other without any physical barriers. Television sets are placed on trolleys which can be rolled on to small pallets. The conveyor only brings in parts from the store at one end of the production hall and takes away finished products at the other. Pallets are used for materials handling. A kind of 'block building system' has reduced the costs involved in changeovers and has increased flexibility. The new set-up leaves more freedom of choice in the design of the work system.

Staff/line relations have also changed. Each head of a production department has his own liaison officer in the staff departments. He no longer has to deal with continually changing individual specialists. When the situation requires it, he can work with 'his own' team of specialists. The industrial psychologist and a consultant from the personnel department now help the group, at their request, instead of monitoring the group as 'outside experts', as had been done before. The question that now remains is: What changes have taken place in the structure of work in the factory? A few years ago a visitor could be shown a corner where 'work structuring' was being practiced. Work structuring could be pointed to because these small experimental groups differed from the traditional lines. They were like the hedgerows or fences used to mark boundaries.

These differences have now disappeared, and anyone who has not visited the factory in, say, four years, will see that much has changed. In addition to the renovated work environment he will observe that production groups are much smaller than four years

ago. At that time there were still colour television lines employing 100 people. Now the largest group has only 24 members.

Mean cycle times have increased from between three and four to fifteen minutes and more. Far more people are able to work at two or three positions instead of only one. Most of the workers can control their own working pace instead of being a cog in a larger system. The last machine-paced line has disappeared.

Job consultation has been introduced in almost every group. In cooperation with the workers and supervisors, an evaluation procedure has been developed to ensure adequate feedback on work structuring and job consultation activities. Workers fill out a short questionnaire at regular intervals. Two weeks later the results can be discussed at the consultation meetings.

Projects

In addition to the more general changes in the factory, three work-structuring projects have been started up in specific parts of the plant. One project involves sixteen machine operators in a department producing printed wiring for the assembly department. Their jobs have been integrated with those of the machine setters, to give rise to a new trade of operator/setter. Thirty people are concerned in a project in which they work in small groups, assembling remote control devices for colour television. Each worker assembles the whole product. The job cycle is about twenty-two minutes. The quality control and repair function is integrated with the assembly job. The third project involves eighty workers. Workers participated in the design of the work system (layout, furnishing, equipment, task allocation). Work consultation was introduced and job rotation stimulated. Repetitive survey feedback was used to support the change process. The first indications from these projects are quite promising, both economically and socially. A more extensive report of these will shortly be available (de Vries 1978).

Prospects

In the course of time the W.S. group has learned to use more of the possibilities within their own area of authority. The barriers be-

tween departments have become easier to cross. At middle management level, both line and staff executives have become aware that the Q.W.L. within the factory has to be a matter of shared responsibility.

In the last year of this development the W.S. group has frequently collided with its own boundaries – boundaries which have to be crossed in order to guarantee the future development of work structuring within the factory. These boundaries became visible when extra investments, and the approval and commitment of factory and divisional management, were needed. Statements of intent from the 'top' are not enough. It is essential that quality of working life becomes an item of longer-term policy. The design of a new television factory has made this point very urgent. A large number of decisions have to be made which will determine to a large extent how much room there will be for work structuring in the new plant. The design of new products is another field where boundaries have to be crossed. Rapid changes in technology have a heavy impact on the structure of work within production departments. Until now, very little has been done to involve designers in quality of working life programmes. The same arguments apply to the design of production technology. Fast developments in the automation of the assembly process can be expected in the next few years. Both top and middle management are beginning to realize that a more integrated policy on these issues, and more active participation by top management in this area, is needed. But the first steps have yet to be taken. In our view, it is this will be the touchstone for the development of the quality of working life in the next few years.¹

Until now we have devoted most of our attention to upward and lateral relations. This does not imply that downward relations are not of crucial importance. The participation of workers and supervisors in the set-up has proved to be an important precondition. In the past such resistance to change has been encountered in the ranks of lower management. Traditional patterns have had to be changed.

1. For a short perspective on the whole area in Philips, see *Participation and Work Structuring* booklets, published by Philips N.V., Eindhoven; and the study of den Hertog (1977).

Training and other forms of support will be sorely needed in the coming years.

Job consultation on the basis of the organization is now in a developmental phase. Direct consultation with the workers has to develop into a channel for active involvement in organizational renewal programmes. The start of this development has been difficult, but the way back is cut off.

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11. Democratizing work and social life on ships: A report from the experiment on board M.S. *Balao*

Ragnar Johansen *

Few social systems have as long a tradition of rigid social divisions, highly authoritarian, some might say oppressive, authority structures, and difficult, if not dangerous working and living conditions, as the social system typical on board a ship. Only a few hundred years ago, for example, England was able to 'rule the waves' only by impressing men into service, as, in effect, sailor slaves. A ship, of course, is a close-knit, 24-hours society, so the way work on board is organized determines also the kind of social life possible outside work. In the old days little about the way a ship was organized could be called democratic. Even today, although the conditions of work at sea are much improved, no one would use the typical ship organization as an illustration of a democratic place to live and work.

The shipping project at the Work Research Institutes (from 1969)

This situation, however, seems to be changing. In Norway, at least since the days of the Vikings, seafaring has been an integral part of the country's economy and culture. Though a small country, Norway's merchant marine fleet is the fourth largest in the world. In 1969, in part to maintain leadership and initiative in world shipping, representatives from Norwegian ship owners, seamen's unions, government authorities and researchers from the Work Research Institutes (WRI) in Oslo began a programme of experiments aimed at developing more democratic forms of organization in work and

* Ship Research Group, Work Research Institutes, Oslo.

leisure at sea (Institute of Work Psychology 1974; Thorsrud et al. 1967). I have been a researcher in this programme from the beginning and since early 1973, when the M.S. *Balao* was launched¹, I have worked with the crew of that ship to develop more democratic forms of organization. Just how far the *Balao* has come will perhaps be clearer if I briefly describe the conventional organization of ships. The traditional ship organization is marked by highly compartmentalized departments (deck, engine room, catering); extremely differentiated jobs within the departments (i.e., greaser, motor man, repair man, third engineer, second engineer, first engineer and chief); splitting of work plans (senior officers), control (senior officers, junior officers, petty officers) and execution (crew); separate messrooms and dayrooms, and great differences between the officers' and crew's cabins.

This organization is characterized by an excessive fragmentation, a pronounced hierarchical structure and a substitution of crew members according to the principle that individuals can be shifted about like parts of a machine so that new replacements do not reduce the effectiveness of the total organization. Often the departments function as independent hierarchies with long established and quite impenetrable barriers between each other. We find similarly strict barriers between officers and crew. For example there are typically at least three different messrooms (one for captain and senior officers, another for junior officers, and a third for the crew). Even today many ships are designed so that officers and crew never have to meet each other when not at work: they have completely separate territories (Rogne 1974).

This organization is strongly dominated by the roles that originally were connected to certain tasks. But task needs tend to be less determinative than the interpersonal/social relations that are built into these roles, in such a way that they have important but often

1. The M.S. *Balao*, a brand new ship, was delivered to the Torvald Klaveness shipping company, Oslo, in March 1973. At 27,000 dwt, it is a general purpose carrier with two Kampanagel cranes (16-25 tons), that can be driven up and down or across the ship. The engine room is fully automated (i.e. watch-free) with a main engine of the Sulzer type 6RND76 B.H.K. 12,000 rpm. 122.

unintended psychological characteristics. These characteristics support a strongly bureaucratic organizational structure. For example, the captain's role in a typical ship has almost a god-like character. On the other hand, crew members are not expected to be able to be responsible: they need someone to manage them.

There are many indications that this bureaucratic and authoritarian ship's organization creates a number of undesired psychological, social, safety and operational problems, such as various psychosomatic illnesses, interpersonal and intergroup conflicts, high turnover, work-related injuries and physical damage. An excessively fragmented and hierarchical ship organization with high turnover impedes members of the ship's company from helping one another. This is particularly unfortunate on a ship, which is already an isolated work place, and on which technical and social problems are becoming increasingly complex and demanding, but cannot be solved in ways people might be used to on shore. There seemed to be needed new ways of organizing work and social life which would give more meaning in work and free time by fulfilling essential psychological needs which people seem to have for their work (Emery and Thorsrud 1976). This led the institute to experiment in ship organization. Both the programme (Thorsrud et al. 1967) and the first shipboard experiments (Roggema and Thorsrud 1974; Roggema and Hammarstrøm 1975) have been described elsewhere.

The *Høegh Mistral* and *Høegh Multina* experiments in the early 1970's demonstrated that horizontal work integration (that is, people from the same organizational level working together, more or less on their own, on tasks such as engine room maintenance and cargo handling, which traditionally are completed by separate, specialized crews supervised by the bosses) was possible. This helped to debureaucratize ship organization but only *within* existing hierarchical levels (within the crew, junior officers, or senior officers) and not *between* them. Concretely, for example, the position of boatswain (a foreman or work supervisor) was eliminated. The successful horizontal integration in the Høegh projects, however, seemed to lead naturally to the need for vertical integration. Both of these projects depended on integrating deck and machine room jobs.

Integration of deck and engine room, both with the crew and junior officers, was dependent on joint work planning for these two departments. This was, however, a problem the ship officers had to solve, even though the crew was represented by one or two persons in the long-range planning meetings (about one every month). Crew presentation was, however, so small that it had practically no meaning. These are, then, some of the weaknesses in the Høegh projects. We did not manage to develop cooperative work planning far enough to be a good tool to promote a vertical non-bureaucratic ship organization. In short, *people planning their own work together seemed to be the main key for how successful the effort at vertical integration would be*. This became the keynote of the experiment on board the M.S. *Balao*.

The *Balao* project (from 1973): Development of self-maintaining organizational learning through successive phases of cooperative work planning, training and personal development

When the *Balao* project started in March 1973, a special effort was made to develop and use work planning as a main tool to make a more meaningful and democratic ship organization (Johansen and Samuelsen 1976). For the first five months work planning was done by a group that met at least once a week. Here the captain took part, along with the chief engineer, first mate, first engineer, the radio operator, the boatswain and two representatives from the crew. But like the Høegh projects, this was not satisfactory. Often, in conjunction with these planning meetings, there was a general 'town hall' meeting of all officers and crew. The general meeting was a forum where the whole crew could participate in discussions and decisions about work planning and other issues of common interest. During that first summer in 1973, the crew agreed:

1. To leave the weekly work planning to a semi-autonomous group, where all crew from deck and engine room participated;
2. To intensify training so that the crew would be able to work

together as an *integrated* group, with the whole ship as work territory;

3. To convert the boatswain's position into that of a manager of training;
4. To work out a new combined training programme to support the further integration of deck and engine room crews;
5. To apply for approval to the maritime authorities and branch organizations of a suggestion from the ship to have a set monthly salary and an arrangement with flexible manning (whereby the crew's number could vary somewhat during the year, around an agreed average of 23).

The next three months showed that the partly autonomous group could under certain circumstances do the work planning. The main condition was systematic training of the crew so that the majority could participate in planning, control and carrying out regular work on deck *and* in the engine room. However, it was clear that this demanded a lengthy development. Also, in the beginning, the new organization pattern was very vulnerable to changes in crew (men leaving for vacation or to work on another ship). This led to the chief mate and first engineer joining the planning meetings. The crew experienced this as a step back in their autonomy, but it was accepted as necessary because of the low level of training and stability in the crew.

In 1974, consistent with better training and higher stability in the crew, there was a positive change in the development of work planning. It was especially important that *planning of work and training were tied together*. A point was made of dividing the work so that it made for the best possible training for everybody in connection with the new training programme for ship mechanics. Integration of work and training made it easier to carry through the training in a systematic and controlled way. It also gave the individual more security in his job development and the senior officers more insight into what competence they had at all times available for the security and running of the ship.

Weekly planning meetings were mostly held on Saturdays. The

ship's officers met separately on Fridays to discuss their own matters. At these meetings, they worked out a preliminary list of what they thought should be the actual duties for next week, based on the long-term maintenance programme. The final work list was decided upon at the Saturday meeting with participation of the full crew.

Beginning in February 1975, the implementation part of work planning (*how* major tasks for the week should be carried out) was done in small groups in order to provide crew members with a better opportunity to participate. The Saturday work planning meeting was therefore divided up between a plenary meeting (to make a work list and decide on *who* should do which jobs *when*), and small group work (for deciding on *how* a job should be done). This was such an engaging, effective and informative way of planning that these Saturday meetings gradually replaced the open 'town hall' meetings and to some extent the senior officers' Friday preliminary planning meetings.

What we had at the end of 1976, after almost four years of development, primarily guided by the members of the ship's company themselves, was a completely new, more democratic form of organization based on full participation in work planning. Temporary autonomous groups change from week to week depending on tasks and training need. Work duties and functions are not divided according to deck and machine crews or between officers and crew as is typical on conventional ships. Qualified members of the crew cover a variety of duties crossing traditional functional and status dividing lines. Work load, training needs and safety considerations are the deciding factors in allocating specific tasks to specific people. In short, a matrix form of organization has evolved.

This does not mean that everyone does everything. A matrix organization is built on the assumption that each one has his special duty which demands special qualifications, and in addition is competent for duties overlapping other's competence. As Herbst (1969) points out, every qualified crew member should then be able to be a manager, depending on the nature of the task, or work as a member of a particular work group. This principle of non-bureaucratic organization model is realized on *Balao* in that:

1. The crew is integrated, that is, former deck crew and machine room crew now have the whole ship as a shared work area and a joint training programme.
2. Officers and crew, in common, plan and control the training programme and the work itself.
3. Officers and crew together constitute a constantly shifting array of temporary but still relatively autonomous work groups in a pattern that can best be described as a 'matrix organization' (Herbst 1976).
4. The whole crew has common dining and living rooms and relatively equal individual cabins.
5. The crew is permanently connected to the ship by fixed yearly wages, flexible manning requirements and decentralized personnel administration.

Non-bureaucratic organization development: three years of field experience show that learning on different levels leads to a new way of looking at things and new ways of living and working together

This ship organization rests on quite extensive changes of the crew and officers' duties, duty distribution, cooperation and living pattern. A decisive condition for these changes is extensive training and the building up of diverse competencies. In this way the people involved can determine *who* should do *what* work *when* and *how*, an important element in a democratic work organization. The conditions for increasing work democracy in ship organization seem to include:

1. Common systematic training of the previously quite separate deck and engine crews;
2. Constant discussions and exchanges of experience about the ship's organizational form – in other words, the ship's operating policy is formed by continuous learning (Thorsrud 1972) in which everyone is involved in successive phases of review, evaluation and testing of new arrangements;

3. A conscious hiring of crew with technical training;
4. Taking care of the competence build-up on board by actions that support a high stability among the crew;
5. Contact with other experimental ships, research centres, trade groups, and so on, for mutual learning and support (Johansen 1975).

Of all these conditions perhaps those having to do with learning are most central. The entire ship's community is strongly characterized by *learning* which seems to occur at three different levels simultaneously (Johansen 1976):

1. An extensive individual learning process, based on each person, especially among the crew, learning:
 - A. More professional knowledge, also useful for more satisfying work on shore;
 - B. How training and work can be planned, executed and controlled as *integrated* activities;
 - C. How this systematic training enables each one to guide his own occupational development (in 1975 and 1976, four crew members were trained as ship mechanics on board *Balao*. The first two were also the first ship mechanics in the entire Norwegian Merchant Marine).
 - D. How these conditions (A, B and C) give meaning to, and security in, work and free time, which is shown in the exceptionally high stability among the crew, noteworthy decrease in number of injuries and visits to a doctor, and quite direct expressions from crew members about how well satisfied they are with their work and free time.
2. A distinctive organization learning as seen in:
 - A. A continuous surveying of problems by members of the ship organization;
 - B. A systematic search for alternatives on how to solve problems;

- C. A critical following up and evaluation of self-initiated experiments with an alternative.

This process has been expressed in a fundamentally different organizational structure and a clear understanding that:

- A. Work planning is the key to developing towards the goals of greater autonomy and potential;
 - B. Training is essential for the new organization structure to function satisfactorily;
 - C. The ship must have strong influence on personnel policy to recruit and hold well-qualified crew members (decentralized personnel administration);
 - D. Work planning, training and personnel policy are closely tied together.
3. A far-reaching social learning based on stepwise changes of work and living patterns. This social learning is first of all expressed in the everyday routine among the crew. Today the social life on board is distinguished by a high degree of *mutual help and tolerance* among individuals and groups.

The earlier situation, which is also typical of conventionally organized ships, was characterized by people having to stand pretty much alone and by competition, for example, between deck and engine or catering and between officers and crew. The new way of looking at other people and having contact with them seems to decrease problems between them; or if problems occur they do not seem to develop into major traumas. It looks as if the crew has a far better ability than before to solve these problems.

The connection with people outside the ship, especially the family, also seems better. More people report having a wider and more natural contact with their family. Social life on board seems to be more like social life within the family, which is also valued by society. The richer, more varied social life on board, based on extensive changes of the ship's organization, operation and construction, has,

in other words, developed a more friendly and tolerant view that lessens the social isolation many had previously experienced in relation to other crew members, the family and others back home. This development of a more communal and easy-going social life and leisure, seems to come quite naturally from a way of working and an organizational structure in which people get to know each other as part of their work. On board *Balao*, in contrast to conventionally organized ships, task sharing seems to lead to more meaningful, socially enriched leisure.

In neither work nor leisure are people boxed up into relatively confined areas: task and living opportunities are equally available to all within the territory of the entire ship. It might be easier to understand this development by looking at the changes against the goals and values that one initially set out to attain. Joint mess room and day room, relatively equal cabins for all, joint personnel policy, participation in planning, control and execution of work, cross-departmental training and more individuality in work (especially for crew), are all measures supporting the belief that everybody on board has the same rights to individually fulfilling work and free time.

It seems that the *Balao* experiment has been able, in part by relying on a combination of interdependencies around participation of work planning, special training, and decentralized personnel management, to achieve more than simply the job enlargement, job enrichment and horizontal integration of earlier experiments. The way work is allocated has an important purpose in making sure that people get *meaning* and *variation* in their work and at the same time the chance to *learn* something. Participatory work planning in addition also gives the individual a chance to have a say in *decisions* about the ship's maintenance and operation. It also gives room for more autonomy to individuals and groups in the control and execution of work. Finally, development of participatory work planning has been a process of learning for the entire ship's company. They are still in the process of developing further the kind of organization they want.

What is important here is that when you are participating in

developing your own organization (in this case of both work and free time), you are also creating your own relationship to other people and your view of yourself and others. *You become a product of your organizing.*

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12. 'Action learning' among unskilled women workers

Michel Liu *

This action research resulted from a twin concern: that of company management to give its personnel the possibility of development through training, and that of the research team to promote the workers' demand for better working conditions. This dual objective took shape in the following way. The training would be given during working hours on company premises. It would involve natural groups of workers and the purpose of the training was to deal with daily problems experienced by each group whilst at work. The groups would be given the chance to work out proposals for improvements which they could submit to management, with the promise either of action, or an explanation to the group why this action could not be implemented. The researchers were facilitators in collecting information and helping the group make decisions.

Application and development of the action research

The action research took place in a small company (40 to 50 people) working in the machine industry. The worker population is comprised of 15 unskilled female workers working on small presses, and the same number of male workers: storemen, solderers, machine setters, warehousemen, toolmakers. The entire operations personnel was included in the project. The first contact with the company took place in January 1973. The introductory phase lasted from then until September 1973. From September 1973 to December

* École Centrale des Arts et Manufactures, Chatenay-Malabry, France. Those responsible for the study described in this paper are Georges Becouart, Thérèse Leconte, Rémi Ouachee, and Alfred Polveche.

1976 worker personnel met on an average of once a month either in two groups, one of men, the other of women, or in a single group, for a training session with the researchers. During this period there were 34 sessions, a total of 68 hours of training in all. Since September 1976 the team of researcher-facilitators has been preparing to phase itself out gradually.

Evolution of the unskilled workers group

This study will deal with the evolution of the unskilled workers' group, just one of the many aspects of this research which deserve to be studied. Other studies, completed or in progress, treat various other aspects.

Table 1 is a summary of the topics treated during the sessions. These topics are divided into general categories, some of which include a detailed list of subjects. Classification according to order of importance shows that working conditions in the company come first. Next comes the problem of safety, and then problems concerning the actual work. The prominence given to the problem of induction stems from the fact that this topic was the opening theme, following proposals made by the researchers.

Dynamics of the evolution of the unskilled workers' group

During our first meeting with the group, we asked the question: 'what would you like to learn?' All the answers contained in substance the following reaction: 'Don't waste time on us. The reason we do this job is because we are unable to do something better. It's impossible to give us any kind of training.' A sense of fatalism and total hopelessness concerning the future pervaded the group. We encountered the same fatalism later when we broached the subject of safety. Consequently our main concern was to combat this fatalistic attitude and the objective of our training became to encourage the personal autonomy of the people and the group. In Figure 1 we

Table 1. Topics discussed during the unskilled workers' group sessions.

| Category | Number of sessions in which topic was discussed | Sub-topics discussed | Number of sessions in which sub-topic was discussed |
|-----------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------|
| General working conditions | 17 | Sanctions and in-house rules | 2 |
| | | Reduction of working hours | 1 |
| | | Job evaluation and qualifications | 3 |
| | | Information on collective bargaining | 2 |
| | | Information on delegates from Personnel and the Company Committee | 2 |
| | | Information on unions | 3 |
| | | Salaries and bonuses | 3 |
| | | Discussion on the workers' condition of life following television programme | 1 |
| Security | 10 | | |
| Induction of new employees | 9 | | |
| The actual work | 8 | List of difficulties encountered in shop and at work station | 1 |
| | | Removal of finished products in crates | 2 |
| | | Timekeeping and time allotment | 1 |
| | | Discussion of the possibility for unskilled workers to make adjustments | 1 |
| | | Discussion of the possibility for unskilled workers to divide the work among themselves | 1 |
| | | Suggestion for improving procedures | 1 |
| | | Acceptance of a schedule shift in order to fill an order | 1 |
| Training and apprenticeship | 5 | | |

have outlined the evolution of the group in terms of 'increased autonomy'. Subsequent analysis of reports on the sessions revealed that the group's evolution could be outlined as a phase of maturing alternating with a phase of transition.

Phase 1: Maturing phase: September 1973- early 1974

Women workers, who, before our arrival, had been isolated and

Table 2 presents the significant results, the action obtained, by the group.

Table 2. Results obtained by the group.

| Date | Results/action |
|------------------|--------------------------------------------------------------------------------------------------------------|
| 1. April '74 | The group refusal of the structured training pattern proposed by the researchers. |
| 2. September '74 | Acceptance of modification of company rule concerning penalties. Suppression of dismissal for tool breakage. |
| 3. September '75 | Election of new delegates to the workers' board commissioned by the group. |
| 4. October '75 | Almost all workers are promoted to the qualification '052'. |
| 5. January '76 | Women workers obtained right to attend the training sessions freely. |
| 6. February '76 | Development of procedure allowing women workers to stop work if there appears to be any risk of an accident. |
| 7. April '76 | Request by group of men workers to have combined meetings with women workers. |
| 8. July '76 | Consultation among workers regarding schedule shifts when meeting an urgent order. |
| 9. October '76 | Discussion among combined workers to divide the bonus paid for meeting an urgent order. |

aggressive with each other, began to want to know each other and to interact. Gradually they learned to express themselves freely in the presence of the researchers during the sessions. A group was formed through a combined effort which was directed almost entirely by the researchers. In April 1974 the women workers clearly stated their disapproval of this structured approach as far as topic induction was concerned, and presented for discussion the more immediate problems of the shop. This was the first time a meeting ran over the time allotted for training sessions. In June 1974 after discussion, the researchers decided to give up any kind of training programme and instead gave precedence to group expression, involving their immediate experience.

Phase 2: Transition phase: April-November 1974

From July to September 1974, the women workers' group was engaged in a dispute concerning penalties for tool breakage. They considered the penalties unfair, since they were the only ones penalized, whereas in other areas the responsibility for breakage was shared by

the machine setters. The penalty was considered extremely humiliating, for dismissal was immediate, and occurred in front of everyone else in the shop. During this period a tool was broken for the fourth time in a short space of time. The women stopped work and requested the director to come to the shop for a discussion of penalties. The outcome was that the worker was not reprimanded and the house rule was subsequently modified. As a result of these events there was bad feeling between men and women workers, the men having refused to support the women in their strike.

Phase 3: Maturing phase: November 1974-June 1975

The group began to crystallize, in spite of hostility, real or imagined, from the machine setters and the management. Within the group, unanimity and uniformity prevailed and the right to differing opinions was not tolerated. As a result the women demanded better status for all, including the most disadvantaged and new arrivals.

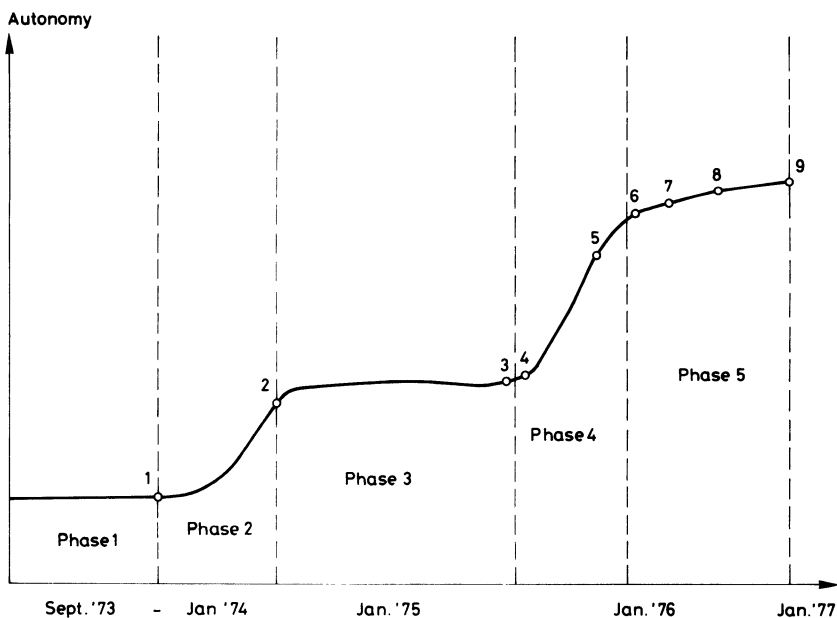


Figure 1. The group's evolution.

When the time came to elect delegates to the workers' board, the reaction was: 'Why only two delegates? Either we all go, or no one will.'

During this time the group asked the researchers to describe their rights. They were given information relating to in-house rules, the right to training, to collective bargaining, the accepted ways of representing and defending personnel, the unions, the new method for evaluating jobs. The group now seeks support from the less immediate environment, such as newspaper articles and television programmes dealing with the workers' condition, and these become topics of discussion during the sessions.

At the same time, in the shop, confrontations increased between men and women, more specifically concerning safety; the women demanded more dignified treatment from the men: 'We want the men to speak to us more frankly and politely and cut out the insults. Also we will not accept the way they shift the burden of responsibility for mistakes on to the women workers.'

Phase 4: Transition phase: September 1975-January 1976

The women workers obtained the results demanded in the previous period and the group evolved rapidly towards a greater autonomy, as illustrated by the following events:

September 1975. The women workers obtained a change in their job evaluation at least for most of them.

October 1975. When the time came to replace the delegates to the company workers' board, the group elected some of the younger members, who were capable of being effective spokesmen for the group.

December 1975. The women workers obtained their way in regard to safety problems. In case of serious accident risks, they are allowed to call directly on management without going through the intermediary of the machine setters.

January 1976. Three women workers who do not wish to attend the sessions were allowed to leave the group, thus instituting freedom of choice. In spite of this the group remains intact, and the training continues.

Phase 5: Maturation: February-September 1976

The group relaxed the rigid attitude they had held up to now, and admitted differences of opinion among members. In April 1976 the group of women workers received a confirmation of acknowledgement on the part of the men workers, in the form of a request from the men's group to meet together henceforth 'so that the men and women can deal with common problems together'.

During the sessions, the subject was broached of the problems of the work itself. Methods of operation were questioned; women workers gave each other advice; suggestions for better work procedures were exchanged. A real autonomy began to take shape. When management proposed that safety shoes be worn, the women workers asked to be given the choice of models, plus a trial period before they gave their final decision.

Phase 6: September-November 1976

The group was consulted by management on a problem of schedule change to meet a client's emergency order. The women workers' group embarked upon three-way discussions with the men workers' group and management to determine how to allot the bonus that would be awarded in this instance.

Analysis of the stages of assuming responsibility for the problem of safety

Having described the overall evolution of the group, it might be interesting to analyse in detail the progression towards greater autonomy, focusing on one particular problem: that of safety in the shop. The problem of safety was first brought up during the training session in April 1974. In January 1976 the women workers announced that the problem of safety had been satisfactorily resolved. The progressive stages from session to session are:

Session 9 – April 1974

The women announced that one of them had had an accident and

badly crushed three fingers. They seemed fatalistic about it: 'It was bad luck, that's all,' 'A moment of carelessness,' 'It could have happened to anyone,' 'It couldn't be helped.' This attitude surprised the researchers, who went over the accident, asking: 'In your opinion, whose responsibility is it to ensure safety?' The answers: 'Management', 'The machine setters who install safety devices on the presses,' 'The Hygiene and Safety Committee that never meets...' Towards the end of the session a woman worker finally stated: 'Safety is the responsibility of us all.' Nevertheless, the group did not pick up the idea. The researchers proposed devoting the following session to the problem of safety.

Session 10 – May 1974

The researchers proposed that the group break up into three sub-groups which would each tour the shop and draw up a list of possible causes of accidents. The lists evoked no particular interest on the part of the women workers. Management subsequently eliminated some of the causes that were cited.

Session 14 – November 1974

During this session a female worker declared: 'I am afraid when I work on Press 16, because the machine is badly adjusted.' Other women cited similar cases, revealing that they all shared this fear. In the discussions that followed, it appeared that the situation in the shop was as follows: when a woman pointed out something wrong to the machine setters, the answer was that they were too busy, or that unsuccessful attempts had already been made to regulate the machine. If the woman insisted, relationships between the two deteriorated very quickly. In order to meet her quota, to be able to get an output bonus, and not cause trouble in the shop, the woman continued to work. All the women felt that production took precedence over their safety or their welfare. This discovery made one researcher leap to his feet, crying: 'But ladies, you're jeopardizing your own skin,' a show of emotion that moved the group deeply. Various suggestions were made for ways to avoid direct confrontation between the women and the machine setters in dealing with

safety problems, including possible contact with a higher level in the hierarchy, but the group was sceptical and seemed reluctant to take any action in this direction.

Session 16 – January 1975

Half of the session was devoted to an exchange of points of view between the male groups, to which the adjusters belong, and the female groups. Pushed by the researchers, the women raised the problem of protective devices on the presses. One machine setter cut them off saying that accidents do not stem from the fact that the machines are badly regulated but from the women's lack of concentration. He cited examples of cases where women had put safety devices out of commission. The women remained silent. The decision was made to allocate half an hour to the discussion of this topic at the next session.

Session 17 – February 1975

During the first part of the session while the women were alone together, their anger broke out: 'The setters don't care at all about our safety; we can't concentrate for nine hours a day; there's always a second when you're not attentive.' They also felt helpless: 'We didn't dare speak out because we were scared to get into an argument with the men.' However, the last half hour of exchange of views with the men had been carefully prepared. During this encounter, certain truths were expressed and heard by both sides. The following exchange showed the women were becoming more aware.

Machine setter (speaking of a particular order which called for the combining and meshing of many parts, all different): You see, for this order, if I had had to make it mechanically secure, to guarantee security, it would have taken me two working days and cost the boss 3,000 francs, all for those two hours you spent on the press.

Woman worker (who had done the job): What if it did take you two work-days and cost the boss 3,000 francs, I might have lost a hand, and it would have been for life.

Subsequently various disputes over safety in the shop were reported, but the group did not spend any training session time on them. The Committee for Hygiene and Security was reactivated and the women participated in a fire drill.

Session 26 – December 1975

The announcement was made by the women workers that Mrs. L. had had a finger crushed. Mrs. L. had worked in the company for forty years and had never had an accident. There was great emotion as faulty adjustment was the cause. The session was spent gathering information about what was not working on the machines, and the newly elected delegates planned to treat the question at the company's next board meeting. Management was highly perturbed and set up an in-depth enquiry into the accident.

Session 27 – January 1976

The woman delegates reported the following facts to us concerning safety:

- all presses had been checked and rechecked, with additional protection planned;
- additional lighting would be installed.

The workers' board had decided that:

- If women estimate that there is an accident risk they should alert the setter, the planning agent, and the foreman. If nothing is done the women 'can have a petition signed by all of them and take it to the director.'
- 'Safety takes precedence over the urgency of production.'

Subsequent events show that safety problems would be treated as they should be by the entire personnel of the company, and first of all by women workers.

Conclusions

Several remarks can be made about this learning experience on the subject of safety:

- Each time a safety problem was brought up it was done so by women workers taking the initiative.
- No attempt was made to prolong by artificial means the group's interest in this topic.
- Rather than proposing a structured study of this problem, we confronted the people with real situations, bringing the actors face to face.
- We refused to have management take formal measures before the women workers, the machine setters, and the executive's attitude had changed. We asked management to wait until the request came from those concerned.

We could be reproached for having applied this learning method to such a serious problem. However, our experiment taught us that any procedure which was applied formally did not last and that any body, such as the Committee of Hygiene and Safety, disintegrated if the need for it was not felt by those concerned.

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13. Developing new forms of work organization in a new chemical plant in France

Michel Liu and Oscar Ortsman

Nature of the problem encountered

The new unit was in the process of being constructed. The technology had already been decided. The employees, approximately thirty in number, had to be recruited on a voluntary basis from an old factory situated not far from the new site. It was hoped that, in the future, the old factory would be shut down and that a new factory would be constructed, near the new chemical unit.

It was clear from the beginning that the work conditions and the means of transfer from the old factory to the new unit would be the subject of negotiations with the employees and their representatives. Study of the forms of work organization to be applied in the new unit had to be set up quickly, because there was relatively little time left to make the decision to recruit the appropriate employees, and to train them for the new jobs. As will be seen in a moment the introduction of a new approach to design of jobs and work organization in the new unit was as a pilot for planning these for the new factory.

The modes of intervention

The following principles were proposed by the outside research workers and accepted by the enterprise:

* Ecole Centrale des Arts et Manufactures, Chatenay-Malabry, France.

- The role of the ‘outsiders’ is not to lead, by themselves, a study regarding the work organization and the means to be used in setting it up;
- On the contrary it is the employees themselves who, with the help of the research workers, should decide the most effective work organization, both at technical and social levels. The means of introducing this would be defined in the same spirit.

Bearing these principles in mind, the intervention would take place in four phases:

Phase 1: Sociotechnical analysis of the unit and search for the alternatives in work organization.

Phase 2: Choice by the employees of the most appropriate forms of work organization.

Phase 3: Detailed study of the role of the supervisors in the system of polyvalence.¹

Phase 4: Education of the employees in their new jobs.

Phase 1: Sociotechnical analysis

This phase took two days. The group concerned had twelve members, among them the two outside researchers and some representatives of the different services of the enterprise concerned with the project. The two research workers had prepared a certain number of questions to be answered and work-sequence forms to be filled in together, in order to define the sociotechnical aspects of the situation. (Figure 1 illustrates one of the forms used).

With the help of the researchers, the group was able to define four ways of organizing the work, and could compare the advantages and disadvantages. It was clear to its members of this group that:

- An organization of the work in semi-autonomous groups seemed preferable to a ‘classical’ one, at both the technical and social levels;

1. This term covers multi-skilled team workers with the possibility of job rotation on this basis.

| SEQUENCE OF ACTIVITIES | | Carried out, in initial organisation by: |
|------------------------|-----------------------------|--------------------------------------------------------------------|
| Continuous | 1. Homogenisation | Machine minder |
| | 2. Loading for solution | Machine minder |
| | 3. Solution | Operative |
| | 4. Filtration | Operative |
| | 5. Oxidation | The chemist runs and oversees these phases of the process |
| | 6. Storage and gasification | |
| | 7. Filtration | |
| | 8. Special process D | |
| | 9. Concentration 1 | |
| | 10. Concentration 2 | |
| | 11. Special process D | |
| Discontinuous | 12. Concentration | Op 2 + service |
| | 13. Precipitation | |
| | 14. Filtration | |
| | 15. Solution | |
| | 16. Treatment of effluents | Services |
| | 17. Preparation | Services |
| | 18. Various waste products | Services |
| | 19. Despatch and delivery | Head of services |

Figure 1. One of the analytical tools used in Phase 1 to study the possibilities for organizing work in the chemical unit.

- The negotiations with the employees and their representatives, concerning the form of work organization to be chosen, should permit a definition of the social advantages of the four different options examined and indicate the methods of introduction to be employed. In the course of this negotiation the possibility of a fifth option was never excluded.

Phase 2: Choice of a work organization

This also took two days. The Phase 2 group had sixteen members – the two outside researchers, two managerial staff members, four supervisors, five workers chosen by the management, three workers chosen by the *Comité d'Établissement*,² – with a representative of its

committee for hygiene and security. It was the group itself which defined the criteria permitting the choice of the most appropriate form of work organization (see Appendix 1).

Organization of the work in semi-autonomous groups was finally decided upon, thus constituting a fifth option. The conditions required for the operation of the new work organization were examined at length. In the course of this examination the Phase 2 group was particularly interested in the advantages and disadvantages of the new form of work organization for the supervisors (see Appendix 2).

Phase 3: The role of the supervisors

This intervention also took two days. This third group was composed of all the supervisors of the future chemical unit, the director and the two outside researchers, and a representative of the personnel director. The two days of discussion permitted:

- a further examination of the principles of the chosen form of work organization;
- a detailed definition of the evolution of the role of the supervisors (this study was carried out by the supervisors themselves, see Table 1);
- the supervisors to clarify a certain number of specific problems, concerning them as individuals and their relation to the unit hierarchy.

Phase 4: Education of the workers

This took one day in the middle of the training period. All the employees of the future unit were present – approximately thirty. This day permitted:

- the employees to discuss matters in small groups and to recognize the problems posed by group forms of work organization;
- to evaluate the learning they had so far experienced and to modify and adapt it, as far as possible, to their needs;

- to clarify some worries of employees over their new jobs, and to obtain guarantees on these from the relevant members of the unit staff.

An evaluation of results

After the decision to construct a new factory, with 250 people, near the new chemical unit, a planning group was set up to study the problems raised by the transfer of personnel from the old factory – to be shut down – to the proposed new one. This group was made up of members of the Comité d'Établissement, some operatives, some supervisors and some engineers, from both the old factory and the new chemical unit.

In the course of the meeting held in June 1976, to which the two external research workers were invited, the planning group gave a first look to the problems of work organization in the future factory, and at this point it evaluated, first of all, the work and its organisation in the new chemical unit, which had then been functioning for approximately a year. A large majority of the employees of the chemical unit had favoured a work organization of semi-autonomous groups. The main reasons were:

1. The associated rise in qualifications and salary;
2. A greater variety of work;
3. A development of group morale and a better mutual understanding.

It had taken between two and three months, according to the individual, to develop multi-skilling, polyvalence, of all the unit employees concerned. The interest for the different jobs is variable, some preferring manual work, others mental activity.

The planning group, as a second task, went on to consider the organization of the work to be promoted in the future new factory. They favoured a study of the introduction and progressive use of new forms of work organization in the new factory. A minimum

number of rules were laid down, on necessary preconditions, the extent of multi-skilling, and the progressive use of the new forms of work organization.

The necessary preconditions

Three necessary preconditions seemed important to the planning group:

- The new forms of work organization must not hinder the transfer of anyone from the old to the new factory (due to difficulty in acquiring the necessary multi-skills, for example);
- The multi-skilling must not lead to a policy decision to cut down the number of jobs, and
- The new form of work organization and its jobs must be accompanied by an accepted increase of qualification and of salary.

The spread of multi-skilling

Too great a discrepancy in the nature of the tasks to be covered by one person, within the framework of multi-skilling, should be avoided. This would lead to its limitation by geographical sections; by the number of different tasks; or by the nature of different qualifications.

The introduction and progressive use of the new forms of work organization

All members of the planning group felt that the new forms of work organization must be introduced from the very beginning of work in the new factory. If not, it would be very difficult, if not impossible, to apply them later. This would not mean that the degree of initial autonomy and the extent of multi-skilling would be relatively less important after some time than at its initiation. In proportion to the experience acquired, the autonomy and the multi-skilling could be developed and corrected in a spirit of improvement of work conditions and development of the individual.

Appendix 1: What makes a job more interesting?

The Phase 2 planning group tried to answer the question: What makes a job more interesting? In the interest of improving conditions, agreement on this question was actually a useful preliminary condition for any analysis of the various forms of work organization proposed. Below are various points which were brought up in the order they were suggested, with obvious overlaps:

- Work setting: environment, cleanliness, noise, accessibility, smoke, fumes, odours, heat, sudden variations in temperature, lighting, ease of communication.
- Knowledge of the job: reason for the job, significance of the job, possibility of having an overview of the whole process.
- Job forms a whole: possible sequence of activities.
- Appropriate spare parts; sufficient reserve of these; preventive maintenance programme.
- Possibility of making suggestions; of taking initiative and responsibility.
- Not always to have someone on your back; atmosphere of trust.
- That the personnel should be well trained and physically well suited for the job.
- That the individuals should not be isolated, but that they should be able to get assistance.
- That the job should be useful.
- That each worker's ideas should be respected, and heard; that he should be trusted.
- That there should be a team spirit within each shift and from one person to another, and that good relationships should be established between maintenance and production.
- That good information on changes should be available, and transmitted if possible in writing.
- That there should be variety in the work; the possibility of multi-skilling and rotation of work stations which would make absenteeism less bothersome.
- Possibility of promotion, or progress towards a desirable future.

With the participants' agreement, these points were grouped under the following-eight headings:

1. Environment;
2. A coherent whole;
3. Useful work;
4. Initiative;
5. Cooperation;
6. Variety;
7. Significance of work.

Appendix 2: The role of the supervisor in a multi-skilled system

The group examined the advantages and disadvantages of such a system for the supervisor:

Advantages

1. *The work atmosphere is more pleasant* since relationships are based upon confidence. Possibilities for self-discipline in multi-skilled groups; the highest and most egalitarian level of qualification allows for more open discussion and shared experience.
2. *Development of better relations in all directions.* The supervisor is able to handle problems of improving technique, and in this way provides better support for the engineer in charge. He can also deal with problems of administration and management.

Disadvantages

1. *Risk of being rejected by the group or cut out of his job.* If the supervisor devotes too much time to problems of technical improvements and management, and not enough to his team, he may risk losing contact. A delicate balance must be found which forces the supervisor to change a great number of his habits relating to 'classical' work organization. In the event of the supervisor being rejected by his work group, management, likewise, might be tempted to abolish the supervisor's

Table 1. Evolution in the role of supervisor before and after the changeover to the new semi-autonomous working system.

| Activity* | Proportion of time spent | |
|------------------------------------------------------------|--------------------------|------------------------------------------------|
| | Before | After |
| 1. Checking, quality control | 70% | 50%, then 30% |
| 2. Choice of team members | 0 | 50 |
| 3. Definition of job responsibilities and division of work | 0 | Large amount in the beginning, then decreasing |
| 4. Meetings and minutes of meetings | 0 | Increase |
| 5. Elements of appraisal | 0 | Increase |
| 6. Training | 0 | Increase |
| 7. Judging, evaluating, encouraging | 0 | Increase |
| 8. Reception | 0 | Large increase |
| 9. Improvement of work tools and material supplies | 0 | Greater and greater increase |
| 10. Prevention and safety | 0 | Increase |
| 11. Data and charts | 0 | Increase |
| 12. Repairs | Forbidden | Large increase |

* Only activities whose change was highly characteristic were taken into account.

position, replacing it, for example, with a position of administrative assistant to the head of the unit or the head of the shop. Guarantees should be obtained at this point.

2. *The problem of adjustment.* The very nature of 'classical' organization reinforces the position of the supervisor, especially in the role of checking work done. It is perhaps a highly uninteresting job, but it is absolutely necessary.

In the new organization each supervisor should be extremely attentive to the needs of the work group which he coordinates. A supervisor will not be accepted unless he plays a useful role. Such a change in behaviour demands, of necessity, a rather long period of adjustment, and adequate training.

Lastly, the success in the change in organization depends on the qualities that the supervisor demonstrates to foster it, and on the support he receives in order to be able to take things in hand.

14. The starting-up of a new plant organized in multi-skilled production groups

R. Bittel and G. Trepo *

The plant, located in France, manufactures a food product and is part of large American firm. It started operations at the end of 1972 and employs about 250 people in two-shift working. In this paper we will present:

- a rough blueprint of the plant organization at the drawing-board stage;
- the start-up process (selection, ‘welcoming’ process, training);
- organizational changes from 1973 to 1976;
- a socioeconomic evaluation;
- how the workers experience the plant;
- the point of view of the supervisors and the staff;
- the point of view of the union;
- the authors’ evaluation of the problems and choices facing management in early 1976;
- a postscript, November 1977.

The plant organization at the drawing-board stage

Plant X¹ uses a continuous process. The production lines are fully automated; the operatives control the process and tackle the numerous difficulties. There is little physical effort. The men must

* Centre d’Enseignement Supérieur des Affaires, Jouy-en-Josas, France. This paper became available after the original selection of papers had been made by the correspondents group. Despite this, and certain differences in its nature, its complementarity to the other French papers led to its inclusion here.

1. Plant and headquarter management wish to remain anonymous.

watch the machines closely and constantly. The atmosphere, in temperature and humidity, is strictly controlled. The production parameters (introduction of flavours, flows, pressures, temperatures) must be closely controlled by the workers. Any corrective action taken will produce delay and have oscillatory impact both upstream and downstream in the process. This requires experience and know-how. The main organizational characteristics of the unit design are given below:

1. There will be three separate rooms:
 - a storage room with raw materials and preparation (three workers each shift);
 - cooking rooms three metres above ground level (four workers each shift);
 - a processing and packaging hall where about 55 people work at any one time. The noise level here is very high because of the wrapping machines.
2. There are three ‘families’ of products. Each ‘family’ has a number of flavours. At the processing stage, each flavour is manufactured on a separate continuous process line.
3. There will be two shifts (5 A.M. to 1 P.M. and 1 P.M. to 9 P.M.); lunch snacks and coffee breaks will be taken during the eight hours of work. Morning and afternoon shifts will alternate every week.
4. The work groups will be organized by each ‘family’ of product – three work groups, each identified by its product. In each main group, the operatives will be capable of holding any work position and rotate their positions regularly.
5. Training a newcomer will take from nine to twelve months according to the time available for training, since production will, of course, be a first priority.
6. There will be four training programmes (*A*, *B*, *C* and *D*).
7. Multi-skilling within each single group will be reached at the end of the first three programmes. The fourth programme, *D*, will allow for job enrichment (quality control, maintenance,

- administration) and, with this, the ability to hold any processing job in the plant.
8. The production process we require high synchronization on the part of the operatives at the various production stages; this is likely to be difficult because the process spans three separate rooms, with a very high noise level in the third.
 9. Job rotation will take place at different intervals in each group (monthly or bimonthly). Operatives will decide on this and, through two representatives, communicate and discuss this with supervisors.
 10. The quality and quantity of production will be controlled by the operatives themselves; the 'helpers' (H1, H2) will fill up the production forms and pass them to the supervisor (see Figure 1).
 11. Operatives will decide freely when each of them will take lunch, dinner and coffee breaks. They will assist one another in case of difficulty. They will all have the same job class and pay, except for a seniority allowance.

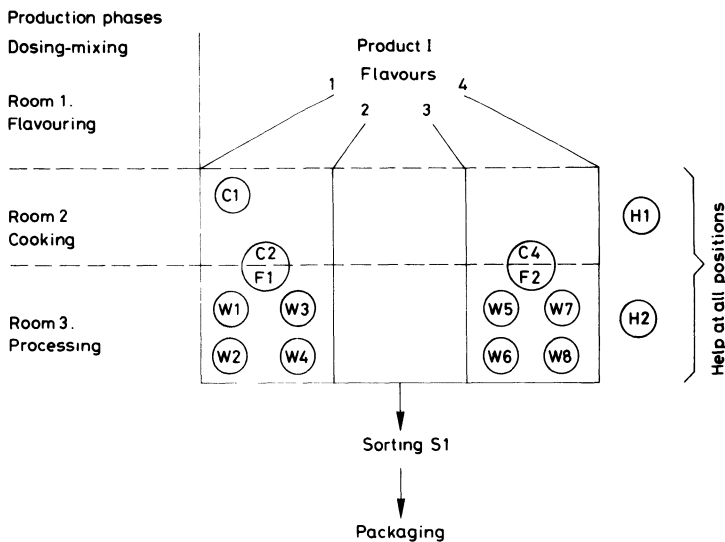


Figure 1. Processing job positions in the Product I group.

For Product I, with four flavour production lines, there are fifteen people on the payroll. There is an absenteeism rate of about nine per cent (the plant average for male and female operatives); employees are elected to one of the statutory representative bodies; there is paid vacation (but not all take their four weeks in summer). In the Product I group there are on average eleven to twelve workers present on any one day, and their working time is significantly diminished by meal and coffee breaks. The production line can be started with as few as eleven people in the morning. With less than eleven workers present, replacements have to be brought in. After the morning start-up, and during the day, the line can keep producing good quality products with as few as seven people present along the four lines (the two other product groups have twelve and nine, respectively, on the payroll). The theoretical work positions are:

- dosing/mixing, one worker (D1);
- cooking, four at start-up in the morning, two thereafter (C1 . . . C4);
- processing, eight at start-up, six thereafter (W1 . . . W8);
- sorting, none at start-up, one thereafter (S1);
- helpers, two – at start-up they will be at processing (H1, H2).

In the first room, the work of the doser/mixer is the key to the smooth operation of the line. It is the most skilled and qualified position in the work group. In the second room each cook (C1, C2) tends two machines. He mm4 control deviations very closely. In the third, the large hall, wrappers (W1, W2, . . .) closely monitor the cooling of the product and its shaping and wrapping. A sorter (S1) eliminates the most obvious defects and feeds back information upstream about quality. Helpers (H1, H2) work at all positions, fill up forms, and monitor the level of supply materials for the wrapping machines.

The start-up process

In November 1972, twelve workers were appointed at the plant (see Figure 2). Women were hired for packaging and men everywhere else. Management did not think it possible to hire women in processing because of the maintenance tasks given to operatives; they looked for younger men, 25-45, mechanically inclined. The plant received 1,000 applications in 1972, but only 35 people survived the first screening; they were invited to visit the plant for one day in small groups. From these, the 12 employed in November 1972 were selected.

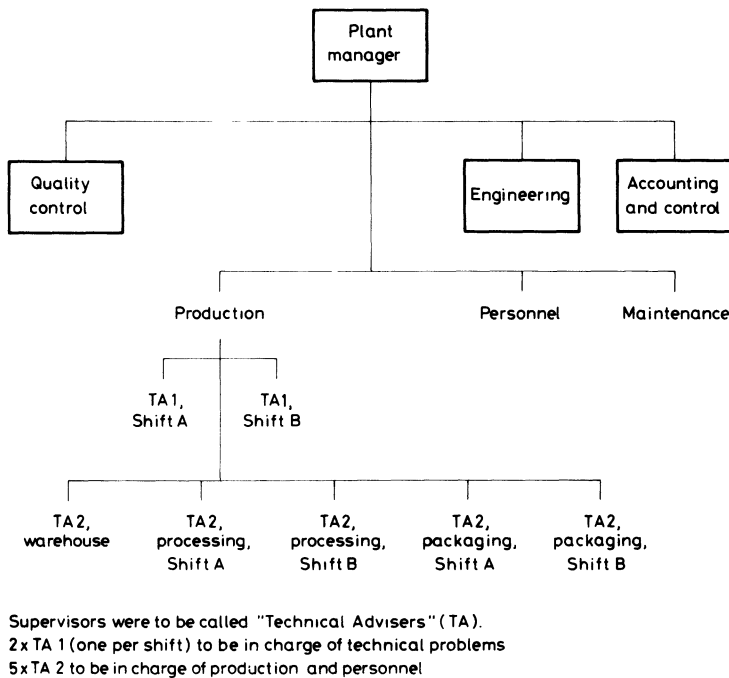


Figure 2. Start-up of the new plant in 1972: the organization chart.

The 'welcoming' process lasted a day. The company, the products, the production process, the training programmes, the local staff and supervision were described and presented. The day ended with a visit to the plant. All conversations were on a *tu* basis of intimacy. The plant start-up process was planned as follows:

- selection of applicants (at least two interviews);
- hiring of the first group for Product I (the twelve above-mentioned people);²
- ‘welcome’ day;
- theoretical training (Programme A – one month);
- hiring of Shift B for Product I;
- ‘welcome’ day for the Shift B newcomers, every newcomer having a sponsor on Shift A;
- Shift A workers start the production process; Shift B receives its theoretical training – every worker receives pocket-size booklets which very clearly and simply present, the production process, the machines and their various components, troubleshooting, checklists, and so on;
- further training of the two shifts together (Programme B);

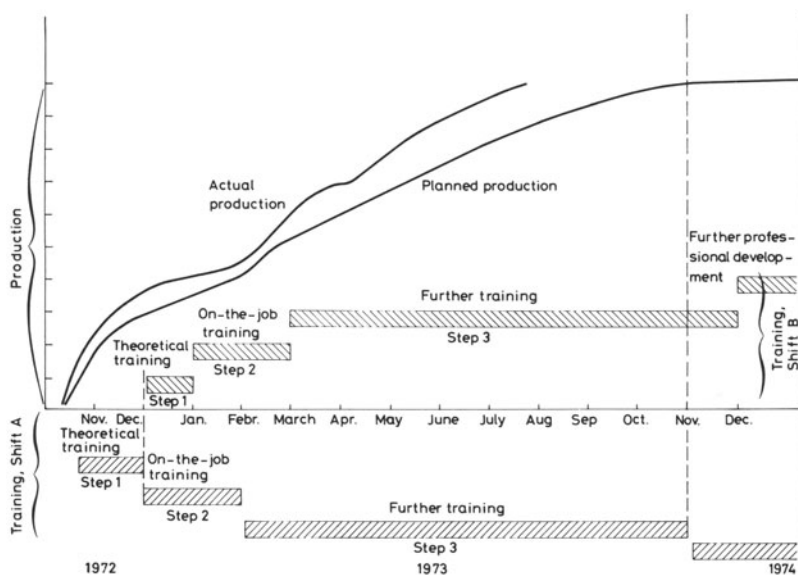


Figure 3. Training and production planning for Product I.

2. There were only twelve, compared with the fifteen mentioned earlier, because the process started at a slow pace and thus there was less of the product to wrap and package. The number of wrapping machines can vary, some machines being kept idle.

- production of Product I starts in two shifts – with the advancement of Programme C, the production process is speeded up;
- nine months after the beginning of actual production, the two groups have reached nominal capacity.

The planned start-up process was completely achieved in time, quality and quantity. All the training, theoretical or on the job, was given by the supervisors and the staff; this involved very long hours for them (see Figure 3). The group of workers for Product II were received in February 1974. The Product III working group was started later.

Organizational changes from 1973 to 1976

Management had conceived the organization, described earlier, *before* any worker entered the new plant. After a year, the workers, as is legally provided, could elect a works council and join a union; and this they did. Thereafter the organization changed as a result of negotiations and ‘trade-offs’ between the management and the worker point of view. Three main changes took place:

- the introduction of Training Programme D;
- introduction of the workers to the use of electronic data processing;
- further training of workers in maintenance and ‘setting-up’.

Introduction of Programme D

The introduction of Programme D had been planned when the plant started, so that, after a year, workers would be able to perform small tasks of maintenance and regulation on their machines. This was to be achieved through Programme D, but it was not launched at the date originally planned because production problems did not leave enough free time for training. After eighteen months, in May 1974, the union asked for a substantial wage increase. In response, management presented Programme D, with its three phases, each

corresponding to a three per cent wage increase, regardless of the achievement of workers in the training programme. The union accepted management's proposals. Programme *D* lasts eighteen months and covers the following five areas:

1. Machine regulation and maintenance;
2. Quality control;
3. Safety and hygiene;
4. Administration;
5. Multi-skilling across product lines.

The programme was launched in April 1974, and the burden of teaching again fell on the overworked supervisors and staff. It was planned as follows:

Phase 1: Theoretical training – six months, three per cent wage increase, salary grade to OQ2B;

Phase 2: Specialized technical training and on-the-job applications – six months, three per cent wage increase, salary grade to OQ2C;

Phase 3: On-the-job mastery of the five areas – six months, three per cent wage increase, salary grade to OQ2D.

At present these salaries are quite above regional averages. Workers who left the unit under discussion, Plant X, which they had entered as unskilled labour, suffered a salary cut of thirty per cent if employed in work of an equivalent level of skill in another company of the area.

Introduction of workers to the use of electronic data processing

Plant X has a computer terminal. In May 1974, men and women workers interested in learning to use the terminal were asked to make themselves known. Sixty made application; after interviews and tests fifteen were kept. After learning some elementary points about EDP, they were trained for three weeks, two hours a day. In June 1974 these workers operated the terminal by providing an input of forty variables to the machine, a process which takes them

about twenty minutes. Data fed into the machine at the end of one day provide output results the next morning. At the present time, sixty operatives rotate in the work at the terminal, according to a schedule which they organize themselves. They now punch at a speed of up to 6,000 holes per hour on the data cards. In the morning, when the production data is fed back, they undertake verification checks and despatch the outcome to the various staff and management members. The operatives have not received any bonus or upgrading in job class for this activity.

Further training of operatives in machine maintenance and regulation

Frequent machine difficulties and breakdowns are a nuisance for operatives; and the maintenance staff find it troublesome to face this workload in particular because of the training which they have constantly to undertake; as a result, their maintenance work is considered too slow. For these reasons, it has been decided to create for each shift a team of two, a mechanic lent full time to production by the maintenance staff, and an operative on a voluntary basis, who will for six months perform only maintenance and machine-related tasks.

Socioeconomic evaluation

The company has one other plant in France, Plant Y, which manufactures similar products, but it has many other plants in Europe and elsewhere. Plant Y has a different work organization *and* a different production process; its process is not continuous; it is located in the Paris region (which implies more absenteeism and more strikes); the average age is 42 in Y and 30 in X (as of 1977); Plant X has benefited from the enthusiasm of the successful start-up (novelty effect); Y has 950 people, and X 230.

Steadily increasing absenteeism is not specific to this company; it is a national phenomenon. In the two plants, the absenteeism for all categories and both sexes increases regularly every year. In X it has gone from 5.6 per cent in 1974, to 6.5 per cent in 1975, and 8.5 per

cent in 1977. In Y the figures are 10.8 per cent in 1973, 11.9 per cent in 1974, 12 per cent in 1975, 13.5 per cent in 1977. In both plants, workers every year are allowed 35 calendar days sick with full pay, and 150 calendar days with 90 per cent of their pay. The union representatives of Plant X are trying to devise checks to this constant increase.

Average plant turnover for all categories and both sexes is higher in Y – 8 per cent in 1973, 8 per cent in 1974, 7 per cent in 1975 – than in X – 5.1 per cent in 1974, 7 per cent in 1975. Women account for most of the turnover; because of the employment situation present turnover figures are regarded as lower than they might otherwise be. At 30 November 1975 the cumulative departures since start-up were: 34 people, 23 of their own volition, 11 fired. Most of these were in the first four months of operation: 21 people did not stay over four months, and four stayed less than ten days.

In Plant X full manufacturing cost per ton is 35 per cent lower than that of Plant Y or similar plants. Management has estimated that 20 per cent of this stems from the new continuous production process and 15 per cent from the work organization. They consider that a further 10 per cent reduction in production cost is well within reach with the present work organization. However, 'organizational' savings are being reduced because of rising absenteeism. At Plant Y there are more maintenance staff (although the machines are stronger), and more quality control staff. Y has a night cleaning staff, which does not exist at X, where the workers do the cleaning themselves. For Product I, when the plant started at Plant X with fifteen workers per shift, expected production with two shifts was 26 tons per day. The work groups later set their objective at 32 tons per day; and they have produced up to 37 tons per day. Since then, negotiations with the union have resulted in a standard of 31 tons per day (or 33 with one hour overtime working). In comparison, in Plant Y, twenty workers per shift with two shifts produce only sixteen tons per day; but the equipment at Plant Y is much less sophisticated and costly than at Plant X.

How the workers experience the new plant

In the production process at Plant X, the material forming the product comes out with surprising force and speed, and a hard-to-handle texture. Workers feel powerless to control the flow of product whenever a machine difficulty arises, and it is difficult for them to communicate because of the high noise level. Despite these negative aspects, interviewed workers always gave a *first* reaction of satisfaction. With further and more in-depth contacts, the 'participative-observer'³ was repeatedly asked: 'What do you think of our work? What do you think of us, of the others, etc. . . ?' The workers did not seem to recognize themselves in their actual work situation; and they seem to be waiting for a 'shakedown', which will be everyone's fault. They carry the following mental images and convictions:

- a 'before' when everything worked fine, and a 'now' when things are not working properly;
- a freedom which they do not adequately use;
- bad communication and timing between service departments;
- a production process not yet working properly;
- a lack of conscientiousness about their work on the part of some operatives;
- varying degrees of strain in relationships between themselves.

Freedom for work groups to schedule their trips to the cafeteria (lunch, coffee), results in the formation of subgroups (two to four persons) and weakens the larger work group (twelve to fifteen persons). Tension can develop between these subgroups, and there is no institutionalized time and place to 'clear the air'. This point is developed later. Some difficulties – there are many – should be discussed.

3. One of the authors worked as an operative on the processing lines of Product I for one month in the summer of 1975.

Lack of individuation

With a continuous process operated by work groups, the contribution and performance of any one person cannot be singled out. Even if the group meets its objectives, everyone feels that he or she could have done better. There is an underlying anxiety and fear of a forthcoming crisis. How will those responsible for this be identified? With the continuous job-rotation, no one can forge a professional identity (for example, of being a 'cook' or 'mixer'). The only identity offered is a collective one, based on the product manufactured; and some influential workers can try to monopolize a work position they like.

Erosion of the initial challenge

The challenge of the start-up has disappeared; and there has been no consensus on a legitimate new challenge.

Interpersonal and intergroup problems

Interpersonal and intergroup problems exist between the sub-groups of a product group; between product groups; between shifts; and between operatives and supervisors, maintenance and set-up men.

Technical problems

The production process is hard to regulate and has frequent machine breakdowns. It is because of their collective powerlessness to tackle these problems that operatives find it difficult to perceive and accept themselves in their present work situation. Further, they believe that management does not believe any more in the recent start-up 'experience' (that is, the 'group organization').

Types of work involvement

Workers can be grouped in three categories according to their type of work involvement: moral, calculated, and alienative (Etzioni's terminology).⁴

4. Etzioni, A (1961): *A comparative analysis of complex organizations*. Free Press, New York.

1. *Moral involvement.* These people work hard to help the plant meet its objectives. They tend to have a wider and more qualified professional background. They are well integrated in the plant and are appreciated by others. They may number some fifteen per cent of the total.

2. *Calculative or utilitarian involvement.* These strike a balance between what they give and what they get in their relationship with the plant, in which they are reasonably well integrated. They come from varied professional backgrounds and are particularly aggressive in their interactions with supervisors. They may number seventy per cent of the total.

3. *Alienative involvement.* These operatives are not well integrated in the plant. Their skill seems to be lower than average; and they are often rejected by others. They try to survive and are the best clientele of the union. Some people in this group suffer a wide gap between their expectation and their present work reality (fifteen per cent of the total).

Let us look in more detail at the significance of these three types of involvement in work.

1. Moral involvement

These workers would like to make their individual performance visible and recognized. They consider their workmates and the mechanical staff as lazy and lacking in conscientiousness. They look upon supervisors as inadequate and as evading their responsibilities. They 'cannot stand' union delegates who 'make it impossible for problems to be solved'. They feel cramped and unable to give the best of themselves or to accomplish anything in that type of situation.

Some workers with this orientation tend towards a reduced involvement, of a more calculated kind, and expressed as 'after all, it's like everywhere else'; 'we don't matter much'; 'we are treated like idiots'. The most bitter complaints arise over 'inadequate repair of machines' and the laxity of the management *vis à vis* deviant worker behaviour.

A certain harmony can develop in work groups where the dominant involvement of their members has shifted from 'moral' to 'calculated'. The 'moral' participants 'play the game', over job rotation and cafeteria breaks, as they feel identified with 'the workers'; but they do not take part in strikes and probably do not have a union card. Nevertheless, eighty-five per cent of the plant workers follow the union direction in strikes, industrial action, and probably have a union card – an unusually high figure for French private industry where, on average, only thirty per cent of the labour force is unionized (in the public sector, however, close to eighty per cent of its blue-collar workers are unionized).

This break in the sacrosanct 'workers' solidarity' by those with a moral orientation allows the other two categories of workers to vent on the first category the tension created by their uneasy or even guilty feeling over their less devoted attitude to their work.

2. Calculated involvement

These workers are quite satisfied with group work and the difficulty it creates over singling out individual performance. They complete their work periods. Each of them 'minds his own business'. A consensus has evolved about the rotation of time out for visits to the cafeteria. When a workmate is having trouble, they 'give him a hand'. Work and working conditions are experienced as 'okay'. No questions are asked; no complaints voiced; each has come to 'serve his eight hours'. Relationships are friendly; tasks are done in an automatic and almost absent-minded way; and it is hard to develop any real exchange in interviews with these workers. Are the machines dirty? One does nothing about it. Nevertheless, some of them have wide professional backgrounds, and have had responsibilities which have given them pleasure from their work in the past. But here, in Plant X, work is not a way to express themselves. In interview they say that 'autonomy', and all these words used by management at the original 'welcome' and in the training programmes, are nice but unrealistic. Their own life experience has convinced them that external discipline must be forced into people. 'We told management there is not enough discipline in this place;

they didn't listen to us; too bad.' 'In my time, it worked with kicks in the arse; today it's a mess. The young don't want to work and don't even listen during training sessions' – in fact it should be noted that the breakdown into the three types of involvement is independent of age. Training programmes are considered as a way 'to keep people busy when there is no production work to be done.' The programmes 'are boring' and will simply cause them, later, to have to perform additional tasks. 'Sure, there are some deviants who go too far, but management does nothing about it.' To do a good job is to avoid trouble with the supervisors. 'Sure, they are called "technical advisors", but they are in fact ordinary foremen.' Quality standards have to be met, but when one compares what they are and what they could be, one 'understands what it's all about here'. This 'understanding', this complicity, 'shows that one is no fool' – a rather typical French attitude of guarded scepticism.

3. Alienative involvement

These workers are not highly regarded by their peers. They have trouble keeping up with job rotation on the more sophisticated work positions (cooking, mixing); but as they are part of the 'workers' as opposed to 'them' (employees from the offices, the supervisors, the staff, the management) other workers bear with them; and any attack from 'them' on these alienated participants, will cause strong protective reaction from the rest of the workers and the union delegates.

The point of view of the supervisors and staff

Supervisors and the various technical staffs (for example, maintenance and engineering) are quite critical of the present organization and of the operatives. We will present typical excerpts from their comments on:

1. The organization;
2. Multi-skilling;

3. Training Programme D;

4. The lack of conscientiousness, about their work, among workers.

The organization

TA2's [the 'technical advisors'] are not on top of their jobs... If there is a change of plant manager, there will be a real 'shakedown' and we will fall back on a very traditional organization. This will not be any more efficient than the present one. But who is ready to fight for the present organization? Not even the workers [Comment from a member of the engineering department].

There is too much levelling here. The same pay for everyone regardless of competence and performance. The capable workers are getting discouraged [from a TA2].

When I look at the amount of work I do, and see the workers sipping coffee in comfortable deep armchairs at the cafeteria... [from a TA1].

Multi-skilling

With job rotation, workers have done a lot of damage to machines. Job rotation and maintenance have gone too far already. A number of workers are unable to perform the maintenance and 'set-up' tasks of Programme D. The *best* workers should be trained and then promoted, not all of them [Comment from a member of the maintenance department].

We should stop being so egalitarian. We have to follow workers' inclinations. Some want to reduce job rotation, some not. Some want to specialize and do not want to be 'helper', 'sorter', or perform cleaning operations. Some don't mind. We should differentiate according to inclinations and capabilities.

Training Programme D

There is no will to learn among the workers; at the first opportunity they run to the cafeteria. One is really disappointed by all the mistakes still made by the workers despite the training programmes.

The lack of conscientiousness among workers

It's complete anarchy. Workers do what they please. They come and pick tools and fixtures without asking anyone. And this is tolerated! It will end as in... [Z, another plant in the region] where everyone was fired [management included] and replaced by people who wanted to work... When I am setting up a machine in the plant, the worker runs to the cafeteria rather than watch what I do in order to learn [set-up man].

I am with the new organization a hundred per cent, but there are problems. We don't know where we are any more. Everything is up in the air. I am very ill at ease. It is constant improvisation. We have our pants down in front of the workers and the union. Where will it stop? Workers' claims are becoming totally ridiculous...

I have worked for two weeks in a vineyard recently: that's something else! Working conditions here are good... We have to set limits. The more we wait, the more difficult it will be to put this place back into some kind of shape [Engineering staff].

I come here to *work*. The members of my staff see some workers spending five out of eight hours sleeping at the cafeteria. My men don't sit at the cafeteria when they stop there. When I compare the difference in salary between the workers and my mechanics, I say it is not fair. We are going to have problems with this [Supervisor of the set-up department].

The workers don't care. Often there are only two men watching the wrapping machines of the four lines of . . . [Product I]. At . . . [Product II], seven wrapping machines are in operation when five would be enough. The women in packaging are no better [Maintenance staff].

The climate is good. Workers enjoy not to have someone permanently behind their backs. Still, they are incapable of much initiative . . . The machines could be cleaner, and the trips to the cafeteria are too frequent and prolonged. Two or three workers out of forty really go too far. No more [TA1].

As can be seen from the excerpts, supervisors and staff tend to hold very negative attitudes towards the workers. They resent workers always being in the spotlight. Whenever there are plant visits by outsiders, the focus is of course always put on production work groups. Supervisors and staff sense the power of the union and the collective power of the workers as opposed to their own individual powerlessness.

They are being asked, on top of their already quite demanding jobs, to train the operatives. But they ask 'When will we be trained ourselves?' How can they otherwise preserve the differential of knowledge and expertise that they wish to keep between the operatives and themselves?

The point of view of the union

There is only one union: the CGT, which has close links with the French communist party. Eighty to eighty-five per cent of the workers have their card and pay 180 francs a year in union dues. The first elections of the works council and shop stewards took place in November 1973. At this time only twenty-five workers had union cards. In March 1974, after a two-day strike in which about ninety per cent of the workers took part, three wage increases were won, linked by management to Training Programme *D*. A high cost of living bonus was also obtained. Another strike brought an in-

crease of wages to parity with the wages of Y, the Parisian plant of the company – Parisian wages are generally higher than those in the rest of France. Shortly before the summer vacation of 1976, the union started a strike for a fifth week of paid vacation. The strike spread to the other French plants of the company. For the first time, workers went back to work without gaining anything.

The American top management has been quite shocked that social unrest is greater in the X plant than in the other less progressive and modern plants; but the average age of workers in X (only thirty years), with the very selective recruitment and, possibly, the type of organization (autonomous work groups) result in greater than average militancy. In early 1976, when the two authors spent time with the plant union, they were struck by the amount of hostility caused solely by interpersonal and intergroup problems. Complaints were not about working conditions, hours, or wages, but about the style of communication of the staff. Typical comments, for example, were: ‘Supervisors treat workers as idiots . . . management is falsely friendly . . . the people in the offices ignore workers and never say “hello” to them . . .’; ‘Supervisors are useless; they prevent greater autonomy, . . .’

The management point of view: early 1976

The plant manager and the production manager are satisfied with the production results and the low rates of absenteeism and turnover. Nevertheless, the union is extremely aggressive. The relationship between the union and plant management has so deteriorated, and the attacks have become so personal, that the production manager is threatening to bring some matters to the courts. Management is trying to invent a new style of operation; and it tends not to intervene in order not to be accused of falling back upon old models. Management wants others to grow in ‘the free space’ the new organization and jobs leave open to them.

At the end of 1975, the plant manager, who had always been curious to know whether workers’ opinions were as negative as

those of their union, was exploring the possibility of an opinion survey in the plant; but this did not take place because of his impending departure which finally happened in July 1976.

The authors' evaluation of the problems and choices facing management in early 1976

At Plant X those who work there do not have models or precedents to fall back on. Unfortunately everyone interprets the actions of others in terms of old models or past situations. It is therefore extremely difficult to unite to develop the new ways. To anyone, what he can lose is clear; what he may win is fuzzy.

Most reactions centre around 'authority': there is too much of it for some, too little of it for others, but this is quite natural in a plant where an attempt is being made to devise new authority relationships. Because of the lack of an institutionalized and legitimate time and place to express and confront their feelings of doubt, of frustration, and of collective powerlessness, a situation which is objectively positive is experienced in a negative fashion.

As we have seen, operative groups (twelve to fifteen people) are fragmented, in terms of different dominant orientations to work, into at least three subgroups ('moral', 'calculated', and 'alienative' participants). Meals and cafeteria breaks are taken by two or three persons together. There was then no systematic thirty to fifty minutes meeting every eight or ten days of a TA2 and his work team during working hours, in one of the two conference rooms. Once in a while, when production is slack, a supervisor will stop the production lines one hour earlier and, after cleaning up, will spend one hour in conference. But this is not the rule. When it does take place, the TA2 does not facilitate the expression of tensions or problems: on the contrary, he tends to deny or suppress them. In any case, the demands of the work itself do not make it easy to hold meetings. At 5 A.M. everyone is busy getting the lines rolling; at 1 P.M. there is change of shift; and at 8 P.M. there is again a peak in work load with the shutdown of the lines and cleaning up. The lack of opportunities

for expression and confrontation allows negative and hostile fantasies to grow without being held in check by reality. This is true as between workers; between workers and the maintenance and 'set-up' staff; and between workers and TA's. Plant management has trouble in recognising this, for example, because of such recurrent patterns of exchanges as the following:

'Production results are good; but some problems are still unresolved.' Turning towards the technical advisors, management raises questions on this. The latter reply:

'There *are* human and technical problems, but production objectives are met'; 'Human problems for the most part stem from unresolved technical problems'; 'There will always be likes and dislikes between human beings and there is little to be done about it.'

This vision is passed up to plant management and supports them in their point of view that increasing the technical competence of workers will solve all problems. This has of course a considerable amount of truth, but it is not the complete truth. A dialogue between workers and management, via the supervisors, has to be started *outside* the works council and the union (otherwise it will be dominated by bargaining on wages and not by organizational problem-solving). Tension between production workers and setting-up and maintenance staff is very common in all factories. In Plant X it is worse, because the staff is asked to train the workers, but refuse, covertly, to pass along the knowledge which allows them to differentiate themselves, to be superior to workers. Their reaction when asked to train workers is, therefore, to ask to be trained themselves.

Everyone clings to what makes him feel superior. Supervisors and technical staff resent the freedom, the job security (because of the union) and the collective power of the workers. As a result they 'snub' them, hurting the workers' self-respect. The resulting aggressiveness of workers is inevitably valuable to the union for its own objectives.

To move out of the present status quo, workers and management need some changes and some assurances. Management, for example, considers that without further training, work groups cannot be

granted more autonomy. Workers (at an estimate, they now have some 70 per cent of their potential involvement) for the most part do not want any more tasks and responsibility. Still, their aggressiveness is focused on the TA2's, and they want to do without these, if it could be arranged that:

- there were additional machines, and repairs were done better and faster;
- deviants were 'put in their place';
- there were enough properly trained workers.

Till now, management's attitude has been 'wait and see'. The union, although in favour of more autonomy for work groups, has not done anything to promote it. Initiative, therefore, can only come from management, and their decision must take into account:

- the strong opposition of supervisors and technical staff to the growth of the organization towards more autonomy for work groups;
- a cost-benefit analysis which has to make a gamble on workers' willingness and ability for further training, and for mastery of additional responsibilities.

To illustrate this problem: for training purposes, pairs composed of a set-up man from the staff and a worker were formed on a voluntary basis in 1976. If the present organization is to develop with the same logic, all workers should rotate into such a full-time 'set-up' assignment, going on from this first phase with volunteers. A similar scheme could also be used, apart from setting-up, with quality control or administration. The production reporting system undertaken by work groups could be the control 'tool' enabling further decentralization of responsibilities (some key input data, such as machine down-time, are not collected at present). Conversely, if management considers that workers have reached their training limit, they will not rotate every six months in the full-time 'set-up' assignment. This problem was not settled in early 1976, when the observations in this paper were completed.

Postscript, 1977

In July 1976 the plant manager who had started up the plant left to become managing director in another company. The head of production was transferred to another plant in November 1976. The head of personnel had already been transferred to Plant Z in January 1976.

The ex-plant manager's uncertainties about his future may account, to some unknown degree, for the feeling of deadlock everyone experienced during most of 1975 and the first part of 1976. The American headquarters, who did not understand the strikes at Plant X, and unable to get an analysis of the situation which made sense *to them*, certainly wanted a fresh start with a new management team.

The new plant manager arrived on 1 August 1976 from Plant Y, where he already held the position of plant manager. The production manager was not replaced and a new personnel manager was recruited. In this new era, two men seem to be playing key roles: the new plant manager and the new head of personnel. While the previous management kept meetings and contact with workers and their representatives at a minimum, the new leading management pair, and especially the personnel manager, have reversed the trend. The latter has made an assessment of all work groups, with their supervisors, by interviewing them in the conference room. He has created four sub-commissions of the works council (quality of working life, training, lodgings, absenteeism) and has *constant* and *intensive* contacts with union members. The major problem which has been spotted is the role of the technical advisors, the TA2's. Workers claim that they no longer need them. Steps have been taken in that direction, and today there is only one TA1 (instead of two) and three TA2's (instead of five).

Every two weeks, each work group now has a meeting in the conference room for thirty to forty-five minutes with its supervisor. The workers can ask for an ad hoc meeting if they feel the need for it. Management is now convinced that such organization as that of Plant X cannot grow if there is no time for such meetings.

At the end of 1976 the union asked for precise job descriptions and job evaluations of all the work positions along the production lines. A mixed (management-union) commission has been working on this for a year now, and it is far from finished. Management does not expect that this will result in any job grade increase and is firmly against any further increases in job grades. They want to negotiate for further efficiency gains to be paid by group production bonuses, based on meeting of production objectives. The new work group organization, which is in use only with production workers, is having repercussions, interestingly enough, in the rest of the plant. Recently, the thirty technical workers of the 'set-up' and maintenance staff, who are organized in a strictly hierarchical fashion, entered the plant manager's office and wanted to have a meeting with him, about their supervisors (who were, they felt, unnecessary) without these being present. The management and staff (six or seven people) of the plant want now to form a *group*, breaking down, between themselves, traditional service and functional barriers. They are to spend a weekend together in conference, outside the plant, to start up this 'group'; and they plan to introduce a degree of multi-skilling between its members.

In November 1977, sixteen months after his arrival at Plant X, the new plant manager considers the key problems he faces are the following:

- to have better control of production group efficiency (the EDP system can do that, provided workers agree to collect the necessary information on machine down-time, scrap, and so on);
- to give a new start to the plant spirit via *group bonuses*, based on results compared with objectives;
- to set up guidelines and limits to group autonomy; and
- to find new forms of role for the supervisors, the technical staff, and the management.

In his own words: 'I often ask myself: are we regressing or progressing? I try at least to consolidate what has already been achieved. It is not very spectacular, and some accuse me of blocking the further

development of this type of organization. Such an organization is much more difficult. You have to be more cautious about what you say in meetings than in a traditional organization. Supervisors especially are in a difficult position. It is exhausting. There is lack of support from headquarters. I often feel alone and discouraged.'

15. Introduction of a procedure of change: An example of operation

Denis Regnaud *

The operation to be described is a concrete example of the activities of the centre for the development of conditions of work in the direction of industrial democracy. The example also illustrates the initiation of a training programme which led to a change in organization and in industrial relations.

The CEFSE was established in 1953, by owners of companies in the department of Isère, as a non-profit-making association according to the law of 1901. Its aim, at that time, was the general training of foremen, middle management and supervisory staff in local business. It has since undergone various changes. The team of organizers and operators are now twenty in number, assisted where necessary by different specialists. The centre's situation *vis-à-vis* employers has developed towards a position of independence, with the search for a 'parity image' by efforts to form an association with the trade unions (in particular the creation of a tripartite employers-unions-trainees guidance council). This development, however, is still limited, as the unions are not represented on the administrative board. Lately, and this is a result of the preceding point, the centre has diversified its activities.

Along with 'traditional' courses for different companies, training with 'natural' groups has been developed. Through analysis of the role of training in the development of companies, and to meet a change in the requests made to the centre, an operations department has been created. As a result, its objectives are no longer expressed only in terms of training, but also in terms of development in the different component systems of a business. Concern is particularly

* Centre d'Études et de Formation du Sud-Est (CEFSE), Grenoble.

directed towards such matters as participation, the responsibility of management over plans for change, and the use of sociotechnical methods. A majority of the companies using the centre have been doing so for several years; this enables them to have a good knowledge of each other and constitutes an important basis for cooperative working. This was the case in the company of which we are about to speak, where training in industrial relations has been carried out for two years, affecting all foremen, middle management and supervisory staff.

This company manufactures refrigeration compressors, in two production units, twenty kilometres apart: Factory A (machining of parts) employs 800 people and Factory B (assembly plus head office), which employs 1,500. The most marked characteristics of the company are these:

- *Economic results.* Up to 1974, growth was sustained. Since then there has been a setback, especially on small models; the slack should have been taken up by the more competitive large models.
- *Products.* The whole range of compressors, from domestic to industrial, are manufactured. The company works under American licence and standards of manufacture are imposed.
- *Organization of work.* There is a predominance, in the case of production workers, of repetitive work, requiring little qualification (automatic machining lathes, assembly lines); the structure of the company is very hierarchical with considerable power held by the different departments. Workshops operate in two eight-hour shifts.
- *Men.* The business was established in 1954, and has been considerably expanded. From the beginning it has had a policy of internal promotion. The pyramid of seniority in the supervisory functions is very narrow, with staff of between 15 and 22 years seniority; the integration of external recruits is limited, and the degree of rejection of change in the organization remains high. The senior company manager, who has been in the post for seven years, uses a system of considerable delegation but has wide authority over the whole of the middle management and super-

visory staff. The production workers are predominantly semi-skilled (seventy per cent, of whom thirteen per cent are foreigners.) Turnover is low, but absenteeism is high and tends to be on the increase (fifteen per cent).

- *Trade union activities.* Two unions are represented. They are CGT, the General Confederation of Labour, the larger; and CFDT, the French Democratic Confederation of Labour. Disputes are infrequent, generally on a national basis but widely followed by the company's employees. Relations are difficult between the unions on the one hand, and middle management and supervisory staff on the other; the management admits the role of the unions but wishes to limit this to what is laid down by law.

How was the present operation undertaken?

At the end of 1974, following a programme of training for foremen, the company management wished to 'go further' by considering training which would relate to the whole of the supervisory staff. Problems of the conditions of work were beginning to be of considerable concern to them, and they were seeking means which would allow for consideration and resolution of these problems from the point of view of participation of the whole of the staff.

Faced with this demand for training, the first step by the CEFSE action group was to convince the company management that a training programme alone would not be appropriate to the objectives sought (these objectives were also rather 'hazy', and this phase of discussion, which lasted several months, enabled them to be clarified). At this level, very extensive work was undertaken to develop the concept of the business as a sociotechnical system, and to consider the role of the different participants, in particular the role of management and the methods used. In this, it was not possible to get the actual participation of production workers and their representatives right from the start. Taking into account the state of relations between middle management, supervisory staff and the unions, this did not seem possible until a change of attitude in

middle management and supervisors could be brought about. Middle management especially considered that it would be impossible to obtain union acceptance for any change which could lead to improvements in productivity.

The framework of a programme of action covering problems of conditions of work was then laid down. The general idea was that the objectives of this programme, as to changes in organization and industrial relations, could only be attained through seeking the views of middle management and supervisory staff on the nature of the company and its systems of operation; and by a search for, and experimentation with, new forms of expression and solution of problems at all the levels of staff concerned. The company management undertook to provide the necessary means by giving time for meetings, accepting the cost of improvement of conditions of work (studies and operations), and to consider participation and its relation to distribution of power. In practice, the operation had three principal phases:

1. An overall consideration of the matters concerned, by the middle management and supervisory staff (April to December 1976)

This phase concerned all levels of these groups, from team leaders to managers (about 150 people in all). Three-day meetings, each with about a dozen people from different hierarchical levels, enabled the objectives of the programme to be presented and discussed in depth. A discussion of the present functioning of the company and its problems, and on the idea of sharing responsibility for its operations, enabled the concept of the sociotechnical system to be deepened and lines of possible change to be worked out. The multi-level composition of these groups fostered learning of a new type of relations between their members, and was the forerunner of new forms of organization and decision-making. The outcome of each meeting was a report, jointly prepared by the groups and the CEFSE mediator, given to company management. Later, the groups could continue to meet if they wished. Each group, at the end of its three days, designated a member to participate in the work of a 'group of representatives' whose task was to shape the whole of the proposals

of the middle management and supervisory staff. The results obtained in this first phase were:

- group expression of the problems of the middle management and supervisory staff (role, responsibilities, relations, status);
- development of a new framework of attitudes and relationships between the middle management and supervisory staff;
- views on the present methods of operation of the company, on their limitations, and on the types of change required;
- creation of a structure for the work of the middle management and supervisory staff in shaping proposals and discussing a plan of action (the ‘group of representatives’).

At the end of this phase, a report analysing the views of the middle management and supervisory staff was drafted. It showed company management the importance of the work which had been done and the necessity to pursue these matters through the representative group.

2. The shaping of the proposals of the middle management and supervisory staff by their ‘group of representatives’ (January to May 1977)

As the views of the middle management and supervisory staff provided a great number of problems to be resolved, and of suggestions for improvements, the work of the group of representatives was to develop specific proposals. The objective was to lay down priorities for action, and to suggest new forms of operating which would then be negotiated with the company management (third phase). The procedure of this work had two principal bases:

- the necessity to provide the maximum coherence and liaison between the members of the representatives group and the original groups, so that the final outcome would be based on the views of the whole middle management and supervisory staff; and
- the search for sufficiently detailed methods of analysis, comparison and choice, so as to make viable the whole of their work and to justify the choices made.

At this level the role of the mediators was essentially to clarify the different stages of the work to be carried out, and to suggest methods which could be used. After the two early phases of work there was a meeting of the whole of the original groups, to allow for comments and changes in the proposals. In practice, the problems raised were put into six categories:

- management of production;
- development of the role of middle managers and supervisory staff;
- interdepartmental relations for coordinated action;
- absenteeism;
- work motivation;
- minor problems, making small demands on resources.

Each category of problem was studied according to a scheme which took account of all the views of the middle management and supervisory groups, in terms of causes, results, and suggestions for improvement. About sixty possible actions thus appeared; from these the group selected five important ones and ten requiring few resources (that is, almost the whole of the last category). The choice of the five priority actions was based essentially on recognition of the consequences of the problems to be resolved. Two actions were decided on, dealing with production management (start-up and continuing production, forewarning on changes); two actions related to changes affecting the middle management and supervisory staff (change in the role of the foreman, creation of improved means of communication for the staff); and an action concerning absenteeism (study of costs). An operational group was set up to study each of the proposals for action. The results of this phase are as follows:

For the group of representatives:

- an overall view of the different problems presented, and on their extent, their interactions, and their consequences;
- training to analyse and classify problems, and to propose plans of action;

- the formation of an operational work structure, the group representing the whole of the middle management and supervisory staff;
- an understanding of the extent of the work done in one year.

For the whole of the middle management and supervisory staff:

- some considerable delay over the discussion with the company management on the choice of concrete actions to be taken, in terms of which actions were to be chosen and of the way in which the discussion was to take place.

3. Negotiations between the company management and the middle management and supervisory staff (June to September 1977)

This phase was arranged on the basis of the plan prepared by the representatives; the object is to produce a plan of concrete actions to be implemented. One main difficulty to be overcome is that of reconciling two factions of management – those who desire concerted action which really does not call into question the usual rules of company and unit operation, and those middle management and supervisory staff (in particular the ‘group representatives’) who are now seeking a considerable change in their role and in the processes of decision-making. At this level, the work of the mediators will essentially be to make the company management aware of the importance of the complex interplay in this negotiation, emphasizing the importance of the proposals made, and the negative results which a too strict or superficial stand on their part would have.

At the present time, the principal areas of difficulty are these:

- *The position of the company management.* They may consider that the mediators have gone too far by initiating a considerable dynamic change, releasing new powers for the middle management and supervisory staff. How – and how far – can an alliance of the different parties be maintained?
- *Bringing in the operatives.* The programme of action at present concerns only the middle management and supervisory staff, and the proposals do not directly affect the operatives. At what time

will the changes in the supervisory staff enable an action to be launched at shop floor level?

- *The relation between the CEFSE mediators and the trade unions.* There are difficulties for the mediators over establishing a possible line of action, for the trade unions have strategies which are different (in particular, over the impact of the possible results of the national elections in 1978).
- *The manufactured products.* For small compressors, which are strongly competitive, the present organization appears the most profitable, and the pressure by the staff to change it is not very strong. There are, however, some possibilities of changes in production methods for the larger models (assembly in groups).
- *The social structure of the middle management and supervisory staff* is very rigid, and certain changes can be made only with partial renewal and the entry of new employees.
- *Development of the group meetings.* The purpose of the group meetings is to exchange views leading to the discovery and deeper study of the concept of the business as a sociotechnical system.

These are some of our concerns and some of the problems. In other companies other questions will appear, as the situation of each is idiosyncratic. Our conviction is that there is no single method for tackling these problems, but there is a set of concepts of learning and adjustment to change, available for use in procedures which have to be constantly modified.

16. From training to job redesign in a chemical plant in Italy

Stefano Mollica *

At the beginning of 1975 the department for the vocational training of a large Italian corporation approached our institute asking help in the improvement of its training system. In the majority of Italian companies vocational training operations generally aim at adapting the workers' operational skills to the fragmented tasks which exist in the organization. The same was true in the company asking our help. There, in recent years, training courses intended to develop basic knowledge had been added to the traditional ones and so, more recently, had various activities which would facilitate workers' integration into the social structure in which they work ('socialization', 'first job adaptation' courses, and so on). The fundamental structure, in a worker's training, however, still remained *the training for his specific job on the shop floor*, which was substantially entrusted to the operating instructions he receives while working, and to practical experience he can actually acquire. Increasingly, the results of this method of training were considered inadequate.

In fact, the demand for training from many production units was growing; at the same time the lack of adequate capacity of the workers was more and more underlined as a source of difficulty in obtaining good production results; the introduction of new technologies required large-scale processes of labour conversion which seemed inconsistent with traditional educational methods; changes in industrial relations were raising, more and more urgently, the problem of the real qualification of workers, and of its effects on their formal grades, on salaries, mobility, job design, and the qual-

* Istituto de Ricerca Intervento sui Sistemi Organizzativi [Institute of Action Research on Organizational Systems]. Milan.

ity of working life. On the other hand workers seemed reluctant to participate in courses (mostly poorly qualified workers who, at the same time, were making greater demands for change in their work life); managers often considered training costs as useless expenses which must be accepted; workers themselves, after attending the courses, claimed that the benefits were limited and, above all, short term.

Our clients asked us to carry out research and draft a general plan to be used for identifying training requirements for different plants. The research requested was intended to overcome the lack of information and knowledge about the different skill requirements arising in each different unit of production; the underlining diagnosis was the inability of the training departments to understand fully the organization's need. The hypotheses which our Institute had formulated and was developing in different contexts led us, on the contrary, to make clear that the real problem was not the inadequacy of the training departments, nor their lack of knowledge about the formal organization. In our view, the fundamental hypothesis was that the elements responsible for contradictions and crises within the training system were rooted in contradictions existing within the organization itself – in the division of labour, and in the way of designing and using technology. Empirical data and research findings drove us to see that the real problem was the crisis of the existing organization design, of which the difficulties of the training system were merely an important symptom and a significant expression.

Given this view, certain questions become crucial: to what extent is the demand for more skills in reality a demand for *different kinds of skills*, that is, for new skills existing (but to be uncovered) or needed (and to be defined), in both cases stemming from the characteristic and functional requirements of a changing sociotechnical system which the present formal organization pattern tends to conceal and to compress? In most chemical processes, research has shown that technology does not require workers to carry out faithfully and 'to the letter' minutely prescribed jobs but to develop the capacity to contribute to the unit to which the workers belong. It is

possible to look at the way the formal organization (norms, hierarchical structures, values, operating mechanisms) is not followed in practice. If this is true, could the formal organization be the basis for designing training courses? If such a basis is to be found, what is actually required by the dynamics along the different dimensions (technical, economic, productive, social) which make up the sociotechnical system? More specifically, what role does the type of technology and the productive process play? What is their influence on the division of labour and job structuring? What system of job performance do they demand? Which changes have they produced in the organization of work, and which do they still require? What concrete demands on the part of the organization must training meet? To give answers to these questions, study of scientific literature is not enough; in any case, we considered it impossible to give merely abstract and general ideas. Empirical research was suggested, in order to analyse the concrete sociotechnical systems in which problems arose; the goal would have been data, scientific propositions, more definite hypotheses, acting as stimuli on whose basis action about organization and training could have taken place. All this was not merely a suggestion to shift attention to an object different from the training system. *The real suggestion was to think about the problem of workers' performances in a different way.* Accordingly, we offered our clients a set of propositions stemming from previous researches, as a basis for the work to be done:

- that the development of overall productivity in an industrial system derives also and above all from the development of the capability to participate 'functionally', to take into account goals of worker groups whose job entails the simple carrying out of instructions, and hence, also, development of overall productivity involves the development of knowledge and skills;
- that participation of this kind can already be observed in certain conditions of technology, of process, of structure of human work in the production flow, despite the fact that such activity is not included in the formal organization;
- that there is a lack of formal recognition of the need, in such

- conditions, to develop maximum capability, knowledge and discretionary contributions on the part of the workers, and this lack derives mostly from demands (implicit or explicit) for the social control of the production system; and
- that to provide scientifically valid knowledge, both the aims and the methods of socio-organizational research in a production system must be such as to be able to produce changes in the pattern of relations which exist between use of technology and organizational characteristics.

The first step in establishing an action research of this kind meant, first, for our clients to share those hypotheses and to decide to change their roles and intervene in the overall process of company change; and second, for the researchers to use those hypotheses meant to accept involvement in a long-term action.

To face the problem which emerged in a new and enlarged way, through the hypotheses mentioned, meant triggering off a process and undertaking an approach which was full of uncertainties and risks – the complexity and range of the phenomena to be analysed; experimentation with a method of ‘open’ research (that is, research able to generate further hypotheses); a company culture which was, by tradition, not oriented towards discovering ways of functioning and developing the organization from the ‘shop floor’ level; and, above all, it meant searching for answers and bearings to help us to face the crisis in the training system within the contradictions existing in the company. But our clients were open enough to accept this way, that is *to renounce a search for new training procedures but to try to give the company a better understanding and better strategies to tackle the problems underlying the training problems.*

It was necessary at this point to make a first and prudent test of such an approach, in order to achieve two goals:

1. To verify whether study and redesign of the training and organization was a workable and useful approach for a composite team of external training experts with operational duties; and
2. To translate hypotheses, methods and goals, which up to now

had been quite abstract, into the language of facts, events and standards which could be intelligible within the company culture.

Analysis of production processes

We analysed two departments of the plant:

1. *Department A.* This is a continuous cycle, highly automated department, which transforms certain raw materials into Product A, in its pure state. The process entails four complex working phases: reaction, esterification, extraction and correction. The fundamental transformations are chemical reactions and physical processes. The equipment is manned in each shift by four people – three workers with different jobs: one leader, one external operator, one check-panel operator; and a foreman. In the department there are also the department head and his assistant, both working on a day-to-day basis.

2. *Department B.* This is a discontinuous cycle department. The raw material, stocked in silos, is mixed in predefined proportions and put into the machine. Following a predefined course the product undergoes a series of physiochemical and mechanical transformations which give it the essential characteristics required: thickness, surface perfection, shine, colour, and regularly stable dimensions. Each machine is worked by one man who carries out all the operations. The machines in the department are subdivided into two groups; each group is under the supervision of a foreman. In this department there are also two ‘trainee’ assistants, a qualified assistant, and a department head.

Research methods

Our research was carried out in two phases:

1. *General description of the organization.* We interviewed those re-

sponsible for the principal operative and staff functions. Our aim was to find out the plant's characteristics: dimensions, type of production and technology, organization, and so on; to identify what was relevant to our hypotheses; and to identify the departments to be analysed.

2. Study of the departments identified through analysis of the variances in the operation at each phase of the production process.

Principal results of our research

Our analysis made the following points clear:

1. As to Department A the process entails a large number of variables, both foreseeable and unforeseeable. These variables are highly interrelated: dysfunction at one point of the process often reflects backwards and forwards. The information for analysing a dysfunction can be obtained at different moments or points in the process; according to the case in point each variation can be the symptom or the cause or the effect of a given dysfunction. This has important consequences on the job at worker level. The analysis of a dysfunction often requires having at one's disposal at the same time information to put one in the picture, information obtained through working with the equipment, and the results of laboratory samples and examinations. Very often the regulations the workers operate are not formally laid down, but consist in regulations of the process carried out through experimenting and acting simultaneously; very often the activity of regulating also constitutes an activity of analysis. This work is done collectively without consideration of formal grades and according only to the actual knowledge of everybody. The complexity of the process makes keeping to established job divisions a difficult matter.

2. In the same way, in Department B the working of the machine requires from the operator continuous checking and regulating of the variables by trial and error.

In fact, we witness either phenomena that we could call rotation of operators who carry out control/regulation operations entrusted to others, or moments in which all the operators are involved in assuring the equipment's smooth functioning, a phenomenon we could call co-operational.

Everything we have said about the 'process' has consequences for the type of training necessary for workers. Given the fact that the productive process constitutes a single complex, we noted that knowledge of the whole process is necessary to conduct each phase or operation, that is, knowledge of possible problems which might arise, together with a broad theoretical knowledge of the transformations undergone by raw materials and of the instruments used to monitor and control these transformations. The company faced this demand by providing for different professional figures to be present, each of whom would be responsible for a part of these tasks. The nature of the process, however, requires not only that this knowledge should be present in the department, but also that each operator should be able to integrate this knowledge and should be in a position to use it inductively, that is by passing from action to conceptualization and back to action again.

The problem of training is, then, to develop actively these capacities and not to instruct workers how to carry out operations on the equipment. Informally, this training is partially guaranteed by the fact of working together in the department. There are, however, problems linked to a high turnover and to the fact that older (hence expert) workers tend to pass from shift work, which is that of production, to working on a day-to-day basis. The training hypotheses we formulate advocate:

1. That planning for training should involve everyone who participates in the production process: workers, technology experts, staff and department heads;
2. That the department should undertake the task of training its own operators and should therefore receive the necessary resources and means, the role of foreman being central;
3. New ways of representation of the production process have to be

developed (variance analysis versus procedural specifications);
and

4. Parallel changes in group design and in organizational procedures have to be introduced, through the outcome of the co-operative training design process.

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SECTION FOUR

ACTION RESEARCH REPORTS: ADMINISTRATIVE AND OFFICE UNITS

17. Participative work design: A contribution to democracy in the office and on the shop floor

Enid Mumford *

Philosophical approach

The case study described in this paper represents the present stage of an evolutionary attempt to provide workers with the opportunity and skills to redesign their own work systems. This approach has now been used by the author in four different kinds of enterprise, a British company manufacturing building products, an American insurance company, a British bank, and a large British engineering establishment. In each of these establishments a new computer system was being introduced into an office situation and this was seen as providing an admirable opportunity for the redesign of work so as to (1) increase the satisfaction of staff, and (2) increase their work efficiency. It was believed that these two objectives were not entirely independent. Many workers appear to become frustrated and dissatisfied when working in an inefficient and poorly administered work situation, although clearly there are many factors other than efficiency influencing job satisfaction and these will be discussed later in this paper. Similarly an important element in job satisfaction appears to be a feeling of 'competence' and people have difficulty in being 'competent' where work is not efficiently organized.

Participation philosophy

Three different levels of participation have been used in these four firms. First, an approach which may be called *consultative democracy* was used in the building products firm; second, a *representative*

* Reader in Industrial Sociology, Manchester Business School. The paper was initially prepared for a Moscow symposium of the International Institute for Labour Studies, Geneva.

democracy approach in the insurance company and the bank; and third, a *consensus democracy* approach in the engineering firm. These can be described as follows:

Consultative democracy leaves the bulk of decisions on how a new work system shall be designed and jobs structured with the traditional systems design group although there is a great deal of consultation and discussion with staff at every level in the user department. In the building products firm the work of a department dealing with customer orders was being changed from a batch computer system to a real time application and this was seen by the systems design team, who were computer technologists, as providing an opportunity for increasing job satisfaction through the redesign of work. In addition to extensive consultation they organized clerks in the department into a number of small problem-solving groups to consider different aspects of the new computer system. The form of work organization eventually selected was based on an autonomous group structure, with small groups of five or six clerks responsible for all the tasks associated with handling a customer's order and dealing with customer problems.

Representative democracy requires a higher level of involvement from the staff of a user department. A design group is formed which is representative of all grades of staff in the department and, if a new computer system is being introduced, also includes the systems analysts. The departmental manager may or may not be a member of the design team, depending on his own wishes. This approach was pioneered by Professor Louis Davis, director of the Quality of Working Life Institute at the University of California, Los Angeles. His personal philosophy has always been that *no one has the right to design a work system for someone else and that the role of the expert should be to help the worker to design his own work system*. This approach was used in the American insurance company where the principal researcher was Professor Davis himself. It was also used in the British bank, although in this instance the initiative to try such an approach came from the bank itself, which asked the author

to assist them. In the two situations the introduction of a new or a new kind of computer system was used as an opportunity both for improving efficiency through the use of a higher level of technology and for improving the job satisfaction of workers through the redesign of work in a manner which the workers themselves decided would improve their job satisfaction.

Consensus democracy takes the democratic approach to a still higher level by attempting to involve all staff in the user department continuously throughout the systems design process. Once again a design group is formed from representatives of the user department and the computer systems analysts. With the consensus approach this design group, with the exception of the systems analysts, is likely to be *elected* by the staff of the user department, whereas with the representative approach it may be selected by management. The role of the design group using a consensus approach is twofold. It will have to develop a new form of work organization while continually receiving and giving ideas from and to departmental colleagues and allowing the final decision to be taken by the department as a whole. It is this last approach which will be described in detail in the remainder of this paper.

Design philosophy

A participative approach to work design means that the employees of a department or their representatives construct a new form of work organization which is based on a diagnosis by them of their own needs. There are a number of different philosophical approaches to work design which such design groups may want to consider. The two most frequently used are *job enrichment* and the *sociotechnical* approach. Job enrichment focuses on the job of the individual worker and tries to build up this job in such a way that it increases in interest, responsibility and challenge. The job may be extended by adding to it preliminary activities such as setting it up and acquiring the necessary materials, or completion activities such as final quality inspection and rectification of errors, tasks which previously have been carried out by other individuals. The aim of

job enrichment is to improve the relationship between the *individual* and his work. The sociotechnical method was originally developed by the Tavistock Institute in Great Britain and this takes a very different approach. It incorporates a logical analysis of the technical components of the work system and the grouping of these into 'unit operations'. Unit operations are logically integrated sets of tasks, one set being separated from the next by a change of state in the product. For example, in a purchase department the tasks of preparing accounts data for input to a computer, putting the data into the computer and correcting input errors is a logically different set of activities from matching accounts with goods received notes and investigating discrepancies. Work design which uses a sociotechnical approach identifies unit operations and allocates one or more unit operations to each work group. The work group then has responsibility for allocating tasks amongst its members and for training its members so that eventually each individual is competent to carry out all tasks. This approach improves the relationship between the *group* and its work. The sociotechnical method has a second important objective which has been developed by Professor Louis Davis. This is the improvement of the efficiency of a work system through identifying system variances. A variance is a deviation from some desired work standard or norm and a design group using a sociotechnical approach will direct its attention to securing better control over variances as well as to improving job satisfaction.

Planning for change

The case study described here took place in the purchase invoice department of a large engineering company. The company was an experienced user of computers and was proposing to introduce a series of on-line computer systems into its accountancy functions. It wisely perceived this as an opportunity for a form of office reorganization that would improve both job satisfaction and efficiency. The author was initially approached by two computer specialists from

within the company, the systems manager responsible for computer-based accounting systems and a systems manager from the central management services department, who asked her to assist them with the design of a new on-line computer system for the purchase invoice department. This system would have as its objectives both an improvement in efficiency and an improvement in job satisfaction. The reason for the approach was that some years previously the author had given several lectures to the staff of the management services department in which she discussed the need for meeting the human needs of staff when designing computer systems. This message had not been forgotten.

The purchase invoice department employs a staff of sixty clerks and handles the accounts of suppliers who have supplied goods and services to the company. With the original manual system the work was routine and made more so by the functional organization of the department in which staff were divided into four grades; the bottom grades carrying out very simple, routine activities associated with a certain kind of invoice. Because of the routine nature of the work the department had difficulty in recruiting clerks and young people were reluctant to stay there. It was believed by management that job satisfaction was low. *The initiative for work design therefore came from the computer specialist group within the company.*

Acceptance of the project

First discussions took place between the two systems managers who initiated the project and the author, who will now be referred to as the consultant. It was agreed that it would be desirable to try and secure agreement from top management and the trade union concerned for a consensus approach to the design in which staff in the purchase invoice department would design their own new system of work, the on-line computer system forming a part of the reorganization. The trade union involved was a large white-collar union.

During February 1976, in order to secure top management and trade union approval, the consultant and the two systems managers met with a group consisting of a number of senior managers and the factory medical officer, an individual who was extremely interested

in problems of psychological stress in work. Unfortunately the trade union official could not be present at this meeting and separate discussions were held with him at a later date. The consultant described her approach to job design to the group, explaining that she favoured a democratic philosophy in which the staff of a department were asked to design their own work organization, this design process including both the total organization of the department and the allocation of tasks to work groups and individuals. She also explained that as the object of the exercise was to improve both job satisfaction and efficiency staff in the department would need to be given a knowledge of techniques for measuring job satisfaction and for identifying inefficiencies in the work system. She also explained the sociotechnical approach to work design. *The project was formally agreed to and the consultant suggested that the senior managers present together with the factory medical officer and the trade union official should form a steering group which would help guide the project.* This suggestion was accepted.

Role of the external consultant

At this stage of the project the consultant saw her role as convincing top management of the value of going ahead and of the utility of permitting a consensus approach to the design problem together with the use of a sociotechnical form of analysis. Once the project began she saw herself as having both a training and advisory role with design decisions being taken by the staff of the purchase invoice department as a whole or by their representatives. The university commitments of the consultant meant that she would only be able to spend one day a week with the project. The day-to-day management of the project would therefore be handled by the systems manager for accounts, who would act as an internal consultant.

Preparation for change

Consultation with user department

During the third week of March, 1975, the systems manager for accounts, met the staff of the purchase invoice department in small

groups and explained to them the nature of the project and its philosophy and objectives. The consultant was not present at these meetings. The staff of the department agreed to participate in the project.

Formation of design group

The systems manager for accounts, in association with the departmental supervisor of the purchase invoice department next selected a representative group of clerks to act as a design group. This group would be responsible for the development of a new system of work for Purchase Invoice, although this system would evolve on the basis of feedback and discussion with all members of staff in the department. The design group was selected so that there would be a representative from each work section, from each job grade, from each age group, and from men and women. When set up it consisted of six clerical representatives from Purchase Invoice, two systems analysts from the management services department, who would have responsibility for the design of the computer-based part of the new work system, the consultant, Enid Mumford, and the internal consultant, the systems manager for accounts. One of the first activities of the consultant was to arrange a one-day training course for the design group so that they could obtain some understanding of how work systems could be analysed and new alternatives constructed. A major feature of this course was a practical exercise in work design.

Specification of role of steering group

A first meeting of the steering group was held at this time in order that its role could be clearly defined. The steering group now consisted of the head of management services, the systems managers who initiated the project, the senior manager responsible for the purchase invoice department, the senior manager of the adjoining treasury department, whose work would be affected by any reorganization of Purchase Invoice, one of the company's personnel managers, the factory medical officer, and the trade union official. It was decided that the role of the steering group should be to provide

encouragement and advice to the design group. The steering group would meet to review the progress of the project once a month but its members would make themselves available each Friday afternoon in case the design group wished to consult them. For example, if the design group became worried that decisions it was taking might not fit with company policies it could ask the steering group for a ruling and receive an immediate answer. It was thought that this procedure would prevent the design group spending several weeks developing an alternative system of work which would later prove unacceptable to top management. In fact, the steering group never had to intervene in such a negative manner. Its role turned out to be the more positive one of encouraging the design group to embark on a fundamental rethinking of the work system and not to be constrained by factors associated with the existing work situation, such as the job grading system. Without this encouragement from the steering group the design group might have been too conservative in its approach, from fear that any radical redesign proposal would prove unacceptable to top management

Role of the consultant

At this stage of the project the role of the consultant was primarily one of giving the Design Group knowledge, confidence and encouragement.

Problems that had emerged at this early stage

Three problems had now become apparent. First, the initial communication about the project from the systems manager for accounts to the staff of the purchase invoice department had not been entirely successful. Although he had spoken to the staff of the department in small groups so as to allow for discussion, it later became clear that staff in the department were suspicious of the project. They could not believe that management was really permitting them to design their own system of work. This had never happened in the company before, why should it happen now? They suspected that there was a catch somewhere and that management had some hidden ulterior motive that was concealed from them. *With hindsight*

it is clear that these first discussions should have been carried out with a great deal of care so that suspicion was reduced. It might have helped if the consultant had been present. It would certainly have helped if the trade union official had been present.

Second, although the design group had been carefully selected so as to represent all the different interest groups in Purchase Invoice, the fact that this selection was made by management meant that group members were seen for a long time as 'management favourites' and they had relationship difficulties with their colleagues because of this. *These could have been avoided if the group had been 'elected', not 'selected'. However it would have been important to ensure that an election did produce a representative group and not merely a collection of the most popular members of the department.*

Third, the design group initially decided to meet for an hour every morning. This meant that the systems manager for accounts could be present at all the meetings but that the consultant could only be present once a week. Such short meetings meant that the group had difficulty in making headway with the design task. The group later decided to meet each Friday for an entire morning and this change enabled it to make more rapid progress as the members were able to concentrate their attention over a three-and-a-half-hour period with assistance from the consultant. A further problem arose from the fact that the supervisor of the purchase invoice department, although extremely cooperative throughout the project, had the dilemma that if his staff were designing a new work system, they were not carrying out their normal work activities, yet he was responsible for running a high production department. *The amount of time required by a design group to design a new work system is considerable and this fact does need to be made clear to management at every level. Lower level supervisors must know that they have top management support when the day-to-day work activities of clerks are displaced by their new design responsibilities.*

Identification of work system problems

A first task of the design group was to gather information as a basis for commencing its analysis of the job satisfaction and efficiency problems of the purchase invoice department. This information had to be of three kinds:

1. Information on work problems in the department that were impairing efficiency. All staff in the purchase invoice department were asked to note any weaknesses in the existing system of work. For example, functions where delays occurred in receiving or giving information or where problems arose in coordinating one set of tasks with another. Staff were asked to describe these, to explain their cause and to provide suggestions on how they might be reduced or eliminated. This is the analysis of system variances described earlier in the paper.
2. Information on job satisfaction needs and on the extent to which the existing system of work met these needs was obtained through a questionnaire based on a theory of job satisfaction developed by Enid Mumford. This questionnaire was completed by all staff in the department, the data were analysed by the consultant and the results fed back to all staff by the design group and later discussed in small groups. It became clear that work was perceived as too routine and that there was a demand for more challenge and for the opportunity to feel a greater sense of achievement. The clerks said that their work should provide them with better opportunities to develop their skills and knowledge and that they should be given more personal responsibility. They also wanted a greater opportunity to develop their own work methods, to take decisions and to have personal autonomy. This last need would, they believed, be assisted through the opportunity for seeing a piece of work through from start to finish, instead of having to pass it on to another clerk. Seventy-five per cent of the clerks said that they did not receive a great deal of job satisfaction from their work.
3. The two computer systems analysts in the design group provided information on how the new on-line computer system could be developed so as to improve efficiency and assist job satisfaction. This computer system had been partly formulated by the time the design group was set up and so some technical options were not available.

By the end of April 1976 all this information had been collected.

Developing and choosing the work system

Once the design group had completed its analysis of efficiency and job satisfaction problems it began designing alternative work systems to overcome these problems. Three alternative systems were constructed and these were fed back sequentially to all staff in the department for their comments and criticism. These systems took the following forms:

1. The purchase invoice department would be split into a number of autonomous or self-managing groups. Each group would take responsibility for all the activities associated with handling the accounts and problems of a group of suppliers. A group would consist of six clerks, each of whom would be able to perform all the tasks for which the group was responsible. The existing grading structure of the department would be eliminated and all clerks would eventually become the same grade. Grading would in effect be based on job knowledge and everyone who wished to do so would be able to acquire this knowledge.

The response to this work design alternative was a great deal of hostility from the higher grade clerks who felt that they would lose status if difficult and responsible work was available to anyone who wished to do it.

2. This alternative was a modification of the existing work system, with the department organized in the same functional way but with an enrichment of the jobs of the lower grade clerks who, in the job satisfaction survey, were the group with the least job satisfaction.

The response to this work design alternative was that it did not improve much on the existing work situation.

3. This alternative combined alternatives 1 and 2. The majority of staff in the department would be organized in self-managing groups as in 1. In addition there would be a service group with responsibility for handling mail and for other activities which were common to all groups. The work of the service group would be routine but the design group was confident that a small number of staff in the department did not want the responsibility of more complex tasks. Some variety could be introduced into this work through job rotation. There would also be a small specialist group of high grade clerks who would look after specialist suppliers and activities. This would meet the needs of a group of senior clerks who were extremely reluctant to change their present role and responsibilities.

Alternative 3 met with general approval and it was the one eventually chosen for implementation.

Problems at this stage

The most serious problems encountered at this stage of the project were concerned with personal relationships. Because the design alternatives were fed back sequentially and the first alternative was perceived as threatening by some of the senior clerks a great deal of conflict broke out in the purchase invoice department. The design group received considerable hostility from its own colleagues and two resigned at this stage as a result of the stressful nature of the interpersonal situation. It became clear that there was no complete identity of interest amongst the purchase invoice clerks and that a number of those in the higher grades saw their interests as different from those in the lower grades. Therefore a new work system based on autonomous groups and work sharing was unacceptable to them. This critical group were opinion leaders in the department and their objections caused a drop in the morale of the staff of the department as a whole and of the design group. The situation was rescued by the systems manager for accounts, who sent a short questionnaire round to all members of the department asking if they wished the project to continue or not and to give reasons for their answer. The response to this questionnaire showed that 60 per cent of the department were in favour of the project continuing. They gave as their reasons the fact that they wanted larger, more challenging jobs together with the possibility of moving up to a higher work grade, a promotion which would bring with it an increase in salary.

Conflict might have been avoided if the work design alternatives had not been fed back sequentially to purchase invoice staff but had been retained until all had been completed and then fed back simultaneously as three alternatives amongst which a choice was to be made. However, it is possible that conflict could not have been avoided and that bringing it to the surface and working through it was valuable in the long term. *This conflict episode occurred in May 1976.*

In June a further problem occurred which resulted in the project being stopped for three months. This problem concerned the trade union and arose because it transpired that the trade union official on the steering group had not informed the union's area officials of the work design project that was taking place in his firm. The higher levels of the union hierarchy heard about the project as a result of a comment made at a branch meeting and they therefore ordered it to stop until they had obtained the details of what was taking place. Pressure of union business made this investigation a slow process with the result that the project was

not able to recommence until the beginning of September, 1976.

By this time morale in the purchase invoice department had dropped again. Staff interpreted the union's action as an indication that the union did not support the project. This situation was saved by the trade union branch chairman, who came and addressed the purchase invoice staff. He told them that the project had complete union support and urged them to participate fully and to make sure that the design group received their ideas for improvement. His message was 'here is an opportunity to participate, do not lose it'. *This problem might have been avoided by better communication within the trade union itself.*

Detailed preparation of work design alternatives

The work design project continued from September 1976 until the end of October 1976. During this period the three alternatives were worked out in detail and all members of the design group became expert at analysing work problems, evolving improved work sequences and drawing these out on flow charts. The design group now involved other members of the staff of Purchase Invoice as much as possible, coopting them onto the committee whenever the work activities for which they were responsible were being discussed. The finalized alternatives were shown to the departmental supervisor in order to ensure that they contained no elements that would cause him supervisory problems. The design group and the supervisor liked Alternative 1, the total autonomous group concept with all staff multi-skilled and on the same work grade. But both recognized that such a change would probably prove too revolutionary for purchase invoice staff to accept immediately and that Alternative 3 might prove more acceptable in the short term, while permitting a change to Alternative 1 when the clerks had got used to the autonomous group concept. A final stage of this part of the design process was a careful check that the three alternatives would meet the initial job satisfaction and efficiency objectives, that is, they would provide more interesting and challenging work for a majority of staff and that they would ensure greater control over work variances. It was clear that Alternatives 1 and 3 would achieve this more effectively than Alternative 2.

On 29 October the design group made a presentation to the steering group. The three alternatives were set out, together with the group's reasons for recommending Alternative 3 and a detailed description of its advantages. Each member of the design group answered questions on a particular aspect of work organization when these were directed at them by senior management and senior trade union officials (there were two representatives of the union present at this meeting). The steering group was greatly impressed by the presentation and somewhat amazed that a group of ordinary clerks could evolve such a sophisticated solution to the reorganization problem and present their arguments for it so clearly. Management agreed that Alternatives 1 or 3 would be acceptable from their point of view.

The following week the three alternatives were presented by the design group members to their own departmental colleagues, with a recommendation that Alternative 3 should be accepted. The systems manager for accounts, and the chairman of the trade union branch were both present at this meeting. A vote was taken and Alternative 3 was selected by a large majority with four clerks voting against and a number abstaining.

Finalization of selected design

The design group now had three more tasks before its project was completed. It had (1) to prepare detailed task specifications for the work of each autonomous group and the mix of tasks selected by individual group members would later have to be graded by the firm's job evaluation officers; (2) to prepare a new physical layout for the purchase invoice department; and (3) to propose any formal training programmes that were necessary. After giving this last some thought the design group decided that most of the training could be done within the new work groups and that the group leaders would want to take responsibility for this. *The design process lasted from March 1976 until November 1976.*

Role of the consultants at this stage

The role of the external and internal consultants had changed

markedly by the time the new form of work organization was finalized. At the commencement of the project they had a useful role in providing the design group with encouragement and with a method by which it could tackle the problem of constructing a new form of work organization to improve job satisfaction and efficiency. At this early stage the design group was dependent to a considerable extent upon the help of the consultants, although both were careful to leave all decision taking to the design group and to restrict themselves to suggesting possible ways of approaching a problem. By the end of the design exercise the design group was both confident and expert and had little need of the consultants. The consultants' skills had now been transferred to members of the design group and the consultants were superfluous. The consultants looked on this transfer of knowledge as a major achievement.

Conclusions on the introduction of new forms of work organization

Conditions for this introduction

One condition for a democratic approach to work reorganization is that no one must suffer and as many employees as possible should gain from the change. Because a computer system was being introduced into the purchase invoice department there was a potential for reducing the number of staff and both management and the trade union had to give guarantees that there would be no redundancy and that any staff saving would be achieved by not replacing staff when they left voluntarily. If this guarantee had not been given the project would not have been acceptable to the department. The system proposed by the design group and accepted by the purchase invoice department would benefit a majority of staff as all clerks, except those in the service group, would have the opportunity of increasing the range of tasks they could perform and in this way move up to a higher grade and a consequent increase in salary. The only clerks who would not gain in this way were the senior clerks who were already at the top of the grading structure. The service

group had been deliberately left with undemanding jobs to meet the needs of a small group of clerks who said they did not wish to undertake challenging work. It was recognized that if these clerks should later change their minds, a transfer to one of the autonomous groups handling suppliers accounts would be open to them.

This democratic approach had also to be acceptable to management and both the steering group and the purchase invoice supervisor believed that they would gain from the increased efficiency of the new work system and from the fact that Purchase Invoice would now become a much more desirable work environment and therefore have less difficulty in attracting and keeping staff.

Negotiation with workers and their representatives

There was no negotiation between management and the workers and their representatives in this project. Its democratic nature rendered this unnecessary for all decisions were taken by the clerks themselves. Nevertheless the successful completion of the project did require some negotiation, and this took place between members of the design group and their own colleagues in the purchase invoice department.

Role of first-line and middle management in this process

This is a difficult question. In the purchase invoice department first-line supervision consisted of a number of section leaders and they were involved in the design process and represented in the design group. The departmental supervisor was willing to leave the development of a new form of work organization for the department to the design group, although he was consulted before the three alternative designs were presented to the steering group. In other situations middle management might prove to be less sympathetic and cooperative. This suggests that it is impossible to generalize on the extent to which middle management should be involved and judgements have to be made in terms of particular situations. Too great an involvement of management brings with it the danger that design groups become inhibited and subservient to management ideas.

Learning process

It is very clear that a major learning process is involved in the work design approach described here. The design group has to transform itself from a group of clerks whose knowledge is restricted to the performance of simple clerical operations to a group capable of creative problem solving and the generation of new, radical, ideas. The fact that such groups appear to be able to undergo this transformation with relative ease suggests the extent to which their talents have been underutilized in their normal jobs. The department as a whole has also to learn a number of things. It too has to acquire skills in identifying work problems and suggesting improvements. It has also to be able to communicate these ideas to the design group and it has to learn how to participate in a new, democratic, process with which it is totally unfamiliar. The experience of this project suggests that learning how to participate democratically is more difficult than learning how to redesign work.

If a new computer system is being introduced as part of a reorganization of work then the computer systems analysts have to learn a new role. Instead of following their traditional practice of designing a technical system and then reorganizing the work system to fit this, they have to fit their technical system into the form of reorganization created by the design group. This means that they have to take a very flexible approach to the technical design processes and not insist on any technical solution that imposes constraints on the work of the design group. Ideally the systems analysts will develop the computer system as the design group is developing the new form of work organization. It is of course essential that the computer systems analysts are members of the design group.

Functioning and evaluation of new work organizations*Evaluation*

The work system described here is only now being implemented and so evaluation will not be undertaken for some time. This evaluation will focus on establishing the extent to which the initial job satisfac-

tion and efficiency objectives have been met by the new system of work. The job satisfaction evaluation will be carried out through once again asking staff to complete the job satisfaction questionnaire and then discussing the results in small groups. If the new system of work is successful in human terms then there should be an improved 'fit' on many of the job satisfaction variables. Staff in the department should feel that there is now more interest, challenge and responsibility in their work and that they have the opportunity to see a set of integrated work activities through from start to finish. The efficiency evaluation will be done by checking the extent to which work variances identified in the design process have now either been eliminated or controlled more successfully. A check will also be made that new variances have not appeared.

The maintenance of new forms of work organization

To a large extent maintenance of new forms of work organization is up to the work groups themselves. If some groups democratically decide that they do not want an autonomous, multi-skilled form of structure but prefer to return to the traditional hierarchical form then they will have the right to do this.

Development of new forms of work organization

The firm proposes to continue to use this democratic approach to work design, particularly when introducing new computer systems. Because computer systems tend to change existing forms of work organization they act as a catalyst, providing an opportunity for the development of new work structures in which the computer system is then embedded. The firm believes that the design approach described here has proved successful and has led to the development of an effective new system of work. The trade union concerned is also pleased with the results of the exercise and believes that the approach has enabled employees to gain a greater degree of control over their own work situations.

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18. Clerical employees in XYZ Company reorganize their department

J. Hort

Since 1970 experiments in job design have been in progress at XYZ. The first experiment took place in the packing section of the XYZ factory in a West German city. There, approximately 200 female machine minders are working successfully in groups. One result of this experiment was the formulation by the board of principles in matters of job design:

- The whole task of the individual employees, as well as the external work conditions, should be designed in such a way that the highest possible motivation and satisfaction are achieved.
- The interests of employees and employers should be equally taken into account in such a way that both become, as much as possible, of equal importance.

The positive effects of the job design experiment in the production sector has encouraged XYZ to begin an experiment in the administrative sector. For this, the Central Auditing Department offered its cooperation.

1. Functions of the Auditing Department

All invoices to be paid by XYZ are checked, cleared, paid and data prepared for EDP centrally. The number of invoices amounts to approximately 90,000 each year; and the range of difficulty stretches from simple, for example, an invoice for cleaning materials, to difficult, for example, an invoice covering a big delivery of machinery from abroad. The invoice amount payable annually

amounts to approximately 1,000 million DM. The invoices are recorded in approximately 10,000 credit accounts, using EDP. In addition, all XYZ's money transactions are recorded and supervised by this department.

2. Present formal organization of the auditing department

The department manager works with eighteen employees subdivided into three functional groups (see Figure 1).

To provide satisfactory personnel management, it is the general custom at XYZ that groups of approximately five to ten employees have a group leader as their superior. In the present case one superior leads eighteen employees whose tasks differ widely. The varied nature of the tasks and the large number of subordinate employees hardly allows cooperative management behaviour.

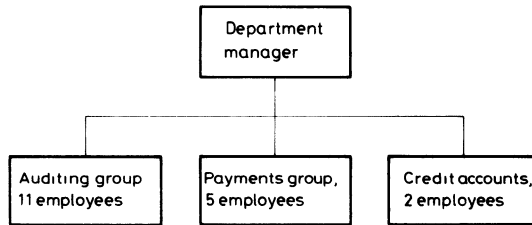


Figure 1. Hierarchy of the Central Auditing Department.

3. Present work organization

At present, the jobs and tasks are quite distinct in the level of competence and standards of performance (see Figure 2). All the jobs have been evaluated by an analytical job evaluation and were classified in a 17-level salary agreement. Approximately two thirds of the jobs have the characteristics of 'taylorized' work; the tasks are highly repetitive, with relatively monotonous activities. Moreover,

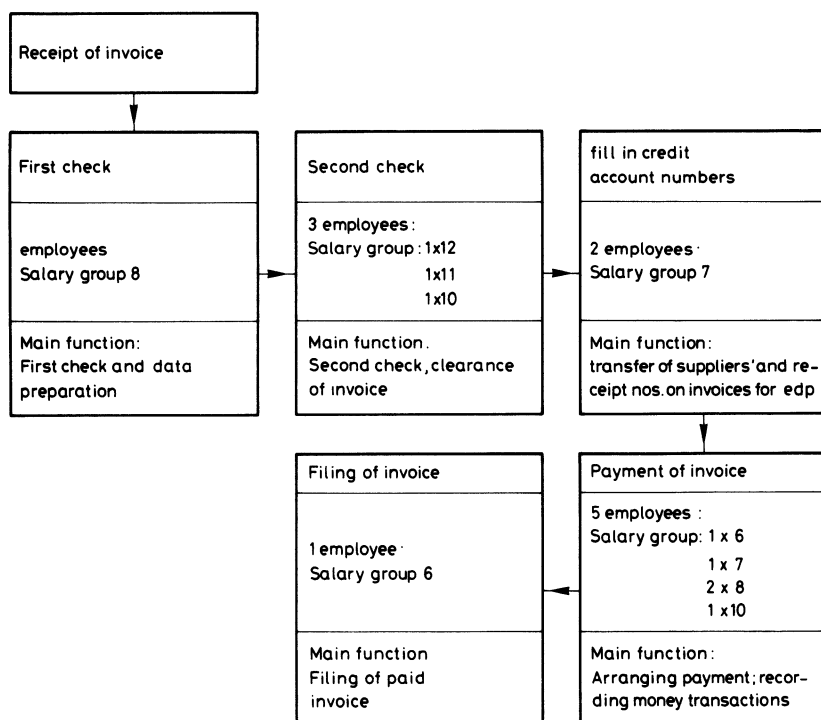


Figure 2. Present work organization of the Central Auditing Department.

these jobs are controlled by the colleagues who have the better third of the jobs. The jobs are mainly:

- first check;
- entering credit account numbers;
- payment of invoices;
- filing of invoices.

The remaining one third of the jobs (especially the second check) is, in comparison, more demanding, more varied, and also includes checking the results of other jobs. In August 1975 an investigation by Prof. E. Ulich (Swiss Federal Institute of Technology, Zurich) produced these findings:

- double checking by colleagues results in demotivation symptoms;
- employees feel the qualitative demands to be too low;
- employees feel the quantitative demands to be too high;
- the groups have very little autonomy;
- the work is not clearly intelligible (the employee does not see what happens to the results of his own work);
- the climate of relations is bad, both between the superior and employees, and amongst employees;
- the effect of an employee's work on his leisure time is predominantly negative – the employee has the feeling that he is actually getting very little from his life because work is monopolizing him too much.

4. Procedure for introducing measures of job redesign

The superiors concerned agreed unanimously that rapid action was essential to solve the problems of the formal organization, the organization of work routines, and to improve the bad relations within the department. There were two possible courses of action considered:

1. Two or three group leaders could be appointed as intermediate superiors and the difficulties in the organization of work routines could be removed by a classical organizational analysis.
2. With the participation of the employees and superiors, solutions to impending problems could be worked out and implemented, and at the same time, it could be taken into consideration whether semi-autonomous groups (perhaps with elected spokesmen) could be an alternative to the traditional groups with group leaders.

XYZ decided on the second course of action and authorized the department to solve its own problems under its own control, with however, the help of a neutral moderator. From the outset there was

to be a clear understanding that any procedure for change was to be developed for the most part by the people involved. This strategy of introducing new work forms 'from the bottom up' was supported by the management. The following steps were carried out:

A. Initiative taken by the department manager. The department manager took part in an external seminar about new forms of work organization, including problems of introducing semi-autonomous work groups, in March 1975. At this seminar he became personally convinced that the problems of his department could be solved by the previously described second course of action. He discussed this with the senior management which in turn agreed to his intentions. However, the project was defined as an experiment.

B. Formation and functions of the project group. The first department meeting was held in June 1975 (present: department manager, all employees of the department, a member of the workers' council, a moderator from the central personnel department, who was to be in charge of the experiment, and an external researcher who was doing accompanying research and supervising the job design experiment). At this department meeting a brief introduction to job design was given (job enrichment, job rotation) and, in addition, it was pointed out that processes for change within the Auditing Department were to be initiated by the employees themselves with the support of their superior. The problems in the department, to be found in the organization of work routines, in the formal organization and in the social climate, were more or less known to all employees.

At this same meeting a project group was formed. One employee was elected from each of the three areas within the Auditing Department, and a member of the works council. Non-elected members of the project group were the department manager, the outside researcher, and the moderator from the central personnel department. The tasks of the project group were agreed by the department meeting: the project group should work out new solutions of work organization and submit them to the department

meeting for a decision to be made. In addition the project group is to prepare the department meetings. The members of the project group are elected for one year. The project group meets once a month for approximately four hours.

C. Department meetings. Attendance is voluntary. Up to now, apart from one employee, everyone attends regularly. The department meeting is held once a month and lasts for approximately four to eight hours (depending on the scope of the topics under discussion); it takes decisions on the proposals made by the project group. This prevents the project group, whose role is to think ahead and to prepare, from getting too far ahead of the actual changes.

D. Involvement of the supra-departmental superior. If more important decisions are to be made which may directly or indirectly affect the competences of the next senior superior, the latter is invited to attend the project group meetings. So far, an agreement has always been reached in such cases. In addition, he is kept informed regularly by means of meeting minutes and oral reports from the department and project group meetings.

E. Accompanying research. With the aid of a questionnaire the following points were investigated:

- subjective appraisal of work content (quality, intelligibility, autonomy, responsibility);
- subjective appraisal of the relationship between superior and employee;
- subjective appraisal of relations between employees;
- subjective appraisal of the organization of work;
- subjective appraisal of the mental demands made, in terms of thinking, qualifications, concentration, accuracy, willpower, fatigue and recuperation;
- subjective appraisal of the effects of work on leisure time behaviour.

The results of this questionnaire were openly discussed at the second department meeting in November 1975. The result was that the department was very soon ready to hold an honest and deep discussion about the actual problems. Gradually the employees learned to talk about emotional matters and about personal relationships. However, it was also discovered that the group was at this early stage not yet ready to undertake practical improvements. The emotional and social tensions within the group were still too great. To proceed on the purely practical level would probably have led to considerable resistance and maybe failure of the experiment.

F. Three-day group training in May 1976. The idea behind this training was to break down the emotional and social tensions within the group and to remove the fear of change felt by many employees. For this reason the department was offered the chance of participating in group training which was to pursue the following aims, worked out by the department meeting itself:

- improvement in cooperative climate between employees;
- improvement in communication between the superior and employees.

It was only after some hesitation that the group was able to decide in favour of this training, which was carried out by two qualified trainers and took the following form:

1. A cooperative game was played.
2. Criteria for cooperation were worked out together, i.e., the participants agreed on ten criteria such as openness, activity, etc.; and subsequently each employee appraised each of his colleagues according to the list of criteria agreed above.
3. In a sociometric exercise the question was asked to the extent to which each individual has so far succeeded in establishing a positive relationship with his colleagues/superior respectively.
4. The results obtained under 2 and 3 were discussed, and non-directive discussion techniques were practised. In addition, training was given in feedback situations.

5. In the final stage, which took approximately one day, counselling techniques were practised. These techniques were intended to reinforce the learning transfer. In learning trios (i.e. A advises B, whilst C takes over an observation function) emotional problems or problems of relationships or practical problems were worked out with the corresponding solutions.

G. *Agreed lines of change*. The superior reached agreement with his employees on the following aims in May 1976:

- broader distribution of competences;
- gradual removal of the ‘second check by colleagues’;
- gradual removal of pressures of time;
- improvement of the atmosphere between employees and the superior and between the employees themselves;
- increased willingness to learn and the greater flexibility which goes with it;
- increased productivity by better design of the work process;
- enrichment of all jobs by more demanding work with the possibility of moving into a higher salary group as a result of a re-appraisal of the job.

H. *Design of ‘ideal jobs’*. In accordance with the objective setting described, every employee can enrich his job according to his individual needs. The following practical process was worked out by the group. Based on existing job descriptions, all employees, and the departmental manager, are to present a description of their individual activities in their present jobs to the rest of the department. Such presentations started during one of the department meetings in March 1976, but this process could not have practical consequences until after the group training in May 1976.

The different activities were divided into task units. The game was to rearrange the different task units of the department like a kind of ‘job puzzle’ according to the wishes of the employees. As a rule, everybody who was interested in a new task unit, and wanted to be trained for it could apply for it. In order to ensure that the new

'ideal jobs' fitted with existing jobs, or with such routines as were to be newly introduced, a body was formed consisting of the department manager, two elected employees, a member of the workers' council and an EDP expert. This body decided who was to be trained for which task unit, the EDP expert having an advisory function only. In this way it will be possible to reconstruct jobs and work routines. The result of this process will be that after training, the skill range of the employees will have increased considerably, and the organization of work routines will be debureaucratized (e.g., removal of the second check).

After completion of the training, all the jobs were given a salary reclassification with the assurance that no job would be downgraded; it could be expected that a number of jobs would be upgraded.

J. Colleague-training of employees. The employees train each other; the present job-holder trains those of his colleagues who are interested in task units of his job. In order to raise the quality of training, the employees are offered the chance of taking part in a programme on training methods.

5. Practical effects of the experiment

After twelve department meetings and ten project group sessions, the following results were obtained:

1. Employees have taken over superior functions: three elected employees confer with the head of department about new appointments, replacement staff, temporary staff and any necessary alterations in personnel. The superior decides matters on his own if no agreement can be reached. These employees are elected each time for one year.
2. Two employees, each elected for one year, have full responsibility for holiday planning and for supervising flexitime.
3. Two employees, also elected for one year, participate in performance appraisal of employees; the superior has a veto.

4. After somewhat more than a year, it can be seen that the working atmosphere and relations have improved considerably and that the group is working more rationally although the work load remains the same – in the past an average of two to three temporary staff worked constantly in the department. On the employees' suggestion these temporary staff are no longer employed. An economic analysis of the experiment is being made.

In the course of this job design experiment it has become evident that before any processes of organizational change are initiated, social and emotional tensions must be removed. Only then can a group enter into a concrete discussion and begin to take practical measures to redesign jobs.

The process of participation has clearly proved its worth. The model of work organization is seen by superiors as practical, and it is very likely that experiments will be extended to other departments. As an experiment this project will presumably be terminated at the end of 1977, and the further development of the department should become an integral part of organizational life.

19. Project: 'Humanization and Participation' in Centraal Beheer

J. T. Allegro and E. de Vries *

1. Introduction

In this article we give a review of the project 'Humanization and Participation' as developed up to 1 July 1976. We start in Section 2 with an outline of project goals and the conditions for the project. In Section 3 we discuss the developments in theory, change strategy and methodology of the open sociotechnical system approach we have used. In Section 4 we give a short description of the organization, the department where the project takes place, and the planning of the project. In Section 5 we give a short and preliminary discussion of results.

2. Background: outline of project goals

As one of a number of experiments currently being subsidized by the government (and coordinated by the C.O.P. – the National Productivity Committee of the Socioeconomic Council), this project arose through joint participation of the insurance company, Centraal Beheer, in Apeldoorn, and the Foundation for Business Administration. The project will be carried out over a three-year period, and has as its major objectives 'to increase employee participation in the functioning of the organization and to promote ways of humanizing the work situation. Our instruments of change consist primarily of redesigning specific jobs and, possibly, the entire

*Institute of Social Psychology, University of Utrecht. Centraal Beheer is a large insurance company. We have to thank Kathleen Mucha for her patient and careful translation into English.

organization, and developing job 'consultation' groups.¹ Eventually this approach will undoubtedly influence the functioning of the works council² and the work of the organized unions if they too are represented in the organization. Finally, it will affect the total personnel and organizational policy of the company, because, as an ultimate goal, the project aims at developing the ability of employees to initiate, independently, changes in participation in decision-making processes. The project will also be implemented in consultation with union and works council leaders.'

Project feasibility

As a result of the experience of former projects, it is recommended that a number of conditions be formulated at the outset and agreed on by the board of directors, the works council and the union representatives.

- There must be readiness to change and a willingness to invest time and money in this.
- There must be a commitment to a very long time perspective, at least three years.
- The project must be guided by a steering committee in which the works council and management are represented.
- The organization must be open to a total change policy; that is to say, it should not impose boundaries on the extent of the project's concerns. Furthermore, it must be initially accepted that in the long run there will be serious policy implications for top management levels.
- There must be an actively functioning personnel department.
- There must be open channels of communication between the organization and the union at all stages of the project. Union involvement must be actively sought.

1. 'Job consultation is a form of regular, mutually appreciated discussions in the working situation between the supervisor on the one hand and the workers on the other, on matters related to the work' (van der Does de Willebois 1973).

2. 'The works council consists of members elected by the workers and of a member who is president and is appointed by management. The elections are free. The trade unions take an active part. The right of decision-making is of a limited nature. There is a somewhat broader right to be consulted before decisions and to be informed' (van der Does de Willebois 1973).

3. Developments in theory, change strategy and methodology of the open sociotechnical systems approach

3.1. Theory

In earlier projects, a heavy emphasis has been placed on problems of task design and work organization at the lowest level, and in some cases at the lowest supervisory level, of the organizational hierarchy. As a consequence of new task design, we see that in a number of projects the focus has shifted to other problems in the area of personnel and organizational policy. In the Scandinavian projects especially, increasing attention is given to personnel and organizational policy and it is here that very interesting developments have been taking place in, for example, function classification and payment systems. At the same time, ideas about task and work organization are becoming more complex and extending beyond the level of the small work group. Gradually, a new theory is evolving to explain more readily how organizations function (see Swedish Employers' Confederation 1975). While the developments in personnel and organizational policy are primarily consequences of the changes in task design and work organization, this latter problem area is sometimes taken as the point of project intervention (Allegro 1973a, 1973b).

At the same time, we have noted, in a restricted number of projects, a growing demand for the integration of tasks with more interpersonal factors in the organization (see Boekholdt and Allegro 1975). This implies that intervention techniques must be directed towards the task and work organization as well as to interpersonal and/or group behaviour such as training in discussion techniques and social skills. In this latter respect, we have to take into account the necessity for intensive guidance of the various consultation committees. In the project discussed here, considerable stress is placed on the integration of task and interpersonal elements in the work situation.

3.2. Change strategy

From a review of change strategies, and in particular of the roles

chosen by action researchers, we can distinguish three characteristic approaches to organization development: the expert, the consultant, and the politician. In the expert role, emphasis is placed on the introduction of specific knowledge. The consultant sees his role as creating conditions under which the client can learn to analyse and solve his own problems. The action researcher who assumes a political role tends to impose his own goals. The change strategy in sociotechnical projects is characterized by an increasing reliance on the consultative role. In this project we have endeavoured to assume the role of consultant with some overlap, in certain situations, with the expert and political approaches.

3.3. Research methodology

Research methodology in sociotechnical studies has never been very orthodox in its application. The projects of Trist et al. (1963) and Rice (1958) tend to rely greatly on longitudinal measures of productivity and pay only small explicit attention to traditional job satisfaction measures (although they do utilize absenteeism and turnover figures). In more recent projects the focus is shifted towards measures of satisfaction (survey and group interviews) and/or to content analysis of documents and other non-obtrusive measures. Current research now involves process-oriented measures in which a number of different methods are used. In this project, we also adhere to these methodological techniques. We administer a survey to determine levels of work satisfaction, conduct individual and group interviews, investigate turnover and absenteeism figures, analyse the contents of documents and minutes and measure productivity. Developments occurring over time are particularly emphasized throughout the project.

4. Description of the various phases of the project

4.1. The organization at the beginning of 1975

Centraal Beheer (C.B.) is a mutual insurance company employing approximately 1,075 people in 1974. Its major concerns including

life and damage insurances, investments and financing, and a computer service bureau. During the last few years a number of drastic changes have occurred, some of which are still going on. These include, as major examples, a transfer from Amsterdam to Apeldoorn into a uniquely landscaped office complex; radical automation projects; and a number of new activities in the area of personnel and organization, such as a revised function classification system, a management-by-objectives programme and the relatively unsuccessful introduction of joint consultation meetings.

Specific problems

In 1968 an investigation was conducted into the administrative system of the Life Department. The result was ELVIS, an automation system which will computerize the administration of the Life Department. In 1974, the organization was diligently working towards the phased introduction of ELVIS. At this stage, there was a singular emphasis on developing the technical aspects of the computerization. This system is expected to have a great influence on the work content of all life insurance staff, as well as affecting the organizational structure of the department. According to company plans, the initial changeovers will commence for these employees on 1 January 1976. The present organization of this department is characterized by a task structure in which innovative ideas concerning personnel policy, such as placing as much responsibility as possible on the lower levels, have not been realized. This is evidenced from the large number of (semi-) hierarchical levels and the functional organization within the department (see below).

The automation system is introduced by means of the following project organization. First, general responsibility for the presentation of the system is undertaken by a steering committee composed of high level personnel. The practical sequences of implementation are the responsibility of a project group which reports to the steering committee. A member of the works council is included in the project group. An evaluation of the priorities set by the automation project revealed that, for the most part, technical-economic considerations prevailed. In spite of the fact that the project has

been discussed in the works council, involvement of the workers and lower managerial levels was minimal. During April 1974, more elaborate information about the project was finally released to the personnel. At the same time, they were assured by the organization that no lay-offs would take place because of the automation.

In view of the abovementioned problems, our intended goals may be more specifically stated: to increase participation and humanization of the work situation within the framework of the automation project.

The Life Department

Because the project develops within the Life Department we will give some of its characteristics. In the life department (in 1974 about 225 personnel; in 1977 about 280) we can distinguish four sub-departments:

- making offers and giving information;
- management and administration, especially concerning the insurance and payment administration, and also some general tasks;
- control and reserve, which especially controls the calculations of other subsections;
- administration of superannuation funds, and running a number of these.

These sub-departments carry out work for different contracts which belong to different work companies. So we have a functional division of work. Each sub-department has a sub-department head with, at the top, the head of the Life Department. Below the head of the sub-department there is sometimes an assistant. The lowest supervisory level is the group supervisor. Within the group (about 12 men) we have two semi-hierarchical levels with unclear status.

4.2. Phasing of the project

Our collaboration with the members of the organization has assumed the following forms. In the first place, the project was guided

by a committee designated as the 'V.O.L.' (Improvement of the Organization of the Life Insurance Department) group, comprised of representatives from the different levels within the life insurance department, and chaired by the departmental head. Secondly, the project team includes a social psychologist from the Foundation of Business Administration, his assistant and an internal advisor, who, through an arrangement with the personnel department, is made available for the project. At a later stage the project team was expanded by the addition of a number of students who participated on a part-time basis, and a psychologist from the Technical University of Eindhoven. The project itself had three distinct phases.

Phase 1: General orientation period (November 1974 to January 1975).

During a short introductory period prior to Phase 1 – at the end of September 1974 – the feasibility of embarking on the project was frequently questioned. These doubts were due to the fact that the automation project had already progressed irredeemably ahead. A preliminary investigation, based on semi-structured group interviews with a stratified sample (numbering approximately 80) of departmental personnel, was launched. The findings of the preliminary investigation revealed that member demands for the improvement of their work situation are contingent on providing the following opportunities:

1. To experience variety in their work;
2. To function autonomously with minimum supervision;
3. To have greater interaction with members inside the organization as well as more external client contact;
4. To perform contract-oriented work rather than segmented tasks;
5. To question the demarcation of responsibility and delegation of authority;
6. To have improved systems of coordination and information management.

Members were also critical of higher management, and of policies concerning materials, work organization, work loads, salary, promotion and information regarding the automation system, ELVIS. In conjunction with the results of a report from the organization department, the steering committee responsible for the management of the automation project concluded that the project would be of benefit in spite of the severe time constraints under which it must operate. The steering group accepted the advice of the V.O.L. group and the advice to set up task groups comprised of representatives from the various supervisory levels and clerical staff. The major function of the task groups is to make recommendations on what would be the most appropriate task and organizational structure for the department. For those issues in the area of personnel and organization policy which have to be handled directly (such as training, information, social policy and job consultation), a number of persons were delegated with the responsibility of preparing memoranda on these topics within a designated time span. In regard to issues in the area of personnel and organizational policy which will be influenced by the automation project at a later date (such as promotion policies, judgement policies, function classification, etc.), it was decided to postpone immediate action on expected problems. Looking back at this first phase we were often forced to work only with employee representatives in the context of V.O.L. groups, task groups, and so on. Unfortunately we found this to be detrimental to the project, as our ultimate goal is to give all members concerned more participation in the development of the task and the organization.

The most important result of Phase 1 is the realization that the fulfilment of the needs and wishes of the clerical staff within their work situation was possible within the technical system selected. At Centraal Beheer, a flexible automation system was selected which allowed for the existence of different and divergent task and work structures. In other words, the automation project does not necessarily have to result in demeaning the nature of the work performed, but rather could increase the scope of task possibilities for employees. Thus, there is the possibility of a choice.

Phase 2: Analysis of the task groups, work of the core groups, general concerns (January to July 1975)

The task groups, working from January to March, 1975, recommended implementation of 'contract management groups'. This implied that the completion of all work pertaining to a contract would take place as much as possible within each group. In other words, clerical processing and verification functions will be allocated within the individual work groups. Some of this work would in the future be regulated by the computer system. This type of organization is closely linked to the wishes and needs expressed by the workers during the course of the preliminary investigation. The arguments in favour of forming contract management groups are also applicable to the next larger unit. As a result, it has recommended that four production units be set up in addition to some central staff groups. These recommendations were for the most part accepted by the board of directors.

Core groups. At the end of March 1975, discussion began about the core groups, whose function was to identify the boundaries between the technical system and the work organization, i.e. they were specifically concerned with the development of a description of procedures (routing of action) and work instructions (details of action). Predictions of positive results appeared less optimistic than for the task groups because, despite the considerable efforts of the consultants, departmental staff and supervisory personnel in the clerical division were only involved on a very minor scale.

General concerns. During this period, a start was made on the restructuring of personnel and organizational policy. Group leaders received a systematic flow of information concerning the automation and the V.O.L. projects. In addition, discussion was initiated concerning the feasibility of job consultation. These talks resulted in the establishment of a number of basic conditions for effective job consultation. First, job consultation groups must be set up at every level and involve all members of the groups. Furthermore, each group must have an open agenda with action

and decision lists, and meet once every two to four weeks. Every group would also receive guidance from the research team. In September 1975, works consultation was put into effect.

During the same period, a discussion memorandum was submitted concerning the personnel and social aspects of the V.O.L. project. Again, the inherent philosophy of the programme was emphasized: the function of the personnel department was not to propose solutions to the organizational problems; rather, the answers must originate, as much as possible, from the clerical staff themselves.

If we analyse the activities during these phases at a more general level, we must conclude that for many employees in the Life Department, the project had only primarily affected them directly through their representatives. Because it remained at the periphery of their work experience, interest in the project was not obvious. Consequently, there has only been a small change in the overall attitudes of those involved, particularly of management, towards the idea of greater participation in the work situation. From these observations, it is clear that researchers will still have a very active role to play in overcoming resistance to the project.

Phase 3: July 1975 to January 1976

The primary goal of the second half-year of the project was to institute the ideas developed by the V.O.L. group into the daily life of the department. Three issues were especially crucial at this phase:

1. Core groups. Despite the action researchers' opinion that the department was not involved enough in the writing of the new procedures and work instructions, the experiences of the members of the V.O.L. group who did participate in the core groups are perceived as positive. The collaborators of the Organization Department are optimistic in their belief that the contributions of the department will yield positive outcomes.

2. Job consultation groups. Job consultation groups involving the participation of all employees were initiated. There are a number of

indications that, within some groups, job consultation promotes a greater involvement in the work situation; in other groups, job consultation has achieved a limited success. We hoped that by continuous evaluation and feedback, job consultation, which began under minimal conditions, would develop further. According to the works council the importance of having ongoing interaction between the different levels of the organization within the job consultation group should be emphasized. The action researchers also devoted a great portion of time and energy in further clarifying their role in the job consultation group.

3. Work groups of the V.O.L. It was recognized that the tendency to concentrate on solving the problems of the Life Department within these work groups had to be restrained, and these problems had to be handed back to the employees concerned. Some very important topics were dealt with in this manner, the placement policy and phasing being particularly notable. We define placement policy question as follows: Which employee is placed where and what type of work will he perform? Since the new organization structure, contrary to the former functional one, is based on production units or 'contract management groups', it was clear that the work situation would be greatly altered. As a starting point, the placement policy involved regrouping the contracts, and assigning employees to tasks most familiar to them. The clerical staff had every opportunity to discuss these proposals. In addition, attempts were made to integrate the new groups as quickly as possible even before automation (postponed for several months) took place.

If we look at the total range of activities during the second half-year of the V.O.L. project, both positive and negative results are apparent. Compared to the situation at the start of the project, in which clerical staff were largely uninformed about ELVIS, important developments focusing on employee participation, and more specially on the co-determination of their own work situation, have taken place within the department. While participation in the first half of the year involved primarily the members of various repre-

sentative groups (V.O.L. group, task groups, core groups, and work groups of the V.O.L. group), the second half of the year witnessed the opportunity for the participation of all personnel in the job consultation groups. Future evaluations will allow us to report on the effectiveness of these later developments.

A number of issues did not develop – for example the formation of profiles for supervisory personnel and the co-development of an overall personnel and organizational policy for Centraal Beheer by special work groups.

Phase 4: January to May 1976

An important event occurred in March 1976 when the new head of the Life Department (formerly the head of the Personnel Department), on the basis of a prior memorandum submitted to the board of directors outlining the heavy work load of his department, received consent to increase the number of personnel by approximately fifteen per cent. This decision met with very positive reception in the department, but at a later date, the salary awarded to the newly hired, better experienced staff, became a source of contention in the department. Established clerical staff argued that it was excessively high relative to their own pay.

Job consultation groups. From an evaluation conducted in January and February 1976, it was clear that among the majority of groups there were satisfactory developments. However, an evaluation of the job consultation meetings brought to the forefront three problem areas integral to their future effectiveness:

1. The need for more effective internal functioning of the groups;
2. The need for improved linkage between works consultation meetings and normal information and communication channels;
3. The lack of sufficient responsibility and authority at the lower levels.

Action points were developed to cope with these three problem areas.

Task redesign. The new organizational structure, which was introduced in March 1976, is based on employee preferences for greater autonomy, more variety, and increased opportunities for internal and external contacts. Changes in coordination and development will also be more feasible in the future, and flexibility will be the keynote in any future restructuring.

In practice, it appears that many of the groups have only just started to discover alternative ways of working; thus it is understandable that results cited at this point are still short of their potential. We intend to accelerate the progress of these groups.

Of great importance to further development is the training of personnel. It is our impression that management gives insufficient attention to this matter. In our experience, one of the most crucial reasons for the failure of projects where the integration of tasks plays a central role has been insufficient training.

In future, problems such as function classification and promotion policy will undoubtedly be discussed again.

Contacts. The contacts with the works council and the board of directors are satisfactory during this stage of the project. Unfortunately, contacts with the unions still remain at a minimal level. However, discussion about the project has started.

5. Discussion of results

This discussion must be regarded as preliminary, since we are only half way through the project. From this vantage point, important structural results are evident in the area of job consultation meetings and job redesign. Less progress has been made in revising personnel and organizational policy. New structural developments, however, have surpassed concomitant increases in participative attitudes among managers and clerical staff. In the next one and a half years of the project, the research team must direct its efforts towards this problem. Moreover, we plan to monitor the course of organization development more intensively by the use of more thor-

ough evaluations. Future consideration must also be given to advancing personnel and organizational policy e.g. by function classification, promotion policy, and management development.

With regard to the change strategy employed, it may be noted that encouraging participation through representative bodies often leads to the alienation of the people not directly involved in specific groups. The job consultation meetings are expected to alleviate this problem. Focusing now on the representative groups themselves, we have found that it is essential to have a balance between clerical staff participants on the one hand, and specialists and line managers on the other. In observing the group dynamics of these discussions, it is apparent even at the start of the project that staff and some members of the lower supervisory levels do not participate freely. This situation would not, in our opinion, be mitigated by the establishment of formal guarantees. Open discussion of these problems will remedy this situation somewhat, but to a further extent, the cooperation of management, by clearly stating their intention to strive towards greater participation and humanization of the work situation, will promote freer expression in these meetings. The active support of the board of directors in this entire process was essential. Past experience has shown that projects sustained only at the level of the personnel department will show a high rate of failure. Finally, if we look at the automation of clerical functions, it becomes increasingly clear that a choice is involved in the ultimate planning of task and organizational structure. Workers and management together can play an important role in the decision-making process by setting social criteria for the new tasks in the organizational structure and by taking an active part in the writing of procedures. However, as a primary condition, the automation system must be flexible enough to permit active participation in organization development. Of even more fundamental importance is to adopt a sociotechnical point of view in the designing phase of automation. In other words, all personnel should have the opportunity to participate in deciding if and how automation is to be instituted.

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20. Participatory research leads to employee-managed change: Some experience from a Norwegian bank

Max Elden *

For the past several years the Work Research Institute and one of Norway's larger commercial banks (with some 2,000 employees in more than 50 locations) have collaborated in studies of white-collar work and democratization. We found that some smaller or more outlying branches had naturally evolved organizational forms alternative to the 'one man, one job' industrialized model (Herbst and Getz 1977; Elden 1974). These, however, had difficulty surviving an earlier technological change from manual to machine accounting (Herbst et al. 1975).

In June 1974, anticipating a new 'on-line' computer system within three years, a committee at the bank invited the institute to collaborate in learning about the organizational consequences of this new technology. Research policy was set by an informal steering committee composed of members of management, the bank employees' union, and the institute. Everyone agreed in principle on participation as one way of avoiding bad consequences: according to the bank's philosophy people, not technology, should determine the bank's future organization.

While it was clear that the new computer terminal system would change certain jobs (e.g. those of tellers, bookkeepers, and customer service personnel) no one was sure how great these changes would be. Little was known about how the relations between different jobs (i.e. work organization) would change, but the bank was committed to people at each branch participating in making these changes so that the technology would as much as possible support the kind of organization that made sense to the people at the branch.

* Institute for Social Research in Industry, Norwegian Technical University, Trondheim, Norway.

In April 1975 the first fully-fledged test of the new computer system began at a district bank with 25 employees, in a service area of 20,000 people several hours' drive from Oslo. This bank, established in 1932, was acquired by a larger Oslo bank in 1961. As a district bank it had somewhat more autonomy and a greater variety of tasks than branch banks in Oslo. During the summer of 1975, a group of employees in the district bank undertook a study of their organization with the assistance of the researcher. That October they presented a report which resulted in a series of changes, including election of a committee for planning change.

The present paper describes the research process that led to the October report, the report itself, and its aftermath through 1976. Compared to other institute field projects this one has hardly started but it had a slightly different beginning in using participation in technological change as a springboard to democratize work.

1. The research phase (April to October 1975)¹

According to the bank's model for implementing the new technology, certain decisions would be reserved for users to make instead of being made by technical experts alone (as had been the practice previously). Specifically it was left up to each branch or district bank to decide the number and placement of terminals, who would fill which new jobs, and how the training for these jobs would be scheduled. In this way a group of employees could be created in each branch which would result in some participation and a structure for further participation.

The implementation group at the pilot district bank was composed of people from the two top (i.e. management) levels. There were only three levels in total. The employees (i.e. the majority of the people) constituting the third level did not participate and were not consulted. Those whose jobs were to be changed by the new

1. This section is based on a status report written in August by the researcher and a member of the headquarters organization department who helped launch the project (Elden and Halvorsen 1975).

computer system were individually informed that they would be retrained. All this was considered normal bank practice. Indeed formation of a group to decide some of the practical implementation problems and inclusion of people from the second (i.e. middle management) level could be seen as progressive. Originally we asked to meet with this group to discuss the possibility of working with them to learn about the quality of working life and organizational consequences of the new on-line system.

For our first, exploratory meeting in late April, management asked the two elected representatives of the bank employees union (the bank was 100 per cent organized) to join the group. The meeting proved to be somewhat confusing. We emphasized our objective of helping them learn about the organizational consequences of the new technology. We suggested that they might want to study their organization before the new terminals became operative in two months but emphasized that, within the general framework of consequence, what was studied was up to them. We then presented some of the earlier research reports to illustrate one way we had worked in other parts of the bank. We emphasized again, though, that they themselves would formulate the main research issues. It all depend on what they were interested in. Apparently we used the phrase 'it is up to you' so often that when one of the group answered a colleague's question with these words everyone had a good laugh. We ended the meeting by agreeing that they would read the reports, consider among themselves what to do, and contact us within the next two weeks as to whether they wished to proceed.

Afterwards we had the impression (later validated by several group members) that the meeting was confusing for many. They had expected to hear what research would be carried out. They had not expected to hear that they were to participate in defining the research issues. At that time things were characterized by one member of top management as very 'diffuse'. This may explain why the next meeting did not occur until four weeks later, at our initiative. The meeting got rapidly down to business and identified six main research questions:

1. What do people think about working at the bank (positive and negative factors)?
2. How can we improve things?
3. What do people think about the job rotation system?
4. What do people think about possibilities to participate in decisions (work democracy)?
5. What kind of organization structure have we (an earlier study showed how people could map their own structures with a few simple questions)?
6. What do people think about the new technology? Do they have adequate information (also asked in an earlier study)?

Two group members (a union representative and the auditor) collaborated with the researcher in all phases of the actual research except the data gathering. The open-ended questions required interviewing which, because of the need for confidentiality, was undertaken by the researcher. The interviews were completed by the end of June, just before the new technology became operational.

2. The research findings (October 1975)

A quote from an interview with one employee who had worked at the bank for over fifteen years captured the main thrust of the findings:

It has always been OK here. But before we had a sense of what happened in the bank as a whole. Now everything is so divided up, especially things that everyone used to be able to keep on top of. Before we were bought by the bigger bank some fifteen years ago things weren't so split up.

The research committee analysed the interview data and found some twenty problems (see Table 1). Significantly each level of the organization seemed to have a quite different view of things. The way these problems interrelated and what kind of solutions seemed reasonable varied by level even though the core problem (Problem 1 in Table 1) was equally important for all levels. Concerning prob-

Table 1. General problems

| Problem | Number who mention | Number by level | | |
|-----------------------------------------------------------------------------------------|--------------------------|-----------------|--------|-----------|
| | | Top | Middle | Assistant |
| | (n= | 4 | 7 | 14) |
| <i>Organization</i> | | | | |
| 1. Periodically, there are not enough people in relation to the workload. | 9 | 2 | 2 | 5 |
| 2. The organization is out of balance; the work is unevenly distributed. | 3 | 1 | 1 | 1 |
| 3. Substituting occurs in a way that breaks up the continuity in work. | 5 | | 2 | 3 |
| 4. Too little feedback. | 1 | 1 | | |
| 5. Easy to be interrupted – no blocks of time. | 1 | 1 | | |
| 6. Unclear responsibility for the counter. | 1 | | 1 | |
| 7. Not enough communication and cooperation between department heads. | 2 | | 2 | |
| 8. Those with authority do not always follow routines. | 1 | | | 1 |
| 9. People are difficult to contact when they are out of the office. | 2 | | | 2 |
| 10. Need for more information from marketing. | 2 | | | 2 |
| 11. Decision-making is too centralized. | 3 | 1 | 1 | 1 |
| 12. The office manager is overloaded. | 6 | | 2 | 4 |
| 13. Communication too formal – information and participation are not adequate. | 4 | | 2 | 2 |
| 14. It is difficult to change things so one does not try. | 4 | | 1 | 3 |
| <i>Personnel management</i> | | | | |
| 15. It is hard to talk to the president. | 6 | | 1 | 5 |
| 16. There is differential treatment – some get compensatory timeoff easier than others. | 4 | | 1 | 3 |
| 17. There is too little praise. | 2 | | | 2 |
| 18. Not enough training and chance to practice at work what you learn in a course. | 2 | | | 2 |

| Problem | Number who mention (n= | Number by level | | |
|-------------------------------------------|-------------------------------------|-----------------|-----------------|----------------------|
| | | Top 4 | Middle 7 | Assistant 14) |
| 19. Too much talking behind one's back. | 1 | | 1 | |
| <i>General meetings</i> | | | | |
| 20. General meetings are too ineffective. | 8 | | 2 | 6 |

lems at the work face the employee's underlying theory of the situation was demonstrably more complex and sophisticated than top management's. There clearly was a large but untapped pool of resources that could be mobilized to change the organization from the bottom up (see Elden 1976 for a fuller report of this).

The interviews were transcribed, edited and analysed by the researcher and the two-man subcommittee. These three wrote a full report in October which was accepted by the larger group and distributed to all employees. The conclusion and future action required was set out as follows:

In short, the central problems lie in how work and authority are organized. Therefore we must consider how to change the present organization structure. Authority and responsibility are concentrated in top management. Information flows only downwards. Department heads have some participation. It is just this structure that causes problems. On the management level, for example, the office manager is overloaded. All daily (if not hourly) coordination depends on him. As a result he has little time for planning and dealing with larger problems. As another result, others have little chance to take responsibility for daily coordination. This had led to numerous suggestions for more delegation, participation and planning. These suggestions imply two variations of a strategy *based on the existing form of organization*:

- A. Implement individual improvements that have been suggested.
- B. Delegate authority to department heads.

Variation A, for example, could be implemented by decreasing the office manager's work load, making more use of a single external substitute, planning absences, or other of the suggestions that have been put forth. Variation B, delegation, would extend the present

partial participation of department heads so they could take over responsibility for effective daily operation. They would have to cooperate more directly with each other in taking over coordination. This implies a certain dependency and communication between department heads in order to cover absences while at the same time providing appropriate training. But this does not necessarily imply much change for the assistants. They get a closer superior but not a different type of task structure.

We think it important, therefore, to point out a completely different strategy that builds on the suggestions for more 'freedom under responsibility' and 'self-managing groups'. Here it is necessary to reorganize the tasks into new kinds of jobs if the assistants are to participate in coordination and control. This strategy would begin by analysing tasks which could be grouped together to obtain the best customer service. The main thrust of this second strategy is to organize work in the bank into smaller units which could operate more autonomously. Through such a strategy we could perhaps combine the advantages of the earlier organization form (better overview, more integrated tasks, more participation, learning, and so on) to obtain a more effective organization.

3. A process of employee-managed change gets under way (from November 1975 throughout 1976)

Every employee received a copy of the report quoted several days in advance of a general meeting in October. The meeting itself was chaired by the union representative who helped write it. In opening the meeting he emphasized the change orientation of the report: 'It is not intended just to be read and filed away. It is a different kind of report that should lead to changes', he said. The meeting itself was an experiment in organizing for increased participation, as had been suggested in the report. Approximately half of the time was spent in small discussion groups where it was easier for everyone to have a say. The other half was spent in a general session discussing further the issues raised by the small groups. The results were recorded in the minutes of the meeting:

1. The main problems identified in the report – manning, work distribution, and centralization – people felt were in fact leading problems. The pilot bank's president agreed that they should be attacked together.
2. It was decided to elect a group to work on these and related issues (but questions were raised whether this group would have enough authority to make changes).

3. The report, pending minor clarifications, was accepted, thus sanctioning its distribution outside the project.
4. It was agreed that future general meetings should be jointly planned, include topics suggested by all employees, and as much as possible have a form and content like the one used at this meeting, which supported greater participation.

The following week, after the committee was elected, it resolved the problem of its authority by defining, in collaboration with the president, its own mandate:

The committee will suggest solutions to problems mentioned in the report and related problems that affect a person's work situation. The committee is also expected to help develop new forms of organization using the report's concluding section as a point of departure. The aim must be to achieve a more balanced workload, a more flexible organization, and a more decisive influence of each individual over his own work situation.

In November a special meeting of all employees was called to present a new strategy for 'organization development' that a top-level management committee at headquarters had originated. Representatives from this committee presented their ideas and asked the district bank to become a pilot bank in developing them in practice. The meeting followed the new, more participatory format of small groups followed by a general discussion. More issues were raised than could be settled in the three-hour meeting. Among these was whether the new directive on organization development conflicted with what the district bank was starting on its own. According to the representatives from headquarters there would be no conflict. Some of the employees were not so sure. After another general meeting several weeks later a vote was taken with the result that the offer from headquarters was refused. All this took a great deal of time and energy; but it was not usual to refuse such requests from the main office. The reason for this refusal indicates the importance people attached to their own developmental efforts. According to one of the status reports of the group, people were interested in a more self-managed change process:

We all thought that the purpose of the interview study and the subsequent work would be lost if we were ordered by higher authority to implement their development plan. Our purpose is to try on our own to improve our organization.

Yet another unexpected problem arose at the end of 1975 when the person in charge of marketing left the bank. The group was asked to help determine how his functions could be divided up among others so that marketing would become a more widely shared responsibility. The group discussed this and in the latter part of December made a recommendation that was accepted by the president for trial during 1976.

Thus it was not until the beginning of 1976 that the group was able to start working on the problems identified in the report. According to their first status report in early March they found that some problems were quite large and complex while others could be more readily handled. They saw their terms of reference thus –

Our long-range goal is to change the present organization structure because, following the report, work is unevenly distributed, decision making is too centralized, and there are certain problems in personnel management. In the short range we have begun to work on the more concrete problems that were uncovered in the report and that most people have been clear about for a long time (the periodic lack of sufficient staff in relation to workload and the office manager being overloaded).

They chose to begin with the more concrete and immediate problems and by the end of spring, 1976, had come about as far as they could with these – especially better planned coverage of absences and delegation of some of the office manager's authority. Since neither I nor other outsiders were involved in planning or implementing these changes I rely again on memoranda from the group in describing the following specific changes:

1. *Granting authority to front-line workers to make loans.* In part to relieve the office manager, customer service assistants and assistants in related departments were authorized, for the first time, to make loans on up to 10,000 Kr. over their own signatures. At the same time the loan authority of other employees was increased. This required sanctioning from the bank's board of directors.
2. *Development of a new plan for covering for absences* (i.e. deciding

who would cover for whom). In addition, the office manager on his own initiative began regular weekly meetings with department heads to plan for absences that would occur the following week.

3. *Appointment of an assistant manager of customer services*, since the manager of that department was absent two days each week serving customers in an outlying area. The training necessary for the assistant to function as manager was identified but not initially forthcoming.

4. *Authority to sign the large number of official letters*, sent daily as a part of normal bank transactions, was delegated from the office manager to department heads.

5. *Further, in-depth, customer service training was planned but not fully implemented*. The purpose here was again to relieve the office manager of relatively minor matters that with the proper training could be handled by the customer service representatives themselves, thereby also increasing their competences and responsibilities.

6. *The switchboard operator was provided with a board on which to keep track of who was temporarily out of the office and where they could be reached*.

7. *The office manager was moved*, from the middle of the customer service department, where he was all too easily interrupted by relatively minor matters, to a more remote part of the bank.

8. *A certain degree of 'flexitime' was introduced*, largely on the initiative of the employees' union representatives, so that people could, under certain circumstances, get off work early.

Except for the change in the authority to grant loans these changes by themselves may not seem too significant. After the first half of 1976 members of the group felt that little progress had been made. This was due to several factors, including the first nationwide bank strike in Norway's history in early June, the 'rush' season for summer tourists, and the central office's slowness in dealing with the larger policy questions concerning further changes being made in conjunction with other district banks. By the latter part of 1976 these policy issues had been resolved and further work on the

group's longer range goal of structural change was being planned. These plans called for this district bank to join with three others in a series of 'participative design' workshops during 1977 (as described by Emery and Thorsrud 1976). The main idea was to avoid having the first district bank become a successful but isolated example of organization redesign: there were so many cases in Norway where success meant encapsulation that dissemination was becoming recognized as a general problem. We hoped to avoid this problem if several banks developed new forms of organization simultaneously.

By late 1977 the four banks had been through two of these workshops. These were judged sufficiently successful for the main office to begin on its own a new series of workshops for four new district banks. By December 1977, the district bank where the process had begun two and a half years previously was considering substantial structural changes in the direction of semi-autonomous work groups and other forms of self-management. The key to this was redesign of the bank president's role to become more boundary maintaining and externally active, so that his internal tasks could be taken over, perhaps in part by a new group. A number of clerks had formed a redesign team to suggest what the president's new role should be. The whole project, including the status of changes at each district bank, and dissemination, is to be evaluated in early 1978. The research reports from activities in 1977 are not yet available in English.

Perhaps more important than any of the single concrete changes is the way the change process itself operated. Initiative clearly rested with the employees themselves. They developed their own strategy, designed changes, and saw to it that these were tested out in consultation with those affected. If we compare this kind of employee-managed change with the unilateral way that managers decided about the changes implied by the new computer technology less than a year previously, we see what might be called a democratization of the change process itself.

Here it may be important to note that the role of outside expert was limited to the start-up period of organizational self-study – itself a highly participatory process lasting only a few months.²

After the election of the group in October 1975 the change process was managed entirely by the employees themselves. The participatory research process seems to have naturally led to employee-managed change, which is still continuing more than two years afterwards.

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2. On the process of participatory research and the role of researcher as a 'co-producer of learning' rather than the 'expert-in-charge-of-change', see Elden (1977).

SECTION FIVE

ACTION RESEARCH REPORTS: PUBLIC SERVICE

21. Experiment at Triemli Hospital: Environmental and physical changes in a hospital ward and their impacts on the behaviour and the social interactions of patients, visitors and nurses

Rudolf Welter*

1. Purpose of architectural experimentation

The 'Experiment Triemli' described in this report is part of a continuous attempt to study relationships between the spatial-territorial settings of hospital wards and the spatial social behaviour of patients, visitors and nurses. The purpose of this research is twofold: (1) to become acquainted with spatial and social needs of hospitalized long-term patients; and (2) to understand better the architectural conditions conducive to the introduction of novel strategies of work organization in institutions for health care.

The hindering and supporting effects of different spatial/territorial conditions, i.e. organization of space and qualities of territorial boundaries, and the introduction of novel strategies in work organization have rarely been studied simultaneously in the field. In particular, architectural experimentation in this field should enable the researcher:

1. To study relationships between spatial and social behaviour change of patients, visitors and nurses as a result of controlled spatial and territorial changes;
2. To question patients, visitors and nurses, to observe their behaviour in *alternative* milieus of care, and to enable them to compare these alternatives with conventional milieus – such experiences should stimulate the perception, articulation and com-

* Swiss Federal Institute of Technology, Zurich.

munication of a wide range of needs in the sense of a democratized process of change;

3. To demonstrate how given spatial and organizational structures may be changed by modest architectural means, involving all persons affected by such change – taking part in processes of change should allow the persons involved to think of additional possibilities for change, including the more intensive use of human and spatial resources.

2. The goals of the 'Experiment Triemli'

On the basis of prior research (Welter 1974, 1975a) the following goals for the 'Experiment Triemli' were established: to make spatial/territorial environmental changes in a care unit of a ward so that patients, visitors and nurses may experience a spatial and social behavioural repertoire going beyond the commonly experienced one. A wider choice of possible spatial and social behaviour opportunities should allow patients better to satisfy their needs according to the different courses of their convalescence. It should also reduce conflicts among patients due to conflicting needs associated with different phases in the course of the patients' convalescence. This in turn should ease the nurses' complex tasks of providing care.

In order to reach this goal, the following changes were planned: (1) the transition of possibilities for individual and social activities from the public zone (entrance hall with cafeteria, shops, mail office, and so on) to the *zone of care*, i.e. where patients are recover-

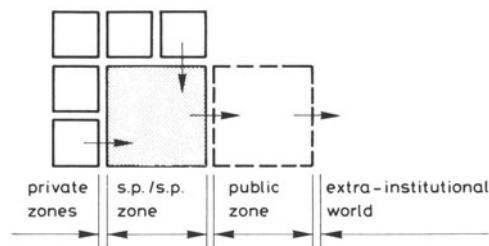


Figure 1. The semi-private/semi-public zone as part of a spatial hierarchy.

ing, where they become mobile again, and where they are visited; and (2) the creation of a territorially defined *semi-private/semi-public zone* (s.p./s.p. zone) within a care unit belonging exclusively to the occupant of this unit (see Figure 1).

In the s.p./s.p. zone the mobile patients are enabled to choose when they want to make contact with other patients, visitors and nurses *outside* their bedrooms which instigates them to give up their bedroom-bound sick-role behaviour sooner. In this zone, which might be called a group-owned territory, the patients should be able to move about safely and to orient themselves easily. Also, they should be able to take over their individual share of territory.

In addition, this zone should benefit the *bedridden* patients, i.e. those patients deprived most of all of stimulation by lack of contact with other people. By appropriately positioned beds and through open doors, those patients may visually and acoustically participate in activities taking place in the s.p./s.p. zone.

3. Conducting the 'Experiment Triemli'

In the 'Triemli' hospital, a large city-owned hospital in Zurich, a care unit with fifteen patients was found in which a s.p./s.p. zone

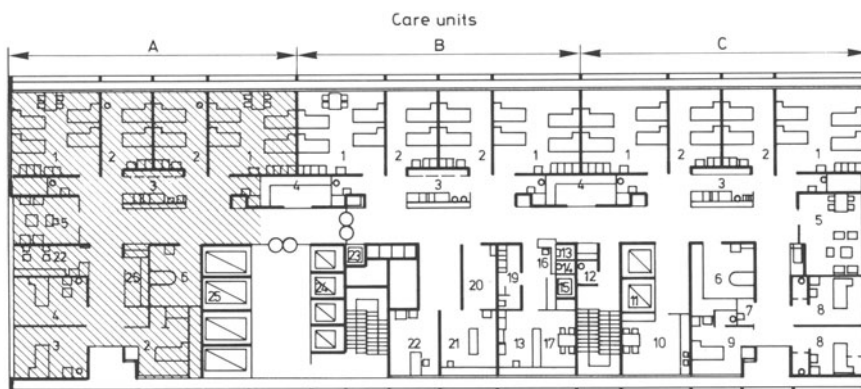


Figure 2. Floor plan of Ward L, Triemli Hospital.

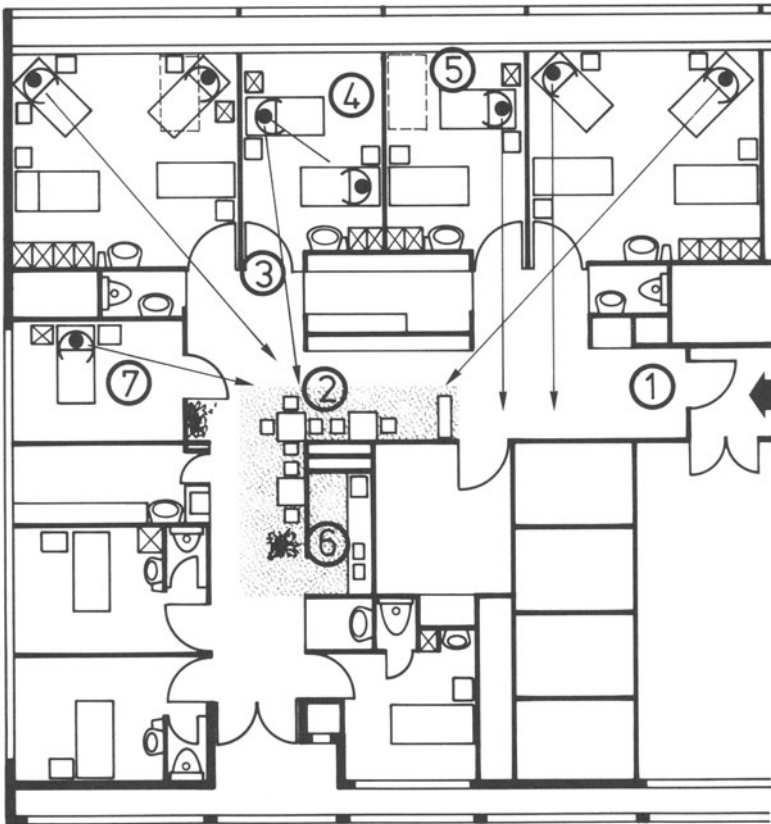


Figure 3. Floorplan care unit A with the s.p./s.p. zone (2) around a small kitchen (6).

1. Partition with a door in the corridor: to alleviate draughts in the s.p./s.p. zone and to bound the groups' territory.
2. S.p./s.p. zone, consisting of: tables, chairs, bookshelf, plants and a tapestry arranged around a small kitchen.
3. Open doors: bedridden patients can observe from their beds activities in the s.p./s.p. zone.
4. Alternative positions of beds: to facilitate the visual contact with other bedridden peers in the bedroom and people in the s.p./s.p. zone.
5. Mobile, lightweight closets beside the beds: to enlarge the storage area for personal belongings next to the patient (territorial markers).
6. Kitchen: to be made accessible to patients and visitors and to be used for ergotherapeutic exercise within the group.
7. Dayroom: temporarily used as a one-bed room for patients to be isolated, glass-panelled partition allows view of s.p./s.p. zone, pulled curtains and closed door provide privacy.

could be created and tested. For the conduct of the experiment, the author had the support of the hospital's administrative director, the head of nursing, the technical services, as well as the nurses working in the chosen care unit. The patient population consisted almost exclusively of long-term sick with an average stay of approximately two months.

In the scheme (see Figure 2), the care unit in which a s.p./s.p. zone was created, is shown cross-hatched. The architectural and technical changes which had to be done in order to create a s.p./s.p. zone are shown and explained briefly in Figure 3. The spatial and social behaviour of patients, visitors and nurses was recorded – before, during, and after the introduction of the architectural changes – on behavioural maps, so that spatial behavioural changes and changes in social interactions could be differentiated by comparing behavioural maps. The patients', visitors' and nurses' attitudes toward the changes were obtained by means of open-ended as well as structured interviews.

4. Discussion of observed developments

Behaviour of patients and visitors

After the partition in the corridor was in place and the furnishing around the kitchen was completed, this area developed within a few weeks into an exciting place populated by mobile patients and visitors. Analyses of the behavioural maps have shown that more patients and visitors socialized *outside* their bedrooms after the spatial/territorial changes had been introduced than before. The bedridden patients, remaining in the two- and four-bed rooms, were thus given the opportunity to receive their visitors in a more relaxed and intimate atmosphere. A temporary decline of the number of patients in the bedrooms also made the care of the remaining patients easier and allowed for more comprehensive care. Answers to questions about the particular functions of the s.p./s.p. zone have

shown that the patients recognized this zone to be their own familiar territory in which they could remain and move about undisturbed, and at a later point in time, move to the public zone, which involved more of their energy and higher risks.

Bedridden patients

Patients, visitors and nurses agree that visits of patients between bedrooms, as well as mutual help among patients and visitors, in each case, increased after the architectural changes had been completed for some time. The persons who profited most by this development were the bedridden patients, who could expand the number of contacts with other people. To have a range of choices for contacts available becomes particularly advantageous for those patients in *two-bed rooms*, who have to see their neighbours leave the hospital, or in those cases in which the relationship between the two patients deteriorates. These patients can then maintain contacts with others in the group. The bedridden patients also highly valued the opportunity to choose whether the door to their rooms should be closed or open, in order to gain visual and acoustic access to the s.p./s.p. zone.

Responses of the nurses

In order to understand better the discussion of the nurses' responses *vis-à-vis* the described architectural changes, it is necessary to appreciate the spatial and organizational conditions as they existed prior to the introduced changes. The spatial arrangements are illustrated in Figure 4, and the organizational conditions (management structure) in Figure 5, where the solid line frame represents Ward L, and the broken line frame care units A and B.

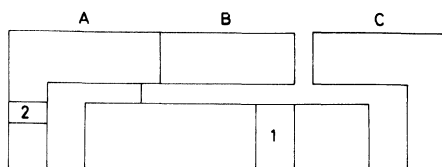


Figure 4. Spatial arrangements of the care units on Ward L prior to the changes.

- care units A and B (with 15 patients each) together function as a care unit using the system of team care.
- care unit C is an autonomous unit for the care of chronically sick patients with their own personnel.
- the main nursing station (1) used by nurses of all three care units as a base.
- the subsidiary nursing station (2) used mainly as a base by the nurses of unit A.

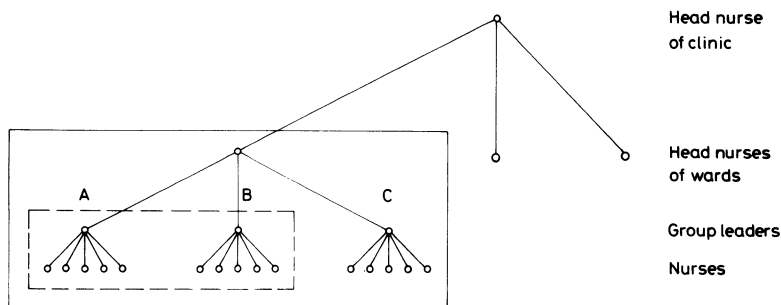


Figure 5. Nurses' management structure of the surgical clinic.

Responses of nurses in unit A

As a consequence of the partition between the care units A and B and the development of a group-owned territory behind this partition, the nurses unintentionally turned more and more into a semi-autonomous decision-making and care team. According to the head nurse of the clinic, a tendency to self-governing behaviour in this group had already existed before this experiment got under way. She explained this by the fact that this group of nurses had their own nursing station within their working area (see Figure 4). The partition, and probably also the attention the nurses received while participating in this experiment, accelerated and reinforced their tendency to self-regulation.

In discussions with the nurses directly involved in the care of patients, they unanimously valued this development as a positive one. Not only did they feel comfortable within the space confined by the partition, but they also felt they had taken on more responsibility for their patients and developed more interest in their well-being. The development described above also had the effect of a reduced exchange of personnel between care units A and B. This way the patients had more confidence and trust in the received care

because they saw fewer but more familiar faces. Again these observed and verbalized changes in attitudes of nurses towards patients may have to be partly explained by the fact that these nurses were personally involved in a novel attempt to improve the quality of care milieu.

Management and administrative personnel

In contrast to the nurses directly involved in the care of patients, the head nurse of the clinic and the head nurse of Ward L regarded with regret the development described before.¹ In contrast to the expected cooperation, based on the team nursing concept between care unit A and B, the cooperation during the experiment declined unfavourably for the personnel in care unit B. In addition, the partition in the corridor had undermined the head nurses' control over the events behind the partition.

After a few more weeks of experimentation, the head nurse of the clinic demanded the removal of the partition in the corridor. It was clear to most of the participants that this meant the termination of the experiment. Almost everyone recognized the important function of this partition: to define clearly the territory of the patients/nurses integrated 'family' in order, intentionally, to keep out 'strangers'.

On the basis of extensive discussion with the head nurses and all

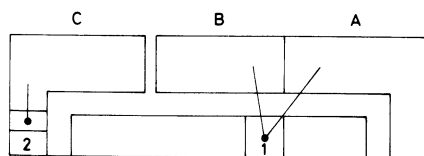


Figure 6. Spatial arrangement of Ward L after interchanging care units.

- the interchanged care units A and C allow the formation of a larger semi-autonomous group (B and A) with 30 patients and with the centrally located main nursing station (1).
- care unit C with the separate nursing station operates further on as an autonomous care unit.

1. A description of similar contradicting attitudes between management personnel and workers towards spatial/territorial changes in an industrial organization can be found, for example, in a paper by Richards and Dobyns (1957).

the other nurses, it was decided to terminate the experiment but at the same time to rearrange units A and C on the ward according to the scheme in Figure 6. During a major cleaning procedure in Ward L, the described interchange was done. After an initial period of adjustments to the new situation, this arrangement worked out to be acceptable to all nurses involved. The nurses of unit A tried, on their own initiative, to create again a s.p./s.p. zone in the corridor.

5. Conclusions

The experiment has shown that:

1. A wider range of spatial and social behaviour opportunities, by means of providing room hierarchies (private/semi-private/semi-public/public), is considered to be desirable by patients, visitors and nurses.
2. The distinct delineation of space and group size by means of defined territorial boundaries leading to more autonomous care units is desired by patients, visitors and nurses *directly involved in patient care*. Such designated territories make possible an *identification* with a familiar environment or 'niche', i.e. to know where one belongs and which territory one 'owns', reducing behavioural conflict among patients and improving orientation in space.
3. Since the changes described in this report ask persons involved to give up old, and to learn new, spatial and temporal behavioural patterns, in a changing setting, all persons affected should be involved in the planning of change. In this way resistance to change, as well as role conflicts among patients, nurses and hospital staff may be alleviated to a great extent.
4. Since spatial and organizational changes alternately influence each other, they should if possible be planned simultaneously.

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22. The implementation of team nursing: A change process and research project in a Dutch general hospital

M. G. Boekholdt*

For three and a half years we have cooperated with a Dutch general hospital, with about 600 beds, in implementing organizational change in several nursing wards. While helping the hospital in the change process, we have theorized about the change process itself. This summary reviews the project activities. First a short description of the practical affairs of the change process is given; and second, there is a description of the theoretical work.

1. Practical help in the change process

The way Dutch hospitals work is currently under discussion. Critics want to make them more 'human'. The discussion centres around two areas; How can patient care better meet personal needs and give attention to psychological factors, and how can cooperation be speeded up between workers in the health care area. Cooperation is required which is up to date, and which serves both patients' needs and the employees' needs for professional development and job satisfaction.

1.1. The starting point

The characteristics of the traditional ward in Dutch hospitals are:

- A task structure which requires the repeated performance of very simple activities with different patients: quick and efficient performance of 'pure' (i.e. technical) nursing actions is much more

* Institute of Social Psychology, Utrecht University. The author is project leader; the project team consisted of J. T. Allegro, H. W. Kanters and W. Polet. We thank D. E. Davis for his comments on the English version of this article.

important than interaction with the patient. The nurse has little information about the patient's sickness and background, and so it is very difficult for him/her to communicate with the patient about the medical aspects of his illness. Further, the work schedule provides very little opportunity for involvement in his total treatment.

- Stratification in the social structure: the head nurse pulls all the strings. The physician's position is unclear; on the one hand they are highly influential members of the organization, but on the other hand they are free entrepreneurs. Therefore at ward level, there are 'two lines of authority' (Perrow 1965).
- A climate with little tolerance for emotional problems, which are, of course, very evident in the treatment of patients, and there are few possibilities to talk about them with colleagues.
- Many student nurses who both study and work: because of educational department requirements they must work in a shift system.

Consequently, many nurses are dissatisfied with their work and there are high rates of sickness, absenteeism and labour turnover; and patients often feel a shortage of 'human' interest during their hospital stay. Against this background climate there appeared some articles in Dutch nursing journals four years ago, introducing the concept of 'team nursing' as an alternative way of cooperation (Mercx 1972; Levert 1973). Characteristics of 'team nursing' are:

- The ward is divided into groups of nurses. Each group is responsible for the nursing of a fixed number of patients.
- Teams work in fixed compositions as much as possible. They divide the work so that one nurse totally treats a fixed number of patients as much as possible (taking into account the stage of education of the nurse).
- One of the more experienced nurses (a registered nurse) is coordinator of the team. This function can be a rotating one.
- The team talks regularly about the way they are cooperating.
- The head nurse coordinates the teams and keeps contact with the functions external to the ward.

- The head nurse and the team leaders meet regularly to talk about the way of working on the ward and its problems.

The basis of this whole way of cooperation is an extensive nursing administration, which keeps record of the patient's background and the course of his illness. The team holds a daily patient conference, in which physicians are invited to participate.

On the basis of the administrative data and the observations of the nurses, nursing plans for the patients are prepared, and these are fundamental to the division of work within the team. Of course the patient conferences also make it possible for nurses to inform each other about backgrounds and illnesses of patients. Therefore the goal of the team is to develop a way of cooperation that gives nurses a more complete task, with more responsibilities in their work, and makes them more able to interact with patients. Nurses who are confronted with patient's problems can bring these back to the other team members for discussion and solution, along with the emotions that closer relationships with patients will create. (Boekholdt and Allegro 1975).

We can see here the application of concepts developed in projects of organizational change in industry – semi-autonomous work groups; job enlargement; shop floor consultation; 'linking pin' structure (Emery 1959; Likert 1961; Allegro 1973; Bolweg 1976). These concepts are applied to organizations with 'people processing' technologies (Perrow 1965). The notions developed in industrial organizations (that such processes will lead not only to more satisfaction of workers but to quantitative and qualitative increase of production as well), need to be adapted to the specific character of the hospital organization.

1.2. The start of the project

Reacting to the articles in nursing journals mentioned, the head nurses of three wards of a general hospital asked their directors to experiment with such a new way of cooperation. The directors supported the initiative, as they thought it important to give new developments a chance. One of the directors made a condition that

someone from outside the hospital should help with the 'experiment'. The head nurses and the personnel of the wards, who supported the head nurses' idea, agreed with this. The directors then asked us (from the university) to help their hospital. We wanted to help, but also wanted to build a research programme into the change process. We believed a research programme could give both support to the change process itself and systematic information about the effects of such a process. After conferences with the directors, the physicians, the head nurses and the ward personnel, the change process started. Two central goals were formulated for experimenting with team nursing:

1. A better work situation for nurses, which gives them more satisfaction;
2. Better nursing care for patients, especially more attention to their psychosocial problems.

1.3. Short description of the change process

A steering committee was formed at the outset in which representatives of the directors, physicians, the educational department, registered and student nurses, and the head nurses of the wards, were involved. The author as change agent was also a participant. The steering committee's task was to oversee the developments on the wards and to look for solutions that were beyond the jurisdiction of the wards. The steering committee itself was a representation of the whole hospital. To give form to the new way of working on the different wards, a work group was formed from ward members. This work group, consisting of the head nurses, registered nurses, a student nurse and the change agent, had regular conferences with the ward personnel.

The experiment started with two medical wards (these were later combined) and a surgical ward. The work groups, in line with their idea of team nursing, investigated what should be changed on their ward. Based on this investigation they made action plans and implemented the changes in phases. Attention was given to the following points:

1. Dividing ward staff into teams, responsible for a fixed number of rooms: each group was responsible for 15 patients;
2. Designing and getting accepted job descriptions of each group of ward personnel;
3. Conducting a number of social skills training sessions for the nurses;
4. Selecting team leaders;
5. Designing and implementing a new nursing administration;
6. Implementing patient conferences for every team and drawing physicians into them;
7. Composing an induction booklet for the new personnel, in which the ways of working and the procedures of the ward are explained;
8. Designing and implementing a new procedure for the daily schedule by the head nurse and representatives of the teams;
9. Designing and implementing a new way of evaluation;
10. Holding conferences periodically with physicians and nurses to discuss the problems both groups experienced in the new way of working;
11. Holding supervision talks between head nurses and change agents to review head nurses' performance of their tasks;
12. Dealing with other problems which came to the surface during the change process.

The change process covered two and a half years. In this period we did three research studies (Section 2.2). We fed back the results of this research to the wards, which led to new action plans. The change process was not as smooth as might seem from the description given; and again and again there was resistance to change from outside the wards (by physicians and head nurses of other wards). The wards also fell back to earlier stages of development, due to lack of personnel, to the introduction of new personnel because of the shift system of student nurses, and due to periods of high sickness and absenteeism. In the course of time it became clearer that the development of team nursing was hindered by a number of limitations which were beyond the jurisdiction of the individual

wards and came within the policy of the total nursing department. As time went on the steering committee became more and more involved in these problems and less in the specific problems of the wards. In 1976 the experimental wards, the steering committee and the change agents all had the feeling that an optimum point of development was reached. The experiment was concluded by an evaluation report (Section 2.2). Based on this report the steering committee decided that problems on the level of the total nursing department should be the object of more systematic attention. Further, they decided to form a new steering committee to be concerned with these problems and to see if it was possible to implement the findings of the experimental wards in other wards of the hospital. As change agents we finished our contract with the first steering committee and made a new one with the newly formed committee which began in January 1977.

2. The theory

The theoretical work we did on the change process was twofold. By reflection on the way we developed the change process; and by our participation within it, we tried to contribute to more systematic knowledge of planned organizational change. In our opinion this happens too infrequently in organizational change projects (Section 2.1). We also did research on the effects of the change process (Section 2.2).

2.1. Characteristics of the change strategy

Based on systematic thinking about the change process and our actions in it, we will describe the change strategy used. By a change strategy we mean 'the total of activities that the change agent unfolds to start the change process in an organization and the accompaniment of it step by step' (Knip et al. 1975). The characteristics of our way of working were these:

1. *A great responsibility for the change process held by the ward staff*

themselves. To achieve real change it is necessary that people themselves get greater abilities in designing and implementing new forms of cooperation. Advantages of this approach are:

- People are able to judge for themselves the problems of, and improvements in, their work situation.
- They get accustomed to the changes from the beginning and will feel that they own the changes.
- In the change process they will learn things that can be very important in later stages.

In this way a learning and developing process on the wards was stimulated.

2. *Thinking in terms of developments*. There is no fixed final stage. Team nursing is a goal to strive for, and teams grow in the required direction. There is no ideal model that can be implemented at once. In such a strategy problems are handled step by step, with particular attention to bottlenecks and points of resistance. This requires a very intensive relation between change agent and client, demanding a great deal of trust and mutual communication.

3. *Focus on the social and technical system*. Many change strategies focus specifically on the social system (training in social skills, conducting shop floor consultation), others focus on the task system (job enlargement) (Friedlander and Brown 1974). In this experiment we gave attention to both systems. Both social system (training, conducting patient conferences, coaching head nurses) and the task system (other ways of division of tasks, other administration) were influenced.

4. *Attention to the environment*. Changes which confront the client cannot be seen as separate from the complex environment in which he operates. This project was chosen, by means of a steering committee, to be representative of the total hospital. Some problems that arose on the wards were in reality problems of a higher level of

policy and these could, through the steering committee, be discussed at the policy-making level represented in the steering committee itself.

5. *Temporary change systems.* Two temporary change systems at two levels (steering committee and work groups) were developed, and through these the representation of the larger hospital and the learning by experience became a reality. Because of the temporary character the conferences were less burdened with history than the usual ones. Therefore it became easier to give them an experimental character in which new forms of cooperation (which had to be implemented in the total organization in a later stage) could be explored.

6. *Differentiation in role performance.* The change agent can perform different roles in a change process. He can act as an *expert* and formulate and present acceptable solutions for the client. He can also let the people involved get insight into the aspects of the situation they want to change and help them implement the changes they determine. We call him a *consultant* then. Whatever his role, the change agent will try to realize certain goals or values in the change process. He will try to influence the organization to reach his goals and values. He plays a political role and is not neutral (Knip et al. 1975).

In our project we performed different roles. We were 'experts' when we dispensed knowledge about organizational affairs to the different groups. The 'consultant' role took form in designing the total project and in the specific roles of, for example, trainer of social skills, discussion leader and coach. In the political role we were especially active as representatives of different parties in conflict and as catalysts and motivators for different groups. In the final evaluation of this project the hospital staff involved emphasized especially our political role in their evaluation of our contributions.

2.2. Research on the effects of the process

In our research we tried to get information about the effects of the change process. Team nursing is described as a form of organization that can reduce the problems at the ward level. One can look at the effects of team nursing at two levels:

Level A: organization

How does the ward function, in concrete terms, during, and at the end, of the change process? One can trace to what extent the organizational form that represents team nursing really exists. Are there teams, team leaders, patient conferences, and so on?

Level B: social-psychological processes

On this level it is important to see how far leadership, delegation, division of influence, communication, and so on, are affected by a new way of cooperation and how they influence the assumed results of team nursing. These results are coupled to the formulated goals (Section 1.2). The assumed results are:

- Nurses are more satisfied with their work situation.
- Nurses have lower rates of sickness and absenteeism.
- Nurses achieve more therapeutic behaviour (behaviour that promotes the recovery of the patient).
- Patients are more satisfied with their situation.

Based on assumptions about the course of the change process and about the mutual integration of the concepts, we gathered information at both organizational and social process levels. On the basis of ideas from industrial projects, we hypothesized that restructuring would lead to a quantitative and qualitative increase of production. By setting up the group structure, improving communication among ward staff and providing information about the patient, there will be an improvement of patient care in hospitals. More importantly this restructuring should lead to more intensive interaction with the patient and better information for the nurse

about the kind of care that should be given to a patient during a hospital stay (Cassee 1970).

The research programme design consisted of three questionnaire measurements (Spring 1974, Spring 1975 and Spring 1976) which were used on the experimental wards and on one ward that was not involved in the experiment (control group). A measure planned for use in 1973 was avoided because of conflicts on the wards at that time. Each time questionnaires were given both to ward personnel and to patients. We also carried out group and individual interviews on the experimental wards and analysed data about staff sickness/absenteeism rates which were available in the hospital. We mentioned earlier that the results of this research were fed back to the wards and that there was discussion on the wards about the results (survey feedback).

3. Summary of the results

Level A: organization

The experimental wards achieved a suitable form of team nursing. This does not mean that an ideal situation, as described in nursing journal articles, was realized. The forms we find resemble the ideal situation, but there are also differences between the wards, related to their stage of social development and their specific character.

The development is one with ups and downs, and what is reached is reached very slowly. Sometimes it is undone and rebuilt in a later period. This is especially the case with the conferences (patient conference, team conference, and so on) which are seen as being very vulnerable. The structural characteristics are more stable (teams, teamleaders, administration, schedule, etc.) than in other, traditionally managed wards.

Level B: social-psychological processes

We cannot say that team nursing leads to a qualitatively more open communication climate – at least not in all areas. Only in the communication with the head nurse and in the mutual communication among nurses did we find results as expected. In the area of leader-

ship, delegation and influence structure, we found differences between the experimental and control wards. They are as expected. On the experimental wards there is more social leadership, more delegation and a more equal division of influence. Clearly the way in which leadership is performed depends very much on the personal traits of the head nurse. The nurses are satisfied with the new way of working on the wards, especially the student nurses, as they feel they have greater responsibility, better contact with colleagues, and are more important. There is also a tendency to have less sickness and absenteeism on the experimental wards, especially for student nurses. The expectancy that team nursing would promote 'therapeutic behaviour', is not supported in the research results. There was no difference between experimental and control wards over the three years. Nor did 'therapeutic behaviour' increase. Based on an analysis of the results, we concluded that team nursing is a necessary, but not a sufficient condition, for increasing therapeutic behaviour. Other factors (training of nurses, behaviour of physicians, policy at hospital level) are also necessary for the realization of this (Boekholdt and Kanters 1977). The patients on the wards we studied were positive about those contacts with the nurses which we described in terms of therapeutic behaviour, but there were some differences between the wards. It seems difficult to gather useful information from patients about this aspect of their hospitalization by means of questionnaires. The free-attitude interviews we did gave better results. While other groups in the hospital (directors, heads of other departments, physicians) were positive about the new way of working, they were sceptical about the realization of the goals concerning the patient (therapeutic behaviour).

We conclude that the change process gave expected results for the work situation of the ward personnel but this was not the case with regard to what we called therapeutic behaviour of nurses. We must point out, however, that because of the summary character of this description, many gradations in the results have not been mentioned.

From our results one can ask: 'Is it possible to reach the ideal model of team nursing?' There are factors in the hospital or in its environment that hinder the realization of the ideal model. These

same factors hinder the organizational development of the hospital in general. Team nursing can improve working conditions in the hospital, but the hospital itself is subject to limiting conditions, imposed on it from beyond its direct control. Conditions of importance to clear in a further development are: governmental norms for personnel ratios in hospitals; the situation of the labour market; the position and the behaviour of physicians; the coordination between the educational and nursing department; governmental regulations on the education of student nurses; the management quality of head nurses and the hospital's middle management; the personnel policy of the hospital; and the physical labour environment. The steering committee set up in the last phase of the project is now concerned with optimizing these conditions.

One last relevant development from the results of the experiment: other wards in the hospital also introduced aspects of the new way of working developed in the experimental wards. One should of course realize that team nursing has a place in a much broader societal development. Our project is a product of that development, but our results also show that such a project stimulates this kind of development in hospital organization.

This concludes our description of a change project in a hospital and our theoretical work. In the project we gave attention to the advantages and disadvantages of doing research that must keep clearly in mind both the practical affairs of the hospital and the theoretical goals of the action research (Rapoport 1970). This article does not deal adequately with this issue but in our more extensive description we try to do so.

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23. Job satisfaction in the Civil Service in the United Kingdom

Alan Hodgson and D. Burden *

This paper traces developments over the last five years, examines some issues raised by the work, and describes in further detail the New Model Office Project. In the Civil Service there are now more unrewarding jobs than there were, say, twenty years ago. The type and quantity of work done by civil servants has changed dramatically since then. The way work is organized has changed as well. The Civil Service is not unique in this – the reduction of jobs to their component tasks is commonplace, as are the human consequences of boredom and frustration which so frequently accompany such apparently rational division of labour. In order to discover the consequences of the existing work organization and to suggest better methods of working, the Civil Service Department (CSD) Job Satisfaction Team was set up in 1972. Since then, with various groups of civil servants, it has begun to rediscover what can be done at the work-site level to implement the commonsense proposition that when people are treated as people, with minds of their own, and the capacity to decide things for themselves, their work-life is more rewarding and the organization can do its job better as a result.

Today the Job Satisfaction Team consists of seven people from a variety of administrative, managerial and professional backgrounds; they work closely with a small group of outside consultants. The team's original ideas were based on job satisfaction work done in large firms in the private sector. Essentially this meant finding out from a group of staff what their problems were, followed by discussions with management and staff sides to agree

* This combined report was produced by the two U.K. editors from papers written by Alan Hodgson (1977): 'Job satisfaction' in: *State Service* 57, June; and D. Burden: 'The Model Office Project' (Management Services in Government).

solutions. Typically this would mean various arrangements to increase variety and responsibility in the work, such as bringing together previously separate jobs. Providing staff with the greatest freedom compatible with getting the work done was, and is, another facet of increased job satisfaction. Thus the first flexible working hours experiment in the Civil Service was initiated as a result of a job satisfaction project in the Inland Revenue. The early work suggested, however, that it was not enough to find out what bothered staff and then give them the solutions. If job satisfaction is really about people deciding things for themselves, then surely staff should have a hand in devising their own solutions? This philosophy was put into practice for the first time in the New Model Office Project which was started in a Department of Health and Social Security (DHSS) local office in 1973.

Background

Early in 1973 the Second Permanent Secretary in the DHSS, sensitive to the pressure and changes in our society and concerned about the difficulties experienced by local social security office staff in responding to them, proposed that a long-range study be mounted to examine what kind of field administration would be needed for social security in 'the 1980's'. An assistant secretary was given this brief under the overall direction of a high-level steering group. Specifically, the brief was to examine ways of improving the field administration of social security to give better service to the public and greater job satisfaction to staff. The Job Satisfaction Team was invited to assist with the project, and the team then suggested that, instead of the conventional administrative approach of analysing the problem centrally and drafting a set of proposals to meet the expected demands for the next ten years or so, would it not be possible actually to go out to the field and spend some time in local offices not only learning about problems of staff and public at first hand, but actually involving staff in understanding those problems and seeking their help to find solutions? D. Burden of the Job Satisfaction Team describes how the project developed:

This concept of not only going to the 'grass roots' to learn of the problems, but involving staff in the field in a new way, was accepted by the steering group on an experimental basis. It should, perhaps, be explained that the rather cumbersome title 'Long-Range Study of Social Security Field Administration' had from the outset been shortened to 'New Model Office' Project – no-one in the Department of Health and Social Security has ever been able to tell us why! The name has been very much of a mixed blessing: on the one hand, it has misled many into believing that we are trying to create a sort of 'blueprint' office for the future – than which nothing could be further from the truth, as we hope to explain – on the other, the Cromwellian overtones, implying as they do the importance of a change of heart and the 'inner man', are by no means inappropriate. In order to be totally free to experiment in a local office we felt it necessary to seek room to manoeuvre – both from the management and employee representatives. From the management we sought freedom from the laid-down codes and procedures on the basis that staff in the selected local office would be able to challenge them and would be entitled to an explanation of their *raison d'être* – not just a policy decision. In this way we hoped to begin to free the channels of communication and understanding between the executive and policy-making branches of the Department. From the employee representatives we sought freedom from the demarcation issues within a local office, so that local staff might be able to determine the appropriate level of a particular task according to the particular skills and circumstances prevailing.

Armed then with these dispensations we set about the task of finding a suitable 'test bed' local office in which we could persuade the staff to experiment in new ways of working. It must be stressed that for this first office (as for subsequent offices) there was no question of us 'experimenting' unless the local staff were willing to experiment – the choice was theirs – the whole essence of our work (which differentiates it from most other kinds of intervention consultancy) is that of helping people to do things for themselves – not doing things to people. We set criteria for the choice of office – among them were the disposition of the Regional Controller and his staff, the group manager responsible for the office, the local office manager, the regional and local employee representatives and not least the local staff; the geography of the office; the size of the office – and so on. From a short list the local office at Swansea in Wales was finally chosen.

The first phase of our experimental work thus began in Swansea in October–November 1973. By Christmas 1973 we had interviewed every member of staff individually, and begun to work with a number of small sections in the office on perceived problems within their work area. During the Christmas holiday period the Job Satisfaction Studies Team took stock of the developing situation at Swansea. It appeared to us that although we could see signs that staff were willing to develop new approaches and challenges to existing work methods and organization there was an inertia about the whole organization which concerned us. Two possible courses suggested themselves – one to spend time working through the issues with

management in the office so that they might become accustomed more readily to accept different ways of doing things; the second, the more radical step of suggesting a different kind of organization to the management staff at Swansea which would see them as 'advisers' rather than line managers in their own office. We would have preferred the first alternative, but bearing in mind the short time-scale felt that we would have to present the second alternative to the Swansea staff as a possible route forward. In early January 1974, after these proposals had been discussed with the group manager, local office manager and finally the management team of the office, the proposed change in organization was accepted.

Executive Officers [middle managers in industrial terms] were given responsibility for day-to-day service to the customers, in charge of 'Customers Service Groups', with senior officers acting as advisers. The management team then spent some time working out exactly what advisory groups they should form – the groups decided upon were Technical Service, Training, Personnel and Monitoring. Whilst working out exactly how their new organization would function the management team began to devise different groupings of staff in the office to provide a better service to the public, and after consultation with Executive Officers and other staff in the office an office reorganization was carried out. By mid-summer 1974, most of the energy for change at Swansea had been consumed in devising and enacting quite a considerable change in organization and layout. As a result many still look upon the activities there as primarily concerning organizational change. The time pressures upon the team, and the fact that they, like the office staff, were learning as they went about their work, in a sense made this inevitable. The change from line management role to advisers was too abrupt for most of the management team, particularly as they had no opportunity to learn new skills. The team certainly learnt a great deal from the pilot work in Swansea, from the mistakes as well as the successes – but had sufficiently demonstrated the possible value of their work to be asked to move on to two more regions of the Department to develop the work further.

The learning from Swansea

The pilot study enabled us to identify the following flaws in our approach:

- (a) By leaning too heavily on our 'experimental' approach we were seen as operating directly from [the London] Headquarters in a local office situation. This left the Central Office staff in Wales with a feeling that they were being bypassed and as a result we did not get the support and understanding which we hoped for.
- (b) The pace of change in the office was forced – as a result many were left behind or felt uninvolved.

- (c) By removing the management team from direct line command we tended to increase the inertia in the system rather than decrease it – we were in a sense bypassing the problems, not dealing with them.
- (d) We stressed the code and procedural issues too much, with little reward. It is expecting too much of staff used to obeying instructions implicitly to ask them to begin to question those instructions critically – certainly in a short time span. A much more gradual approach is necessary.

Two more offices – in England: Wallsend and Wakefield

In January 1975 a second phase of the work commenced in Wallsend office in Northern Region and at Wakefield in the Yorkshire and Humberside Region. Two small teams of two people (each with one of the original Swansea team) moved into these offices – joined by a member of the regional staff to gain experience in this work. To overcome the feeling of isolation which Swansea had experienced the teams spent most of the preceding month in the regional offices explaining to senior staff what the project activity entailed. In both offices we were determined to work through the issues arising from staff, with the management team in situ – there would be no enforced change from outside the office. In Wakefield the management team spent a week away from the office together in a training session specially arranged and conducted for them by three training staff from the [Civil Service] Department's Management Training Centre at Sunningdale. (This was not only a new experience for the management team but for the training staff as well – the opportunity to train a complete management team together virtually in their own environment.)

It is not easy to sum up briefly what has been achieved at Wakefield and Wallsend, but the following may be regarded as the essentials:

- (a) Staff at all levels have over a period of months actively concerned themselves with analysing and improving their work organization and working methods. Examples could be quoted of reorganization of work: new counter arrangements; more sensitivity to (and concern to find out about) public reaction to the service provided; better relations with local authority social services; imaginative efforts to improve training, personnel management and communications within the office; and various arrangements to evaluate the effectiveness of changes introduced. None of these things of itself is unique; DHSS could point to many other initiatives of a like kind elsewhere. What distinguishes the 'New Model' offices is the wider range of innovatory work being tackled under one roof, and the high degree of involvement of all staff from manager to clerical assistant.
- (b) All this has been achieved without detriment to performance or output as mea-

- sured by the Department's standard indicators. It would, therefore, seem that there is little or no short-term cost to offset against the longer-term benefits which are to be anticipated as the logical outcome from staff activity of this kind.
- (c) Managers, staff, and Staff Side [the representatives of the relevant trade unions] in these offices all wish to go on working in this way and, since the departure of the project teams, have continued to develop it as their normal method of operation.
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Outcomes of the work

The work at Swansea, Wallsend and Wakefield has shown beyond doubt that, despite the stresses of social security work, there exists among local office staff at all levels a considerable reservoir of energy, ability, ideas, goodwill and enthusiasm which conventional Civil Service-style management does not adequately tap. The feasibility of tapping it to a greater degree than is usually achieved has been amply demonstrated in these three offices.

We are now able to spell out with some certainty just what it takes to harness the energies and enthusiasm of staff – and see this as the central task of management toward the goals laid down at the start of the total process. This is almost certainly the most viable way of improving the quality of service to the public. There is no short cut to a genuinely participative method of managing. Willing effort and imaginative contribution from staff does not come in response to gimmickry of any kind; it only comes when staff experience the reality of having as complete a job as possible with discretion over how it is to be tackled – and in the knowledge that their managers actually want and value their ideas. Achieving this state of affairs is all too often a painful learning experience for the managers concerned; their conditioning under the present system has tended in the main to reinforce the mechanical implementation of procedures and instructions imposed from above.

It needs to be emphasized that it is not any particular reorganization or new procedure which brings commitment, but the process of creating a new way of working. It is this process which has to be

communicated to other offices; it has to be experienced, to be lived through, both for managers and staff; nothing can short-circuit or substitute for the actual experience of beginning to behave in different ways. This experience can only, we believe, be communicated effectively by employees who have themselves gone through the entire change process; this means that, at least at the outset, the rate of this progression can only be gradual, depending as it does upon the rate at which the process itself can turn out potential team members with the requisite experience. Helpful though handbooks and training courses may be there is no substitute for experience in different ways of working. So if it has any meaning at all 'New Model Office' is a concept involving quite different behaviour patterns from the norm, in which staff at all levels are able to give more of their talents towards the service of their public.

Besides DHSS, major projects have taken place in the Ministry of Defence, Department of the Environment, Department of National Savings and the Office of Population Censuses and Surveys. With the common aim of increasing the opportunity for staff to contribute to the effectiveness of their work and to their own satisfaction, each project has followed its own pattern to suit the particular needs of the work and staff involved. The sort of tangible changes which have taken place include:

1. Combining previously separate jobs, thereby increasing job satisfaction, flexibility and people's understanding of the work as a whole;
2. Increased contact between groups of staff involved in the same work process, thereby improving understanding of the job as a whole and the problems of other work groups;
3. Reducing checking: less checking often means that staff take more care with their work, so supervisors can then devote more time to helping staff and to other managerial jobs;
4. Organizational changes which bring together previously separate specialists who deal with the same type of client;
5. Improvements in customer service and in finding out customer needs and views;

6. Increased staff participation in day-to-day decisions.

Certain common themes emerge, even from a highly summarized list like this. Perhaps the basic one is that, given the chance, staff can and want to influence decisions about their work. Secondly, their contribution is usually much greater and more useful than traditional working arrangements allow for. One aspect which deserves particular attention is staff attitudes towards their customers, i.e. the people who use the service they provide. Repeatedly, job satisfaction projects have shown that providing a useful service really matters to staff. But so often working arrangements seem to be based on the assumption that staff need to be told how that service should be performed. Typically the result is that staff and managers do not have sufficient opportunity to utilize their potential for providing imaginative and relevant solutions to problems of customer service. Another lesson of job satisfaction work is that there is a world of difference between a good idea which is imposed and one which is devised and implemented by the people doing the work. Many of the proposals implemented in projects have been thought of before. But the fact that staff have been allowed to develop their ideas for themselves is crucial. The difference expresses itself not only in people's satisfaction but in their commitment to make it work. Thus 'job satisfaction' is not just a nice extra. If people do not feel a sense of ownership and control over their work they are neither satisfied nor effective.

Why job satisfaction projects?

If job satisfaction is about something as commonsensical as giving people the greatest possible freedom to contribute to their work it is fair to ask why it is necessary to have special projects and a specialized team to initiate them. In many settings, line managers and supervisors can make certain important improvements – especially by way of involving staff in day-to-day decision-taking. Ideally, there would be no need for anything more than the initiatives of

managers and their staff. But often the real situation is radically different. First of all the Civil Service, as much as any other large organization, tends to condition staff at all levels against taking risks. And risk-taking is an inevitable part of the innovation in decision-taking and work arrangements which are necessary to make a real difference to people's work experience and their opportunity to contribute effectively. This need to experiment usually means that management and union agreement must be sought, often at fairly high level, for certain constraints to be lifted so that managers lower down the line can invite their staff to contribute their ideas with the confidence that something can be done about them.

Coordinating change

Another feature of experimentation is that a change in one part of an organization often affects other parts of the organization. For example, organizations with production-line arrangements for making something or supplying a service normally have quite detailed set procedures for moving items through the line. These are just the sort of arrangements which staff seek to alter given the opportunity. This calls for careful coordination between different groups of work people. Similarly, changes in one procedure provoke the need for changes in another. In the Civil Service different procedures are often the responsibility of separate bodies; line managers do not have control over many aspects of the work for which they are responsible: departmental and sometimes service-wide policies may be involved. Unaccustomed consultation is then necessary to get agreement for proposed changes. Essentially, change which makes a real difference at the work-site level, requires a special commitment by an organization.

There are few certainties in job satisfaction work but one is that an attempt to make progress will, at first, be difficult. There are no miracle cures; time and energy will be consumed; people will need to adjust to new ways of doing things. In this process, the participation

of an independent 'third party' or 'catalyst' has been found invaluable both to get the ball rolling and help people cope once it has started. This is the role the Job Satisfaction Team attempts to fulfil in project work. But one of our main contentions is that this role is not an esoteric one requiring particular qualifications. Experience, however, is essential. Thus, in most projects, a deliberate effort is made to recruit departmental members to the project team so that the department is not eternally dependent on CSD to develop its own job satisfaction programme.

The role of management

The interest and enthusiasm of management is crucial to the success of any job satisfaction project. It is, however, quite understandable that managers should be apprehensive about anything which appears to interfere with their responsibility for getting the work done. It is true that introducing worthwhile change requires special efforts on the part of management. Equally real are the benefits for managers of a genuine increase in staff participation in running the work. Many managers who have seen these benefits feel there is no alternative if their organization is to continue to do its job properly. These benefits can be seen in the way work gets done and in the more intangible realm of morale and staff relations.

Quite naturally, the fear is often voiced that management will lose control if staff participate in running their work. Nothing in the experience of job satisfaction work suggests that there is a risk of anarchy where staff have more say in decisions affecting them: consistently, staff demonstrate their responsibility when they have such opportunities. What this means to managers is a change of emphasis in their role away from control and direction and towards helping to make better use of their own potential. In a participative setting a manager is still accountable for the performance of his unit. It is the way results are achieved that changes. Job satisfaction projects have shown that staff need more discretion if they are to do their job properly. The same is true for managers. Genuinely ac-

countable management entails the exercise of discretion by the manager, not simply in more precise monitoring of his performance. Real improvements in effectiveness and satisfaction in the Civil Service will, almost certainly, mean an increase in the joint exercise of discretion by staff and their managers together.

The role of unions

The involvement of the appropriate staff associations is also an essential feature of job satisfaction projects. From a practical point of view, work arrangements inevitably concern trade unions, who must therefore be involved in decisions about changing them. Unions also have a positive interest in improving the working life of members, and so need to play a part in the development of job satisfaction work.

The actual mechanisms for union involvement depend on the department concerned. But a general principle is that job satisfaction work proceeds through the existing U.K. Civil Service Whitley framework of joint consultation and negotiation. This often has the effect of strengthening the Whitley system, especially at local level. The departmental level has also proved important. In two departments there are joint steering groups involving management and unions in the supervision of job satisfaction projects.

At the service-wide level CSD and National Staff Side (representing all the unions in the non-industrial civil service) have now decided to set up a joint steering group to oversee the strategic development of the work of the CSD Job Satisfaction Team. This group will start work shortly and represents a major development in the philosophy and management of Civil Service job satisfaction work.

SECTION SIX

TRADE UNION-ORIENTED ISSUES

24. The Demos project: Democratic control and planning in working life

Åke Sandberg *

Forms and contents of decision making and planning are important aspects of today's political as well as scientific discussions on democratization in working life.¹ An interesting aspect may be described by means of two trends:

1. Planning and control, often based on electronic data processing, is becoming increasingly important in industry. This is due, among other things, to the development of production technology and centralization in the economy.
2. Worker (in a broad sense) demands for democracy in working life are increasing in force.

The two tendencies partially concern one and the same activity, namely decision making and planning on different levels: the shop floor, the enterprise as a whole, and the economy as a whole. Long-range planning in industry is being centralized. At the same time workers' initiative and experience are made use of by allowing a certain amount of autonomy in the individual's or group's work situation on the shop floor. The two tendencies combine to raise the demands placed upon workers to be committed to their tasks, to

* Department of Sociology, University of Uppsala, Sweden. This is a shortened and updated version of a paper presented at the International Conference on Participation and Self-Management on the Shop Floor, Dubrovnik, Yugoslavia, 2-6 February 1976.

1. The discussion in this section is directly based on Pelle Ehn and Åke Sandberg (1975): En demokratisk styrning och planering i företagen kräver kunskap och hög facklig aktivitet. In *Fackföreningsrörelsen* 55, 25. For a more comprehensive analysis of planning techniques from a sociological and epistemological perspective see Åke Sandberg (1976): *The limits to democratic planning: knowledge, power and methods in the struggle for the future*. Liber, Stockholm.

have an effective understanding of the job and be able to act independently. But how much understanding? And independence within what limits? Here the two tendencies run counter to each other.

What will happen at the point where these two trends conflict? Which tendency will become predominant – the capital owners' and managements' more efficient and sophisticated corporate planning or the workers' striving for democracy? That depends on the structure of society, on the power resources of the parties in working life which determine their 'objective possibilities of action' and on their goal-directed strategic action within these limits (and transcending them). The central strategic question is whether the growing need in production for the initiative and loyalty of the workers' collective will be integrated into an employers' strategy for decentralization and so-called 'autonomous groups' or whether it will be developed in a workers' and unions' strategy for democratization on all levels of economy and production.

1. The Demos project – increasing the influence of workers and unions in company planning

The Demos project started in July 1975, and was scheduled to continue for two or three years.² Good contacts have now been established with the confederation of (workers') trade unions (LO) and with local unions in different factories and other places of work. The project has received impetus from the work of Norwegian social scientists cooperating directly with trade unions.³ A difference is that in Demos a stronger emphasis is put on the interdependence between democratization of planning on higher and broader levels (i.e. of the enterprise and the economy).

New laws on co-determination regulating the formal precon-

2. See Ehn and Sandberg, *op cit.*, and the first and second project reports. The Demos project has financial support from the Bank of Sweden Tercentary Foundation. Members of the research group are Jan Carlsson, Pelle Ehn, Barbara Erlander, Maja-Lisa Perby and Åke Sandberg.

ditions and restrictions for, among other things, workers' and union influence on decision-making and planning, have now been passed in the Swedish parliament. These laws will open up new fields for union work and influence. What the practical consequences will be is not least determined by union resources, such as member activity and solidarity, knowledge and experience. But also very much new knowledge is needed, for example about corporate planning and the use of computers, as well as new methods and strategies for union influence in these fields.

The Demos project aims at contributing to the building up of the new knowledge needed on different levels within the trade union movement. The intention is to:

- analyse critically corporate planning and control in theory and practice;
- develop theoretically alternative perspectives on these systems and their conditions;
- illustrate experiences from union-employer negotiations in the development of planning and control systems;
- develop tools of analysis (e.g. check lists) to be used for critical evaluation and in negotiations;
- contribute to some extent to the development of university-based research on working life and forms of cooperation between re-

3. This pioneering Norwegian project, the first sponsored directly by a national Scandinavian trade union, demonstrated the need for new concepts, models, strategies and ways of doing research if organized labour is to gain advantages from it commensurate with those gained by management. After some preparatory research which resulted in 1971 in a popular book on planning and computers, *from the workers' perspective*, the researchers then worked closely together with workers and local union representatives in a few factories. The starting point was a perceived problem and a strongly felt need for knowledge among the workers. Workers then investigated their own problem using their own experiences and assistance from researchers. When problems and strategies for solutions were articulated in a report, its publication made the union perspective on planning manifest, and to some extent in conflict with management's view. The report was used in the specific local union as a basis for action, collective bargaining, and for further investigations. For an overview of this project see Olav Terje Bergo (1973): Kunnskap or makt [Knowledge is power]. In *Nordisk Forum* 8, 1; and Kristen Nygaard (1975): Trade union – a new user of research. In: *Personnel Review* 4, 2, 8–10. For a theoretical model for trade union participation see Pelle Ehn (1974): 'Emancipation and the design of inquiring systems.' Paper presented at the Conference on Alternative Organization. Hindas.

- searchers and different levels within the trade union movement;
- contribute to the further development of the action research approach.

The knowledge developed is meant to be used as a basis for:

- union-management negotiations, centrally and locally;
- decision-making within fields where unions have some form of self-determination;
- education within the trade union movement, and in general education.

The aims of cooperation with the trade union movement and of contributing to democratization in working life has consequences for the research method – the method chosen must be in accordance with the goals. ‘Action research’ may be such an alternative. As in the Norwegian projects the starting point is perceived problems on the shop floor; these are investigated in cooperation between workers and researchers. But, as has been pointed out,⁴ practical problem-solving and action is not enough, reflection and theoretical work are also needed. In the Demos project the practical investigations are therefore supplemented with what may be called ‘directed basic research’, in this case to be understood as analysis of the preconditions and restrictions for democratization of planning, and for development of skills and self-determination at work. This analysis may be a useful basis for central negotiations or reforms to change the conditions, but may also have some theoretical importance on its own.

2. The concept of democratic planning

The concept of *planning* is used in many different ways, and very often it is not defined at all. I have elsewhere defined long-range

4. See, for example, Paulo Freire (1970): *Pedagogy of the oppressed*. Herder and Herder, New York.

planning as 'a conscious control of the long-range development of an organization or a society based on an analysis of available knowledge'. It is added that this does not necessarily mean total control: 'today's and future decisions are prepared so that today's decisions are taken in consciousness of their long-range consequences and development is controlled so that desired future possibilities are kept open.'⁵

I would like to start with a short and abstract definition of planning:⁶ 'Man's conscious control of the development of a system'. To be able to proceed from the concept of planning to democratic planning, I need to remark on the concept of democracy (without going into any of the difficult problems and controversies). On an abstract level I want to define democracy as a social system with a high degree of equality in participation in decision-making as well as in distribution of resources (economic, material and others), giving people power to control their situation in life.⁷

After these comments on planning and on democracy, how should *democratic planning* be defined? I propose the following definition:⁸ 'Man's conscious and collective self-control of the development of a system'. Collective self-control means, following the definition of democracy, equality as to participation in planning and resources, making influence in planning possible. Let us consider what planning would look like as a democratic activity.⁹

The actor in planning in general could be a planning unit (planning subject) controlling a machinery and the rest of the members of the system (planning object). In democratic planning participation in preparation and carrying-through of plans is spread among all members of a system, and they all have the same amount of re-

5. Sandberg (1976, p. 18).

6. This discussion is based on a survey and analysis of different concepts of planning in Anders Gullberg (1975): *Samhällsplanering – precisering av ett forskningsprogram*. Working paper 1. Nordiska institutet för samhällsplanering, Stockholm.

7. Cf. Bengt Abrahamsson (1975a): 'Bureaucracy, participation and egalitarian democracy.' Paper presented at the International Conference on Power Structure and Decision-Making Processes in Modern Organizations, Dubrovnik, 16-19 January, p. 41.

8. Cf. J. P. Roos (1974): Theoretical problems of democratic planning. In: *Acta Sociologica* 17, 3, p. 218.

9. Sandberg (1976, pp. 306-312).

sources to influence planning. This means that there are 'planning units' on all levels of the system, a strict control of the 'planning units' by means of rotation of the delegates in the units, activity and knowledge, spread among most members of the system, and so on. The degree of consciousness of direction and goals and knowledge about restrictions for planning is high throughout the system. This is ensured by means of continued scientific, political and ideological development of and by the members of the system, in cooperation with researchers, etc., starting from concrete situations and problems of individuals and collectives.¹⁰ If the system is a complex social organization with different subsystems, some kind of coordination between the parts is necessary to ensure actual control of the whole system. One means is the development of solidarity on the ideological level. Another is efficient horizontal communication between different local planning units and also some kind of information analysis centre, analysing and informing about the combined effects of local plans. However, this may not be enough to avoid the development of inequalities in the distribution of resources between different parts. A central planning unit, itself under strict control, may be needed to redistribute resources.

As already indicated one may talk of possibilities for democratic planning in social systems of different sizes, or on different levels¹¹ within a system. It is important to note, however, that the restrictions on democratic planning may be very heavy on low levels and in a small system: they may be the result of planning by actors outside democratic control or of processes (the market, technological development, etc.) with no direct relation to actors. That is, even if planning within the system is democratic in the sense discussed here, actual control of development is possible only within *limits*

10. Cf. Freire (1970).

11. Bengt Abrahamsson (1975b) argues that 'political participation (involvement in high-level goal-setting and long-term planning) and sociotechnical participation (involvement in the organizations' production) should be seen as variables theoretically independent of each other' (On political and socio-technical participation.' Paper presented at the IPSA Round Table, Dubrovnik, 9-12 September, p. 2). It is taken as a reasonable hypothesis 'that political and socio-technical participation may have effects (e.g., to reduce alienation) independently of each other.'

determined by higher levels, or by other systems. General talk about autonomy, participation, etc., may blur these limits. In a strategy for democratization, on the contrary, these limits must be revealed, and transcended.

3. Restrictions to democratic planning – an analysis of shop floor democratization experiments

What are the restrictions to democratic planning in working life in a country like Sweden? The following discussion is only an indication as to the kinds of restrictions to be analysed. There are two approaches, the first is oriented towards a more systematic, theoretical perspective (if not a fully-fledged theory); the second is more empirically oriented. It should perhaps be pointed out that also in the case of empirical studies of restrictions, a perspective (conscious or unconscious) is needed if generalizations are to be made and their conditions specified. Here I discuss only the experiential and empirical approach.

In Sweden during the 1960's (and elsewhere) quite a number of experiments concerning more democratic forms of organization and decision-making in working life took place. What can we learn from these experiments about the restrictions to democratic planning in a country like Sweden, and to a strategy of the Demos-project type in particular? In other words, what empirical generalizations about restrictions can be made? The analysis is based on two surveys of experiences from several experiments with democratization at shop floor level;¹² reports from two projects in the state-owned iron mines in northern Sweden (one mainly on 'representative industrial democracy', and a strike,¹³ one on more direct

12. Lars-Erik Karlsson (1973): Experiments in industrial democracy in Sweden. In *Participation and self-management*, volume 3. Institute for Social Research, Zagreb; 1973, and (1976): 'Some aspects of social conflict arising during the democratization of shop floor organization.' Paper presented at the International Conference on Participation and Self-Management on the Shop Floor, Dubrovnik, 2-6 February.

13. Edmund Dahlström et al. (1971): *LKAB och demokratin: rapport om en strejk och ett forskningsprojekt*. Wahlström and Widstrand, Halmstad.

participation on the shop floor);¹⁴ a 'handbook' on industrial democracy based on shop floor experiences;¹⁵ and a paper on participation at the 'political' and 'socio-technical' levels.¹⁶

The *experiments* surveyed and reported have roughly the following features in common: they generally started with some kind of change (democratization) at shop floor level, and they started within the framework of an ideology of common interest and cooperation between workers and management (manifested in 'local joint steering committees' to which the 'neutral' researchers were to report their findings). The *surveys and reports* analysed have in common a more or less pronounced 'conflict perspective' on the relationships in working life. From a 'conflict perspective' restrictions related to power, resources and struggle are emphasized, whereas from a 'harmony perspective' restrictions having to do with communication, information, attitude change, capacity of researchers, etc., would be seen as central.

More 'modern' structures and ideologies tend to integrate and pacify the workers by concealing basic conflicts of interest behind a 'progressive surface' (decentralization, social responsibility, regarding conflicts as resources for management, etc.).

Workers and the trade union movement are seen as the social force that has to be developed and strengthened in order to further democracy in working life. On the institutional level of analysis the possibilities for forceful *local union* action in this direction are determined by *resources* such as:

- activity and mobilization of members (meetings, studies, etc.);
- organization, inner democracy, relations with members;
- a developed perspective (ideology, theory, methods) in line with workers' interests;
- access to information, expertise and computers, and problem-solving capacity;
- support from central trade union sources;

14. Jan Kronlund et al. (1973: *Demokrati utan makt, LKAB efter strejken*, Prisma, Lund.

15. Olle Hammerström (1974): *Handbok i företagsdemokrati för löntagare*. Prisma, Lund.

16. Bengt Abrahamsson (1975b).

- union independence from the enterprise, coordination of all relations with management, and solidarity amongst workers themselves.

The development and use of these resources is *restricted* by the conditions *at plant level* in industry:

- a wage method such as individual piecework hampers solidarity;
- structures and ideologies (reinforcing each other) of organization, planning and control (of the ‘old authoritarian’ kind) tend to make workers passive and to ‘atomize’ the collective (on the other hand they may make the conflict of interest more apparent and union independence easier);
- geographical dispersion, shift working and cultural and language differences all hamper mobilization and the development of a well-functioning union with active members, good knowledge and a developed perspective;
- a high degree of orientation towards machines in the job situation hampers communication and the development of cooperation and solidarity among workers (technology seems to be a restriction to ‘sociotechnical participation’ on the shop floor level but not to more representative forms in boards of directors, etc.);
- where employees are integrated into the enterprise (because of their personal careers, education and dominating management perspective) which leads to a split with the workers’ collective (‘worker’ is used here and above in a broad sense);
- different forms of direct cooperation or participation, not coordinated by the union, between small work teams and management may also destroy solidarity within the worker’s collective (this may also happen on a higher level: a whole local union may be integrated into an enterprise and split off from the broader trade union movement): this kind of ‘managed participation’ (Roos op. cit.) is the result of ‘modern, dynamic management’.

There are also restrictions of what may be called a *political* kind:

- state intervention and political control differs between state owned and private enterprises – political support has, for example, to some extent facilitated democratization experiments in state-owned enterprises;
- laws regulating negotiations and the use of sanctions.

Other structural restrictions are given by:

- the market situation of the enterprise (labour, products); and finally by:
- the class structure, the relationship of production and productive forces in capitalist society.

On this last point an important theoretical contribution may be made to the analysis of democratization. I have in mind Marxian theories of division of labour pointing at the ongoing degradation of work and the separation of conception and execution.

Some specific 'knowledge restrictions' in the experiments have to do with the difficult work conditions for a supposedly 'neutral' researcher in an organizational conflict situation, such as a private capitalistic firm, often with a management and capital-owner ideological dominance. Either he works 'neutrally' within the dominating 'harmony perspective' or he works from a 'conflict perspective' in the interest of, and together with, the workers and their organizations – with a high probability of being defined, as seen from the dominating perspective, as partial, political, etc.¹⁷

4. The state of Demos field projects by Autumn 1976

Most of the first year of work has gone either to developing relationships with labour unions at different levels and with other

17. On 'the limits to democratic planning' see Sandberg (1976) where four types of restrictions are discussed: theory of science (knowledge about the future), techniques of planning (methodology and organization), power and strategies of preservation and change, and societal limits and models of democratic planning.

research groups or to developing the interdisciplinary Demos project group itself. We have, among other things, made contact with national labour headquarters (LO), trade unions and their local branches concerning possible projects. We have further started theoretical work, gathered experiences from earlier industrial democracy projects, and developed some educational material. Three field projects have begun and will be reported on later. The importance of developing local work groups in several plants in cooperation with local union branches (clubs) is made clear in the following excerpt from our application for continued research:

We have visited some twenty plants and met with the local union club in each. The visits were followed up in several steps so that in the end we could identify specific clubs with which we would cooperate in developing work groups around a specific problem. We selected especially clubs where there was a close connection between a scientifically interesting problem and a problem of real working interest to the club. As of Autumn 1976, work groups have started in three plants (a newspaper, a large department store, and a repair shop for machinery), and preparation for establishing a fourth is in progress (in a steel plant).

The work groups, after a period of preparation in cooperation with the club leaders, were created through voluntary registration at general union meetings. Our most pressing difficulty so far has been to channel all practical questions concerning a work group's activity through the formal agreement channels between the trade union and the plant managers. Some examples of such problems are:

- uncertainty whether meetings are to be held during working hours or free time;
- lack of replacements for those workers participating in meetings;
- questions about the researchers' right to be in the plant;
- researchers and work groups having insufficient access to information.

The groups are at present analysing their existing work situation. This must be done regardless of the problem area selected for further analysis and change. Among other things, they are clarifying what is good and what is bad in their respective, concrete work

situations. Two of the groups have developed lists of demands covering different areas such as physical, psychological and social factors in the work environment and questions regarding influence. These lists of demands will be a core part of the systematic assessments which the work groups are planning concerning long-range changes of technology and organization within each plant.

These assessments are thus based on independent union development of knowledge (investigations) as a basis for *negotiations* with management. Some development of union investigational procedures, including advanced studies in cooperation with experts and researchers as well as broad discussions among all members, will probably be one of the main contributions of the Demos project.

25. The worker-union-management interface in workplace changes: A case study on problems of participation

Louise Lovelady *

Many organizations seeking to introduce changes acknowledge the need for involvement in the change process by those who are to be affected. However, despite this stress on involvement, there has so far been little attempt to fit ideas about the processes of change, using more participative methods of decision-taking, into the normal union-management negotiation and consultation structure. The long-established system of representation by trade unions in the U.K. and of employees' representatives at the site level, elected through the trade unions, surely cannot be ignored. Nor on the whole would most managements wish to ignore the representative system, but to build and improve on it. It is therefore surprising that in many accounts of planned change in organizations, particularly of job enrichment experiments, no mention of union representation or trade union influence is made. This case study aims to rectify this omission.

The case study

The changes that were made took place in one factory of a large organization. A brief outline of the major characteristics of the organization follows. The organization is:

1. A large public company with an historical background of family ownership – approximate numbers employed are 33,000;
2. Financially very sound, with conservative accounting policies;

* Lecturer in Personnel Management, Department of Business Administration, University of Salford.

3. A multi-plant concern, U.K. based, and organized into five manufacturing divisions based on product ranges;
4. A near monopoly holder of one product market in the U.K. accounts for a majority (but decreasing) share of its sales revenue;
5. Fairly strongly centralized, including personnel policies and company negotiations.

The description which follows traces events occurring within one of its affiliate companies over a three-year period from 1970 to 1973. As this project was part of a much larger programme of development within the organization it should be viewed as an example only, one about which reliable information is available. The data contained in the case study was gathered by several means and in a number of forms: by direct observation by the writer, recorded at the time; by recorded interviews with the participants; and through written factual and numerical data collected and recorded by the project team. Wherever possible the data was quantified in some form. The most noticeable gap in the information is in terms of union members' interactions occurring outside the plant, e.g. branch meetings which were not attended by the writer and were reported by hearsay.

Union-company relationships

The company negotiated overall with some eight or more unions covering different categories of employees. These ranged over tradesmen's groups: electricians, plumbers, fitters, and so on; and machine operators, general labourers, technicians, office staff and transport drivers. General conditions of pay and service are negotiated centrally with each union, but there is flexibility left for local negotiation at site level. In much the same way, procedures for dealing with, for example, grievances and redundancy are also centrally negotiated, their implementation being left to the site level. The company has a long history of good union-management relationships, rarely marred by disputes. However, in the period under study, it was undergoing considerable change in its market and

its market share, in its product lines and manufacturing techniques. Size was a further influencing factor having moved the organization beyond family control. The recognized negotiating union (GMWU) in the case study is the General and Municipal Workers' Union.

A programme of planned change

As a result of the company's recognition of problem areas within its operations, and based on information obtained from a full-scale survey of one plant, it was decided to introduce a programme of planned change in the organization. This programme began with projects in five trial sites one of which is featured in the case study. The methods of the programme grew directly out of certain views about the company's operations:

- that more flexibility and adaptability were required in the organization if it was to survive and grow;
- that such changes as were required would only be of long-term value and acceptability if they were 'owned' by the people, managers, supervisors and work force, who had to operate them;
- that such 'ownership' could be gained by involving people in the change process, and allowing them to influence it;
- that this involvement could be viewed as learning about the *process* of change and might thus lead to change continuing where necessary.

Finally it was felt that if changes through methods of greater participation were to be successful then analytical tools were required, to enable managers in particular to understand their operations via a common framework. It was decided to adopt as a framework for the analysis of situations the concept of an organization as an open sociotechnical system. This framework seemed to match up with the views already stated and brought with it consequent implications for methods. It placed a stress on collecting information about all parts of the system, technical, financial *and social*. So methods had to be found for obtaining the views and suggestions of employees. Furthermore, it was acknowledged that all levels, managers in-

cluded, would need time and encouragement to learn suitable ways of involving employees in changes.

From the original starting point of the survey, it was judged that extra resources would be necessary to assist line management in the project work. Accordingly a centralized team was formed by drawing employees of different disciplines, for example, engineering, accountancy, management services, training, from different locations in the organization. This team was known as the Organization Development team. The team members were trained in the ideas of organizations as open sociotechnical systems; in methods of analysis; and in data collection and attitude surveys. This training was accomplished with the help of two resident academics who were assigned full time to the O.D. team on a consultancy basis.

The role of the individual team member was to be assigned to one product site as a 'change agent'. In this role, he was to be a trained data collector; a project team adviser, and a prod when progress was slow. In particular he was to concern himself with the methods being used, the involvement of the project team, and so on; in fact to be the 'process consultant'.

Description of the factory site and project area

The factory site

Some brief points are worth making about the characteristics of the site, a manufacturing works, at the start of the project in November 1970. The factory employed approximately 750 people and is geographically isolated from other plants of the company. It is engaged in the manufacture of optical and ophthalmic glass. Technically, the processes used are advanced and complex and are therefore unstable, i.e. the process can go 'off-standard', due to a large number of interrelated variables, which are not yet thoroughly understood. This level of technical expertise has led to an expansion of markets, and at this period to a strong growth in the export market. Financially the operation was making a good return on capital employed in the year 1970-71. Costs, however – particularly of

labour – were rising. The labour market was extremely favourable, since there was little alternative employment available in this region.

From the industrial relations point of view the factory climate was mixed. Social relationships were numerous and cut across hierarchical levels, both inside and outside the factory, and this led to openness of communication. Despite this, over a period of three years, management had sought unsuccessfully to introduce changes. These changes were mainly technical in character, i.e. machine improvements or method changes. Every proposal had met with resistance from the trade unions and had been rejected, many of them without even reaching the trial stage. There was considerable apprehension on the part of employees about job security. As a result of this conflict, some suspicion and bias remained on both sides. Senior management had by 1970 reached the stage where they perceived this 'impasse' as irremovable unless large financial incentives were used.

At this stage, one should also examine the union structure within the factory.¹ The GMWU represented the largest group of employees, the machine operators and labourers. They had a branch based on the factory and an elected full-time branch secretary. In addition there were thirteen part-time shop stewards who represented the employees in different departments in the factory. The department chosen to start the project (details of which are given below) did not have a shop steward elected from its own ranks, but was represented jointly with the adjacent department, the Melting Department, where the steward worked.

1. The shop steward in the U.K. is the lowest level of union official or representative. He is a lay official, elected by his fellow workers to represent one workshop or section of a factory on a part-time basis. He is the first line of contact between departmental managers and supervisors and the union hierarchy. However, his tasks are often ill-defined by the unions themselves, and he suffers from problems created by his lack of expertise and the part-time nature of his job.

The next level in most union hierarchies is the branch secretary who may be a part-time or more frequently a full-time official. 'Branches' in the structure of U.K. unions may be based on one factory and cater for all the members of the particular union who work in this factory, or it may be based on a town or geographical area drawing together all the members of the particular union working in many different factories in the town. The branch secretary is frequently elected for his office, but less liable to removal.

Employees in the project area were not generally very active in union affairs and rarely attended branch meetings. At the time of selecting the project area, no special consideration was given to there being no steward from within the group; for this was not foreseen as posing any difficulties.

The project department

The area to commence activity was chosen for a variety of reasons:

- A. It was small and activity was therefore containable.
- B. The workers were seen as a recognizable and compact social group.
- C. The problems existing in the area were acknowledged by both management and men.
- D. The area had no history of local, unresolved conflict or particular bitterness in union-management relations.
- E. The performance of this department was crucial to the output of the factory as a whole.

The GMWU hierarchy recognized the advantages to them of A and D above. For these reasons, in a spirit of 'we'll wait and see', they agreed to the setting up of the project.

The project department was responsible for mixing the raw materials in small batches to supply melting tanks which ran on a continuous process. As the number of product lines was quite large and the production runs varied from five weeks to a few days, this necessitated mixing a large variety of different batches. Because product specifications were extremely precise, and the process could go 'off-specification', short notice changes in production schedules resulted.

There were ten men employed as operators in the project department, working on days and doing a variety of jobs from weighing materials on scales to filling hoppers with bagged materials. There were four categories of workers, each paid different bonuses for their jobs. The bonus schemes were related to the one paid in the main production area, though the relationship was tenuous and left the men unable to comprehend the reasons for bonus fluctuations.

The men were supervised by a foreman who reported to the departmental manager (responsible also for the next phase – the melting function).

The problems in the area, as defined, centred around a consistently high level of overtime and the costs thus incurred. Figures showed four to ten hours average overtime, per man, per week. Explorations of two-shift systems showed that these would increase costs considerably, and they would not remove a number of ancillary problems, for example that of equipment breakdown. However, market expansion put pressure on the situation, since the capacity of this area affected the capacity of the whole factory. The task objective of this project, therefore, was to examine the area and to resolve its problems as effectively as possible.

Formation of the project team

Throughout the programme, the work of change was seen as a group activity, in which a number of people had expertise to contribute. A team of eight, consisting of managers and staff, and led by the production superintendent, was finally collected. This first project was seen as having a 'process' objective, of being a learning exercise for all those involved, and therefore an investment for the future. For this reason several persons, in key roles, e.g. works accountant, were included in the project team in the hope that they would use their learning in future developments. Great stress was placed on producing understanding, e.g. of the principles of an open sociotechnical system, and on commitment from the project team. It was felt that ideas which were perceived as having been imposed would only result in a superficial veneer of commitment, i.e. 'lip service', and lead to the failure of the project. Reallocation of responsibilities in the factory enabled team members to devote 30 per cent of their time to the project. The project team included two members of the company Central Organizational Development team, one of whom was the writer, to assist in the analysis and in particular to advise on the methods to be adopted. It should be stressed that these two remained in a service or supportive role; the production superintendent was the team leader.

The inclusion of shop floor representatives in the project team was suggested at the start. Managers were very hesitant about accepting this idea; and some were strongly opposed. They argued that they were absorbing new ideas, exploring new avenues, and would be inhibited in this by the presence of shop floor representatives. The central O.D. team members felt that managers were apprehensive of being 'exposed' in front of the shop floor. They therefore accepted the need for a protected learning environment at this initial stage, in the interests of gaining managers' commitment to the project.

Project work

Data collection and analysis

Initially, great care was taken to communicate the objectives of the project to management, supervisors, shop stewards and employees in the factory. Training was given to the project team to provide them with an analytical framework in which to operate. This training went on informally and continuously during discussions on the problem of the area. At this stage the union officials' actual involvement in discussions was low, but they anticipated playing a greater part later. No pressure came from the union to participate more fully, nor any request for a more active role. However, it is difficult to assess what motives were behind the union's behaviour. The project team anticipated that the change process would pass through several overlapping stages:

- data collection and analysis;
- formulation of proposals and priorities;
- implementation;
- evaluation.

The project team embarked on the first phase of their work, which was a fact-collection exercise. There was constant encouragement not to make assumptions about events in the area, but to check them against the facts. This helped to break down prejudices. Apart

from collecting a large quantity of statistical data, interviews were carried out with employees, based on open-ended questions, with the objective of gaining the maximum information on the individual's priorities at work. This work magnified the involvement of shop floor operatives and generated considerable interest in the area as to what would come next. The interviews were perceived as a clear departure from past practice, and a concrete indication of greater participation. A number of unexpected problems and misunderstandings were exposed, for example, the priority given by men to the improvement of material handling, due to their strong dislike of breaking off mixing activities to unload loose materials manually, a tiring and monotonous job. Following the interviews, informal references were frequently made back to employees in the project area by team members. Towards the end of the data collection, the team moved into an analysis phase. The Central Organizational Development team had evolved the technique of drawing a 'model' to illustrate the major characteristics of the area and their interrelationships, and this idea was now introduced by the two O.D. team members. It was seen as one way of usefully combining statistical and behavioural information, and of grouping factors. From this work problems were identified and possible solutions were evolved.

Recognition was given to the need to put forward change proposals, which had not purely been judged on cost savings, but which would demonstrate the attention being given to the operatives' difficulties. The following list gives examples of the proposals being made:

- A. Racking of all raw materials in storage;
- B. Palletization of all supplies by the supplier;
- C. Purchase and installation of new machinery to load hoppers;
- D. Alteration of the layout of machinery particularly relative to material storage;
- E. Purchase of a new 50kg scale;
- F. Extensive changes in the deployment of labour, with a consequent review of the payment system.

The activities now entered an interesting phase. The proposals were to be put to the men for examination and alteration, a process which was expected to take some time. Frequent communication had been maintained throughout this phase, with the branch secretary and the shop steward responsible for the project department. It was understood, by all concerned that no action would go forward without the agreement of the union and men. A joint meeting of the members of the project team, project department employees and union officials was now arranged. Despite management's view that this would be the first of several explanatory discussions, the meeting rapidly developed towards a stereotype 'negotiation' meeting. The branch secretary was the spokesman and virtually the sole speaker from the shop floor which generated a response from the production superintendent on the management 'side'. The general discussion and questioning of the proposals, which had been hoped for, never occurred. Talk centred on the costings of the proposals, and the rewards likely to come to the operatives. These costings had been intended as background, and had been deliberately made available, thus freely increasing the amount of information normally given to the trade union. However, the branch secretary was persuaded that the changes must be proven before rewards could be agreed, and furthermore that it was necessary for the operatives to agree the changes before they could be implemented. It was suggested that some of the proposals should be demonstrated and the meeting reconvene later.

The project team reconsidered their strategy in the light of what had occurred and decided that a more informal approach might achieve greater involvement and understanding. Consequently one team member was nominated to start informal discussions with the men about the proposals, whilst the personnel officer continued similar discussions with the branch secretary.

Formulation of proposals

Preliminary informal discussions with the employees (usually during tea breaks) demonstrated the extent of the misunderstanding. Many of the proposals were only partly understood; some not

at all. The employees' reluctance and defensiveness was seen to stem from incomplete understanding of the content of the proposals and their effect. The project team had failed to appreciate, when they came to make their presentation, that their own understanding of the proposals was based on months of analysis and consideration, a process which had not been shared with the shop floor.

To adapt to this, the project team conceived the strategy of ranking the proposals on a criteria of acceptability to the employees. Informal discussions would then continue taking the proposals in priority order. The proposal judged to be highest priority, on this criteria, was the racking of the raw materials along with the palletization of supplies. These changes would greatly reduce material handling and minimize damage, particularly of slow-moving stocks. Other proposals were then ranked in descending order.

Over a period of many weeks the proposals were discussed, trials were run, amendments were suggested, until eventually the employees became intimately involved and quite enthusiastic. As a consequence the operatives contributed in the design of a much more efficient system, adding several new changes; for example, employees made changes to the layout, resiting a number of machines and thus reducing handling and further decreasing cycle time. In due course the proposals were agreed and a programme of implementation, by stages, finalized.

Implementation of the changes

At this point the social interrelationships and their development are worth noting. Though the shop steward responsible for the project department had been invited to join all the informal discussions, he did not in fact come to all of them. Because of this, he was gradually at a disadvantage since he learned less about the proposals than the operatives. Increasingly too, as the proposals were discussed, a relationship developed between the project team members and the operatives. As agreement was reached about the form of the proposals, tacit understandings developed about the way the payment system should be changed to suit the proposed system. Though no financial sum was ever explicitly stated, there was a firm view

among the men of how output should relate to pay and hours, and this was shared by management. Throughout the period of the project the personnel officer maintained contact with the branch secretary. The branch secretary deliberately opted for a 'backseat' role and this was accepted by the management. The branch secretary maintained a 'supervision' role over the project department shop steward, whom he saw as the union official most involved in the project work.

The stage was reached when formal discussions between the union and management were needed to negotiate the sharing of the rewards. The project team recognized that this was a crucial stage on which would depend any extension of their work to other departments. Credibility would be totally lost if the employees in the project area, who had cooperated, did not receive their due 'share' of the savings. However, several other factors influenced this decision. Traditionally the payment scheme for the project area had been seen as directly related to the bonus in the main production areas. The scheme proposed would change this, and could receive opposition from the rest of the factory. The area for discussion of this kind of topic by union members was the branch meeting, dominated, as in many cases, by a small percentage of regular attenders. The project area operatives recognized that they had to put their case to the branch, if they wished the scheme to go through, so they turned out in force to the branch meeting and succeeded in gaining agreement in principle to the negotiation of a bonus which was not dependent on the main production area.

The formal negotiation between management and union officials, which followed, deviated quite considerably from tradition. Despite the information which he had, the branch secretary entered the meeting expecting to bargain in the usual way and be backed by the work force. However, much of the need for bargaining had been removed by the influence the employees had exerted at earlier stages in gaining the changes they wanted. There was considerable consensus and tacit agreement on the pay system. This left the branch secretary in a 'rubber stamping' role which was unacceptable. The negotiation itself was much shorter than usual and the scheme pro-

posed was accepted with only minor alterations. Once agreement was reached the proposals were implemented by stages, and completed within fourteen weeks except for one piece of machinery for which there was a long delivery time.

Evaluation of the project

It is not the purpose of this article to examine in detail what was gained by this project, but rather to look at some of the difficulties underlined. However, it is worth stating, in brief, that the project was seen as achieving an average daily output increase of 44 per cent per 40 hours, with the same manning.

- Wages per 40-hour week, per man, increased by about five to seven pounds sterling.
- There were more satisfactory working conditions.
- Absenteeism was reduced.
- Closer contact was established and persisted between men and management, over problems.

Of the greatest importance of all, however, was that the project was seen as a learning process for all those who participated.

Analysis and conclusions

The effectiveness of a joint programme will be the extent to which it contributes to the attainment of goals valued by *each* and *all* the subsystems. At the start of the project, this situation was not fully perceived, thus the design of the project did not cater equally for the needs of each group, but tended to consider only management and employees. Once the project was under way, many of the 'union' needs were recognized and 'course corrections' resulted. For example, the project team were keenly aware that their actions would affect the branch secretary's negotiating role and, furthermore, that he must be seen to bargain by his members to maintain his credibility. The project team in no way intended to discredit or even

lessen the power of the trade union. Considerable time and effort therefore, was spent in discussing these developments and the consequent problems, with the branch secretary to seek ways of minimizing the negative effects. More could have been done by 'building in' a role in the project for the branch secretary at the design stage (once having started increasing participation in some decision or set of decisions, thus creating new expectations, the irreversibility of this process becomes evident).

However, some measure of the success of the remedial actions which were undertaken is to be found in the fact that the trade union, management, and men all agreed at the end of this project. Moreover it was agreed that the second project should be run from the start by a joint project team consisting of representatives from management, the union and the employees concerned.

It seems therefore that in a situation where trade unions are recognized, those involved in change must acknowledge that there are three interdependant sets of interests. Each set has different goals, which must in some measure be catered for via the change programme. Only in this way can initial and continued commitment be attained.

26. Trade union involvement in retraining to develop new patterns of work organization

Giuseppe della Rocca *

1. The 'retraining course'

In 1976, at the lowest point of the economic crisis, courses of professional retraining were the subject of much discussion in Italy. The main characteristic of these courses is indicated by the headlines which have appeared in the newspapers, such as the one saying: 'To school instead of no work'. This is significant: companies have temporarily decreased their employment levels, but instead of discharging the workers, or keeping them at home, which is paid for by the 'redundancy fund' (the body which in Italy provides partial remuneration for those temporarily compelled to be inactive without being made redundant), organizations prefer to send employees to professional retraining courses (these are later referred to as 'zero hours'). Employees are retrained in skills that are seen as necessary when the company changes its methods or types of production. But in spite of the discussions generated by the subject of retraining, the number of such courses is few and the future of those that do exist is precarious, due to the economic difficulties of many Italian companies.

One of the first examples of such an initiative was in a company of about 1,000 employees, situated in the province of Milan. Some researchers of the institute have been involved in this scheme. Their role was that of conducting a training intervention for a small group of workmen. This scheme is described here, because it reveals the problems of relationships between worker training and the work organization.

* Istituto di Ricerca Intervento sui Sistemi Organizzativi [Institute of Action Research on Organizational Systems], Milan.

The company manufactures mechanical and electromechanical measuring instruments. The company has been in existence for some time and its problems are due to high factory costs which did not permit it to compete with the products of its competitors – particularly with those who have more recently entered the market. Such companies were offering products of the same quality at lower prices. The company progressively lost ground in the market, especially after the nationalization in the sixties of the electricity companies and the foundation of the ENEL (National Board for Electric Power). Electricity companies had been the most important customers for the company concerned, especially those that belonged to a financial group which partially controlled it. The preferential relations with this group have been interrupted by ENEL, and the orders are assigned from the new nationalized company by open competition. The previous lack of competitiveness in the market led to a lack of innovation in production methods, high indirect labour costs, lack of investment in machinery, poor equipment layout, and, generally, to poor internal organization.

The first important aspects of the crisis arose during 1971, but only between 1973 and 1975 was a critical point reached. The company was forced to ask for worker redundancy and this was met by opposition from the workers and the union. Both union and workers denounced the lack of planning in the company, in terms of its future technical and productive development. The labour dispute was concluded with a settlement in which the union temporarily accepted the 'redundancy fund' for about a hundred workers, while the company guaranteed full employment to the remainder until 1976. The settlement also established a basis for investment policy and company development, one feature being the development of new electromechanical measuring instruments. The workers involved in the 'zero hours' redundancy fund were to be engaged in the production of the new instruments, and in order to do this they were to attend professional retraining courses during the redundancy period. It was agreed that part of these courses should be managed directly by the union, the rest directly by the company.

Three retraining courses have been set up for the company, in-

volving 88 persons – 67 women and 21 men – and each course is subdivided into two work groups. Each group has 700 hours of tuition, 100 of which are conducted by the union. The subjects taught are electrotechnology, electrical measurement, materials technology and workshop technology practical tests. The 100 hours managed by the union are called ‘social culture’ and they are used to study subjects like information on the work contract, accident prevention and work environment, and the analysis of the management policy relating to investment and the company’s future. The first course, started in early 1976, was conducted by company technicians, while the majority of the hours of the ‘social culture’ course was used for lessons relating to the social-economic context in which the company exists. Specifically this included the productivity and the labour market situation in the area; the characteristics of the relevant industrial sector; an analysis of the employment situation, and of legislation on economic reorganization with reference to external data and international problems. Finally problems associated with the company, and particularly those nearest the workers’ own experience, were directly analysed.

A short while after the course began it met a number of problems: these were difficulties of participation, the number of people attending decreased; the interest of the participants was low or nonexistent, and the majority of the students said that they were only attending because the company forced all those present in the factory to participate.

2. An intervention in the work organization

A contribution from the institute researchers was requested from the unions for the second and third courses. At the first meeting between the shop floor committee and researchers from the institute three principal training difficulties were outlined:

1. *The lack of job-security.* Participants in the courses, in spite of assurances from management, did not feel secure enough in their jobs to envisage a future for themselves in the company. These

doubts were reinforced by the management delay in bringing in new production lines.

2. *The difficulties of learning technical subjects.* In particular the electrotechnology lessons were not understood. Many of the participants were middle-aged and had only been educated to a secondary level. Since the subjects were taught in a theoretical manner with few practical illustrations, many participants were unable to cope with the new learning.
3. *Lack of personal recognition.* The personal experiences of the participants were not taken into account, particularly in the 'social culture' periods.

These problems further aggravated the 'zero-hours' workers' problems not only in relation to management, but also in relation to other workers who remained in production roles. This helped to reinforce a negative attitude towards the training programme. Participants felt that the course was wanted by the management, but not requested by the workers; it therefore had to be passively undergone, but with little real acceptance.

In conjunction with the trade union the institute was able to draw up a programme which gave prominence to the *basic importance of the worker's role* in matters such as the organization of work. The intervention of the institute could not solve all the problems of the course. In terms of the problem of lack of work security, the course could not provide a solution. The question depended on company policy and union relations, over which the institute had no influence. Therefore the possibility of giving the participants a major motivation towards the training process through job security depended on external factors. The technical subjects (not understood by the workers) could not be integrated directly with the lessons on 'social culture'. The institute is mainly committed to allowing each individual participant to develop at his own rate, learning the skills and knowledge he feels are necessary to his work future.

The course programme which developed after discussion with the trade union, the management and the participants, underlines the following features:

- the purpose of the course is *to develop the organizational and social knowledge of the workers based on their factory experiences*, i.e. to show the individual how he features in the productive process and what his social role may be;
- the nature of the course is a ‘research course’: the goal is to help the individual diagnose the work situation through his own experiences;
- the information relating to the production processes and to be used on the course could be found from different sources:
 1. The experience of the individual workers,
 2. Knowledge contained in the formal culture of the company (procedures, set of rules, data, budgets),
 3. Knowledge possessed by the technicians,
 4. Knowledge possessed by the teachers concerning industrial work, the methodology, etc., and
 5. A last source, possessed by the shop committee, the experiences of disputes and negotiation procedures.

3. The results of the research

To describe the whole formative process and the information collected would take too long. Therefore we concentrate on the principal results obtained from the course. The chief problem of the company was seen as being the high number of products, and the low volume of production. In this case the factors determining the planning and the progress of the various products assumed a fundamental importance, more so than in other companies. Historically therefore there was the tendency for management to control these factors by the manipulation of individual piecework systems. Although an agreement between the company and the trade union exists, and the incentive part of the agreement works well, those parts of the agreement relating to the definition of processing time, the incidence of stoppages, etc., are less acceptable. Generally the workers complain about the loss of productive time and the pace of work. *The whole situation must be considered as a*

case in which the union is not able to negotiate effectively or to control standard processing times.

A method of managing times and piecework rates – completely different from the one foreseen by the company procedures – is now used by the workers in response to the situation. This new method of organizing output can be briefly summarized as follows –

- Self-evaluation of worker's own effectiveness.
- In reality workers do not respect the processing times established by the original procedures. Previously they punched in and out (which determines the opening and closing times of the work done) at the times established by the procedures themselves, and according to the effectiveness rates that have been set (never exceeding the optimal effectiveness or finishing lower than the set minimum level). But the reality is that these times are fictional; they do not relate to the flexibility requirements of the production system. Now workers decide their own real work times per product and the result of such operations has meant the accumulation of extra time by each worker.
- In the event of an operator experiencing delays in his own work – delays which are not deemed to be tolerable by the work group – the worker may apply for reciprocal help from his colleagues.
- Production workers also now carry out machine maintenance not previously done by them. The formal management organization of the company sees to it that the operations of machine preparation and maintenance are executed by a restricted group of workers; in fact, however some assembly operators intervene in operations of this type, in order to save time.
- This discrepancy between the formal organization and the real organization of production *is only possible thanks to the supervisors* and their willingness to cooperate. They respond to the group and accept the group decisions which are made. On the other hand, the supervisors use this system, which is not formally recognized, as it increases production and as it can be an instrument of control over the work force in their departments – with the additional possibility that the supervisors can according to

the rules of the formal organization, choose to punish or to intervene in cases where the procedures are not being respected. This ultimate threat therefore still exists and still constitutes a system of control remaining from the traditional hierarchical system.

4. The importance of the worker's role in the organization

This system of worker management with regard to the production process is not without importance. *This form of organization is considered by the author as the only possible form of management of output in an establishment with such technical conditions and organizational problems.* Without this form of worker management the entire system of company programming would collapse and fall. As such it can be regarded as a permanent organizational form essential to the production process.

This type of organization achieves productive goals as a result of cooperative work which is used by the worker himself, not directly to achieve the output but in order to fulfil his social needs, to combat fatigue and boredom and to have some control over the unforeseen variables which intervene in the production process. In fact, the workers would like to organize the management of the production process in a different manner by:

- limiting time loss as much as possible by themselves determining a standard of effectiveness on which they can earn piecework rates;
- regulating the production flow through the use of 'buffer' hours, which make allowances for differing abilities and individual speeds. The ability and speed of a particularly gifted person cannot in this way damage people who operate at a lower level of output.
- agreeing to permanent stabilization of earnings, so that monthly variations in pay are avoided and the uncertainty of piecework earnings can also be dealt with.

The new method of self-management and control constitutes an alternative to the existing formal organization of the enterprise. It responds by providing for the specific and legitimate interests of the workers in the production process. This method also therefore develops, in the workers, capacities and skills not asked for by the formal organization of the enterprise, such as capacities to plan in an adequate manner according to the productive needs of the company, or to manage their own materials, or to intervene in maintenance operations and preparation, or in quality control. But these aspects of 'professionalism' are not recognized by the company, nor, paradoxically, by the workers. The reason is that the workers' own abilities for planning and managing their own work systems are not seen by the workers themselves as a real alternative to the formal organization of the company; they are only considered as an adjustment to the already existing organizational model of the company.

One of the conclusions of the 'research course' was again to bring out some contradictions: the workers' own organization of work realizes *de facto* an organization of an alternative type, but it does not substitute a new model for the traditional one. Instead, the type of work analysed during the course can eliminate bureaucratic practices and explain complex union procedures, both of which many times produce inadequate communication, within the organization.

At present, therefore, the more informal method of work organization described above still constitutes a subordinate method of working within the more dominant formal organizational model. However, the newer work system can be seen to constitute a basis of departure from the normally impoverished work situation, in which only minimal knowledge and skills are valued, to a situation in which the entire factory system can satisfy both the psychological and physical needs of employees and, at the same time, relieve the need for traditional bureaucratic and procedural mechanisms within the organization – and thus open the way for higher levels of productivity.

SECTION SEVEN

OFF-SITE TRAINING PROGRAMMES

27. Participative redesign projects in Norway, summarizing the first five years of a strategy to democratize the design process in work organization

Per H. Engelstad and Lars A. Ødegaard*

1. Introduction

This paper focuses on a series of one-year projects in participative redesign of work and work organizations in Norway. The projects began as a natural consequence of the need for a diffusion strategy to follow up the initial 'demonstration experiments' in Phase B of the earlier Industrial Democracy Programme. The distinguishing features of the new Norwegian strategy with respect to the characteristics of the projects have been:

- a focus on *redesign* of existing bureaucratic organizational structures;
- an emphasis on those conditions which facilitate change processes in the companies based on *joint learning* among workers, managers and others;
- a demand for participating companies to *commit* themselves to a one-year programme which includes three consecutive workshops and which require substantial 'homework' and use of own resources during the intermediate periods.
- participating companies act as *nodes in a social network* for exchange of ideas and further diffusion in terms of recruitment of new companies.

In what follows we shall try to give a picture of our experiences in this Norwegian project, its process structure, its strategy and its results as these have evolved during the last five years.

* Work Research Unit, Oslo. This summary relies in part on a more extensive monograph as yet available only in Norwegian.

2. The structure of the projects

Annual projects in participative redesign in Norway have been arranged every year since 1972. With six production units from different companies participating in each of the one-year programmes, we have by now covered 30 units from 25 companies – three companies have returned with different units twice, and one company three times. Among the participant units 27 have been from the industrial sector (15 in mass production, 7 in process industries, and 5 in batch production), and in the last two years three from the service sector (cleaning, banking, and the association of professional engineers).

A project sequence (developed in 1976) consists of a selection procedure (two to four months), three off-site workshops (three days each) and three intermediate periods of change activities back in the companies (four to five months).

A. Selection procedure: to control minimum start-up requirements

Selection procedure is based on open discussion with the companies involved. Most companies seem to be recruited through an informal network of people who know about these activities beforehand. All applicants are visited by one or two representatives of the Work Research Unit staff. In the selection process we try to balance the company's own free choice to participate against certain minimum criteria. These are:

- that the company is prepared to allocate the necessary resources in terms of time and personnel and that there is a minimum of general understanding and agreement about the *general direction* in which changes ought to take place (i.e. *away* from a 'one man, one job' bureaucratic form of organization);
- that the company has chosen for the project an *appropriate sociotechnical unit*, with reasonable union-management relations, and where management and rank and file are prepared to work with redesign of the work organization with some outside assistance;

- that the selection of participants to the first workshop gives a reasonable *coverage of the key positions* in the selected unit with respect to the present definition of the problem.

This phase ends when a joint agreement is reached between the parties in the company on whether or not to participate.

Consistent with our emphasis on moving away from 'one man, one job' as a basic building block in organization design, we emphasize that participants in the projects are not individuals, but companies or departments. These are represented by four to seven people from different organization 'levels' who together compose a 'vertical slice' of the organization of the unit to be redesigned. The composition of the workshop group, for example, may include two or three operators, including the local shop steward, one or two foremen, the department manager, and maybe one or two staff people (e.g. production, planning or personnel). The role of participants is to act as resource persons, not representatives of special interests, in a joint learning process which takes place in the workshops as well as in the companies during the intermediate periods. Since 1972 the average size of the group has increased gradually from three to six members, but is not likely to increase further as long as we keep the number of companies at six, because a total group of forty to fifty persons including workshop staff appears to be the upper limit of a well-functioning workshop. More than this number makes for unwieldy plenary sessions (work at the workshop occurs in small groups, combinations of small groups, and general plenary sessions).

B. First workshop: introduction to organizational redesign principles

We start by letting pairs of companies interview each other, and present the resulting picture of the other company in a subsequent plenary session. The first evening is spent in informal groups. The next morning the staff present a conceptual tool-kit which enables people to analyse the design of jobs and degree of autonomy in parts of their own organization.¹ This allows the company groups to start looking for other ways of organizing the work.

After this exercise in company groups, a short lecture is given on the distinction between finding structural solutions and raising issues connected with initiating a democratic participative change *process* 'back home'. The company groups are then left to themselves to work on an action programme for making concrete changes in their back-home situations. Often a group from one company has a joint working session with another group to clarify possible obstacles and dependencies in the overall structure of their companies. These action programmes are presented in a concluding plenary session. Common problems and issues are identified and discussed.

In short, the results of the first workshop are that with minimum dependence on 'experts' each group has:

1. Practical concepts for analyzing and reorganizing how work is designed in their own organization;
2. Concrete plans on what changes they themselves would like to try;
3. Some experience in working together on redesigning their organization.

C. Intermediate periods: working with redesign problems at home

In the intermediate periods company groups work in their own organization to test out the suggested changes. Gradually an internal social network of managers and workers is likely to build up who are prepared to try out autonomous forms of work organization.

D. Second and third workshops: Inter-company sharing of experience

Each of these three-day workshops build on the back-home experience of the individual company groups which are summarized first in a general plenary meeting and then further analysed in a series of 'mini-plenary' sessions. Typically, experiences from the

1. Some of the tool-kit material is described by Emery and Emery (1975).

intermediate periods have surfaced common policy problems which can lead to special interest groups being created during the workshop and/or the introduction of additional concepts or more general theory by staff members. At least one day, however, is usually allocated to meetings of each company group alone to analyse its own situation and plan next steps.

The above structure of the seminar is based on our assumption and experience that companies usually require a support structure beyond what can be offered by a single workshop or a group of experts. The three consecutive workshops, each as far as possible adapted to the particular developmental processes and problems in each of the participating units, constitute key building blocks in this support structure. It should be noted, however, that mutual support activities usually develop between the participating companies and the workshop staff. This informal network tends to operate also in the periods between workshops. Examples of this are mutual plant visits and meetings, staff assistance with workshops back in the home organization, and study tours to experiments in organizations not participating in the present workshop.

3. Two strategies of change

Since the redesign projects started in 1972, activities and relationships among participants have changed both in terms of form and of content. This suggests that a process of more or less continuous learning has taken place over the past five years. Hence by looking back it is possible to see that even though some of the external characteristics have not been changed, the 1976 project, described earlier, is nevertheless qualitatively different from its origins in 1972. Today we are able to identify this change in quality in terms of two different theoretical models on which the change strategy has been based. The original strategy was essentially based on:

1. The identification of alternative *sociotechnical solutions* that would better fit the given circumstances; and

2. Specification of those *aspects of the system* or conditions that had to be changed in order to achieve a new, more satisfactory socio-technical solution.

The apparent weakness of this approach is that by initially requiring a *total* system analysis it led to strong dependency on 'theoretical insight', expert knowledge and allocation of centrally controlled resources. This implies that initiative, resources and solutions tend to move from the centre to the periphery or from the top to the bottom. People thus tended to become further alienated because they could not see how their own problems and local knowledge and resources usefully fit into the larger setting. The unfortunate consequence was that a few resourceful people (including the workshop staff) became more active while many others stayed passive. This was exactly the opposite of what we are aiming at. We did not create a democratic *process* that would change bureaucratic work organizations towards more 'democratic' alternatives. This strategy, like so many others, became self-defeating as a 'grassroot activator' because it did not go beyond the traditional schemes of centrally managed welfare for the people. The alternative strategy of change which has gradually developed is based on:

1. The identification and agreement on the general *direction of change*; and
2. Creating *broad involvement* by allowing people to identify and work to solve their own problems.

Our experience is that it has been possible both to mobilize existing human resources and to develop new ones in terms of both skills and self-confidence. The practical implications of this change in strategy can be observed in terms of changes in activities and personal relations both within the workshops and in the companies during the intermediate periods. One might say that the 'change organization' and the behaviour of those who are traditionally considered to be the 'change agents' (i.e. the staff in the workshops and the group of workshop participants in each of the companies) have

been brought in harmony with the more democratic work organizations and interpersonal relations which they are supposed to pursue.

In the workshop setting work in the company groups has become more productive because the input of 'theory' and 'right' solutions from the staff has been reduced and the participants have been encouraged to concentrate more on their own problems and ideas. Thus the previously overestimated potential contribution of the staff has been substantially reduced compared to the participants' own contributions.² In this way the obstacles of the *status difference* between workshop staff and other seminar members (real or imagined) have been reduced so that more productive problem-solving situations based on complementary contributions of staff and participants have evolved. Work sessions become more productive when the staff try to communicate some limited experiences from and understanding of the *process aspect* of organizational change rather than suggest alternative sociotechnical solutions.

Secondly, greater emphasis has been put on developing inter-company cooperation. Each company group is seen as a node in a 'network organization' where each group can learn from each other. In practice this means encouraging company groups which feel that they have certain problems in common, or can learn from each other, to have work sessions together. This can be done either for all or for some of the group members.³

Thirdly, there has also been change within the staff group itself, between those responsible for the workshop as a whole (staff leaders) and those assigned as consultants to a particular company. These differences in tasks lead to status differences in the staff which were gradually reduced as the less experienced 'consultants' gradually got the necessary training and skills.

2. Concretely, for example in the early years it was customary to have a staff of nine to ten, but under the new model only half or a third as many seem to be needed.

3. The potency of this method of partly directed 'flocking' as a means of effective learning was convincingly brought home to one of the authors when he, on a United Nations mission in Israel (November 1976), arranged a similar workshop comprised of companies from kibbutzim trade union-owned, and privately-owned companies. Despite these ownership differences, and differences in size and technology, groups from each of these different workplaces seemed to learn as much from each other as from the visiting 'experts'.

By 1976, tasks were reallocated and the staff was reduced from nine to six members. Before, each company group had its own permanent consultant and called in one of the staff leaders for special problems. Today the six staff members operate more as a team of equals. Each staff member relates to at least two different company groups, and these may shift during the course of a workshop or project. It should be noted that since these last changes only apply to the current (1976/77) workshop in the series of five, they do not explain the improvement of results reported below for years 3 and 4 as compared to years 1 and 2 (see Table 1 below). The evidence so far from 1976/77 firmly suggests that changes in the staff are a step in the right direction.

4. Changes 'back home'

Detailed knowledge of how well the company groups play their role as change agents back home in their own companies is, of course, more difficult to obtain than knowledge of what happens during the workshops. That the role of a group and its relation to those people at home who are affected by the redesign project will change, if and when the project gets off the ground, has already been indicated and is taken for granted. What concerns us here is how these patterns of collaboration between the workshop participants and the other non-participants in each company (department or unit) have become more able jointly to change their work organization. The general hypothesis is that the changes in the strategy model and workshop design previously described have had a positive effect also on the way in which the workshop participants act as change agents back home.

The evidence suggests that there has in fact been a substantial increase in the percentage of 'successful' projects as measured by the rate of degree of progress in or directly related to the 'experimental' unit during or subsequent to the project period. These results (which are summarized in the next section) seem to depend on how a company group organizes and manages the change process. The

likelihood of success increases if the members of the workshop group:

- spend time in encouraging their colleagues to put their heads together and have a closer look at their own problems, rather than spend time in isolation discussing among themselves the problems of their department
- provide some input in terms of *analytical tools* (e.g. psychological job requirements and so on), information, and other resources that make it easier for people to solve their own problems, rather than provide them with ‘bright’ ready-made solutions or a ‘master plan’ brought home from the workshop (or worked out in isolation);
- obtain the authority and financial resources from management (and union) to set up an *institutional arrangement* which allows *all* the employees in the department and other relevant resource persons to participate in search activities under protected conditions like those provided by the workshops – hence it is no longer unusual for the company to set up their own off-site ‘mini-workshop’ either before the second or before the third regular workshop session.

5. Results

We have tried to measure what has been achieved in the companies which participated each year. By relating these results to the new change strategy that developed after the first two years we believe we are about to come to terms with some of the problems that we have struggled with since the Industrial Democracy Programme moved from setting up demonstration experiments into the phase of diffusing the new ideas on a broad scale.

From Table 1 it is quite evident that the second strategy characterized by initial agreement on direction of change and involvement of ‘the many’ in the process of identifying, concretizing and solving their own problems has been more successful than the first one.

Table 1. Participating companies related to progress in home situation and the two different types of strategies of change.

| | 1972-1974: The projects strategy based on sociotechnical solutions and the conditions for implementing them | 1974-1976: The projects strategy based on agreement on direction of change and creating involvement by allowing people to work with their own work situation problems the way they see them |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Companies not getting off the ground in the home situation | 5 | 1 |
| Companies getting off the ground in the home situation and continuing with a systematic redesign process | 2 | 5 |
| Companies difficult to classify according to the above two categories | 1 | 3 |

* The number of companies in this table do not correspond to those given at the beginning of this paper because (1) some of the companies did not use the project as a strategy of starting a process, but merely as 'discussion-meetings' for already on-going redesign projects of different kinds; and (2) because some of the companies have participated in more than one project, but with different production units. In the table they are, however, scored as one company.

The two most interesting groups in the table are the two 5's. Behind this figure, both in period 1972-1974 and in the period 1974-1976, we find companies that employ unskilled workers in highly specialized jobs. The figures and the other experiences reported from the Norwegian projects in participative redesign suggest the following conclusions:

1. The high percentage of successful projects in 1974-1976 indicates that the second strategy of participative redesign is an acceptable one in terms of getting the redesign processes off the ground within part systems of a company with an input of resources external to the company much lower than was necessary during the demonstration phase. On the other hand participation in a single workshop does not yet appear to give companies the necessary support under the present Norwegian conditions.

2. The high percentage of successes among companies with a *below average* level of 'worker resources' defined as a combination of skills, social cohesion and union strength is of particular interest. Gulowsen (1975) in a retrospective analysis of industrial democracy projects in fourteen Norwegian companies pointed out that it had not been possible to get projects off the ground in those companies where the shop floor resources were particularly weak and, hence, where changes were most needed. From this standpoint our experiences from participative redesign suggest that we are making progress even under more difficult circumstances. Admittedly the companies selected for participation in the projects are not at the bottom of the scale of 'worker resources', but that was also true of very few of the cases reported by Gulowsen.
3. With respect to the diffusion process within a company, it becomes more and more certain that each unit to some extent has to 'start on its own premises', since new units within the same company (departments) or concerns (factories) are in general not 'psychologically' prepared to learn from a pioneering neighbour *unless* they feel certain that *they* have something to contribute *themselves* in exchange. Some larger companies have therefore adopted the strategy of participating in more than one project, with different departments or factories.

With respect to the diffusion process within industrial branches or the industrial or other sectors of the economy we can only hope that the general idea of evolving 'organizational networks where individual companies (or other units) form the nodes' will facilitate processes of direct communication and mutual learning as well as recruitment of new project participants.

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28. Participation in organization redesign: A five company Scottish workshop and later review meeting

Mary Weir*

*'A city must draw upon the interests and energies of its people if
it is truly to flourish'*

Originally written of the city of Glasgow, this motto could equally be said of the Scottish economy as a whole and the companies within it. The historical context of Scottish industry has been one of the decline of the traditional structure of coalmining, shipbuilding, heavy engineering and textiles. In their place has come an inflow of new industries concerned with the manufacture of electric and electronic equipment, vehicles and other light engineering. While concepts of job redesign were rather difficult to apply in the older industries, the conditions and policies are more favourable in many of the newer companies. Indeed for some of them, there were already helpful examples within their own organizations of the benefits of involving people in improving their own jobs and creating autonomously functioning work groups.

One of the problems of organizational redesign is to diffuse ideas and lessons from the examples to the generality. If this is not achieved, the examples become encapsulated and isolated within the wider traditional structure, and the benefits remain useful but limited. Yet the effort required in introducing new ideas and getting them established is often considerable, and it may only be possible to diffuse the ideas by making use of the lessons which have been learned initially, to speed up the process of diffusion. But for people to feel involved and committed to changes in their work, it is essential that they should participate in the planning and design of such

* Research Fellow, University of Glasgow, U.K.

changes. Merely following ideas which have been successful in other places and different cultures is unlikely to be very satisfactory. The basic assumption underlying the workshop to be described is that the most adequate and effective designs come from those whose jobs are being discussed. It is only from people pooling their different perspectives and detailed knowledge that a comprehensive and relatively stable design may be created. More than that, it is only when the people involved work out their own designs that the necessary motivation, responsibility and commitment to effective implementation is present. Of course, it is far easier to create realistic plans if expert guidance is available, together with ready discussions and feedback from others working in similar conditions, in particular from a group of companies in the same locality.

An excellent model for coping with these problems was found in the Participative Design Workshops, originally run by Fred and Merrelyn Emery in Australia, and since then followed in Norway, India, and the U.S. Although this type of workshop had not previously been run in the U.K., it seemed that the model would be very appropriate for the situation in Scotland. From a survey done by the author it was clear that several companies were already interested in redesigning jobs, while some had successful schemes in operation and wanted to diffuse them to other areas within their organizations. For them the workshop could provide an ideal learning situation, to crystallize their thoughts and current experience and provide a stimulus for future efforts. At the same time, the workshop staff could give help and guidance without themselves becoming the 'change agents' for the companies. While assistance would be readily available when plans drawn up at the workshop were being implemented, as far as possible the companies were encouraged to be self-sufficient and gain confidence in their own expertise, rather than relying on that of the researchers. In this way, the workshop would enhance the principle of democracy at work and create a learning process which could become self-sustaining within these companies.

Setting up the Scottish workshop

Assistance was sought from the Work Research Unit of the Department of Employment, and they agreed to sponsor the workshop as well as enable two members of the unit, Margaret Butteriss and Archie MacKenzie, to take part as workshop staff. Einar Thorsrud of the Work Research Institute in Oslo was the main speaker and his wide experience as chairman of the International Council for the Quality of Working Life was invaluable. Apart from the author, the other workshop staff were David Weir of Glasgow University and Alex Smith of the Industrial Society, who brought extensive knowledge of organizational behaviour and the local economic and cultural conditions in Scotland.

The concept of the participative design workshop was discussed with several companies which the survey had suggested would be interested in extending their initiative in improving work. Indeed, five companies welcomed the idea as being particularly useful and relevant for them and they agreed to support the workshop. The companies concerned were from widely differing industries and ranged from being very large and well-established to very small, 'green field' sites. Those taking a part came from companies as follows:

Scottish & Newcastle Breweries Ltd: a large Edinburgh-based brewery which had become very aware of the need to involve people more in their work and to encourage a more democratic style of management;

Philips Ltd: in the Hamilton plant, the company were already well known for the reorganization of the fan heater line to unit assembly, and now wishing to extend these ideas to other areas of the plant;

Ladybird Ltd: part of the large Glasgow textile group, Coats Paton Ltd., this company produces children's clothing and contract runs of jeans and dresses;

Ailsa Trucks Ltd: had recently been taken over from its Scottish founder by Volvo Ltd. to manufacture double-decker buses and act as the U.K. concessionaire for Volvo lorries.

Tannoy Products Ltd: operating for six months at a new factory producing hi-fi loudspeakers and public address systems, the company had become part of an American company, Harman International, which was deeply involved in improving work at its factories in the U.S. (e.g. Bolivar).

Each of these companies agreed to identify an area which they felt would benefit from work reorganization. Then they nominated a team of people associated with that area to attend the workshop. One of the most important aspects of the workshop model is that each company team represented a 'vertical slice' of people through the organization. Typically, the teams included at least the production manager, a supervisor, a shop floor operator and a shop steward. In this way the problems were raised and considered from many different perspectives, which greatly contributed to the effectiveness of the learning process. The workshop also avoided a frequent complaint of people who are 'sent on a course', that the case studies seem unreal and sketchy. In fact, because teams were working on reorganizing their own departments, they often saw too much complexity, and here they were helped by the other company teams to highlight the important points.

The framework of the workshop

Following a preliminary one-day meeting with representatives from all the companies, several visits were made by the workshop staff to help the teams identify the problem area they wanted to consider. The first session of the workshop at Peebles Hyde Hotel was then spent sharing these initial thoughts with the other participants and outlining the background of the companies. The theoretical framework for the workshop was given by Einar Thorsrud, who explained how the vicious circle of fragmented jobs and narrow specialization could lead to the increasing distrust and alienation so clearly seen in many of the current problems of industrialized societies. To break out of this circle, organizations must be restruc-

tured to encourage self-reinforcing learning and development and allow much greater participation and democracy at work.

Another valuable perspective was provided by James Milne, the General Secretary of the Scottish Trades Union Congress, who gave a guest lecture on the trade union view of the future of participation in industry, and especially on the possibility of legislation in the U.K.

The company teams undertook two main exercises during the workshop, with the help of the staff. Firstly, they carefully analysed the jobs they were considering, using the six criteria of job design derived from the Norwegian studies. On the basis of this analysis, each team outlined a preliminary plan for redesigning these jobs, which was then discussed in detail with one of the other company teams. From this two-way feedback session, a number of common issues and themes were highlighted, and some time was spent in considering these. Then the teams went on to the main task of setting out their complete plan for redesigning the work organization within their department. Senior managers from each of the companies were invited to attend the final session of the workshop, at which team presented the results of its discussions and the objectives which they hoped to achieve on returning to the company.

Problems and plans: the five case studies

A processual outline of the plans which each team made for redesigning its work organization would be fascinating, in showing how people and ideas developed over the three-and-a-half days. But such a description would most likely confuse those not fortunate enough to participate. Instead, a summary of each case study will provide a clearer, if less interesting, outline of their progress.

Scottish and Newcastle Breweries Ltd.

The area with which the company team were concerned was the Brewery's kegging plant, and in particular the racking lines. The plant operates on the basis of three separate but closely linked departments (see Figure 1).

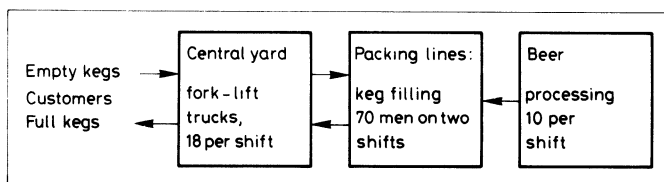


Figure 1. Production organization in the Scottish and Newcastle Breweries Ltd. kegging plant.

Autonomous working groups had already been established within the beer processing plant and the central yard, but the racking lines had been rather left out, and it was felt that the workshop provided an opportunity to consider this area more fully. *The problems* in this area were seen as:

Poor communications. All 70 men were briefed as one group.

Poor machine layout. The lines are well spread out and therefore limit the opportunities for contact between the men. Working conditions vary considerably on the lines, but the worst are noisy and suffer from extremes of temperature.

Unskilled menial tasks. The five tasks required are very simple: 'de-palletizer' – removing empty kegs from pallets; 'decoder' – removing old date codes from kegs; 'weighman' – topping up light kegs; 'tapper' – ensuring the extractor is correctly fitted; and 'coder' – putting new date code on kegs.

The plans for improving the work organization on the kegging lines involved:

- establishing autonomous working groups, similar to those already operating in the central yard and beer processing plant;
- establishing the post of quality control man for each line per shift;
- investigating problems in machine location, e.g. de-palletizing;
- redesign of the jobs of the supervisors into a planning, support, and counselling role;

- investigating team selection with the work group being very much involved in the final line teams;
- undertaking a training and education programme to cover gaps in job knowledge and understanding;
- increasing the range of jobs available for rotation by including additional tasks in the groups, e.g. palletizing and sealing;
- investigating potential machine substitution for some extremely routine and mundane jobs.

By giving the men on the racking lines greater autonomy and scope to assist in quality control, it was felt that they would find the jobs more satisfying and become more involved with their own work groups. At the same time, this would give the supervisors more time for planning, maintenance, and dealing with the motivational aspects of their jobs.

Philips Ltd.

The case study considered by the team from Philips was rather different from the others in that it concerned the stores area rather than a production area. The raw materials store takes in supplies for all the production units at Hamilton, and issues stores to each of the five production buildings. The stores themselves are located in a separate building at the end of the site and tend to be rather isolated. There are sixteen storemen employed in the stores and four van drivers, who move the goods from the stores to the production buildings. In addition there is a clerical section employing four girls and one man. It is planned to improve the present clerical stores recording system, which is a rather old-fashioned manual system, and replace it with a mini-computer system using visual display units.

The problem experienced by the storemen is that they have very little contact with the production departments, and therefore cannot always anticipate their needs for materials or cope easily with the problems which arise in the supply of goods. The company team wanted to consider ways of reducing the isolation of the stores department and helping to improve the service they could give to

the production buildings. In particular they felt that if the storemen were familiar with the objectives of the production departments and had a greater understanding of their needs, then a much more positive relationship could be built up.

The plans drawn up by the team were aimed at increasing the involvement of the storemen and also providing greater variety in their rather straightforward job. It was felt that they were in an ideal position to undertake some quality control inspection of supplies coming in and they could also act as order pickers. However the main change would be to amalgamate the jobs of the storemen and van drivers, so that the storemen could be responsible not only for the quality and correctness of the orders, but also deliver them directly to the production buildings. In this way they would be in close contact with the requirements of the production buildings and provide a much better service as well as having greater autonomy and interest in their own jobs.

Ladybird Ltd.

The company employs around 300 women sewing machinists for whom the basic skills required remain the same although the styles change fairly quickly. Partly because of the short runs required for the fashion goods they are making, the factory is facing difficulties in achieving its production targets on time. However, machine breakdowns, poor materials, and a rather high rate of turnover are exacerbating factors.

The problem immediately facing the company concerned a large contract which had been placed for a casual T-shirt. It was important that promised delivery dates should be met and that a high quality of sewing should be achieved. The team estimated that about 70 machinists would be required on the contract, which would take several months to complete.

The plans for dealing with the contract involved setting up ten groups each of seven machinists who would be responsible for producing completed garments, rather than operating on a fragmented 'progressive bundle' system as before. The girls would operate the four types of machine required, and therefore would have scope to

be more versatile and be involved in planning and simple scheduling. Each group would also have an examiner and packer, as well as a cleaner and mechanic to ensure a high standard of maintenance and 'housekeeping'. In this way the groups would become self-supporting and more flexible than previously, in being able to work together on a common objective and identify with the finished, packed garments being despatched.

The main difficulties which were envisaged stemmed from the wage payment system, based on individual piecework, and therefore coming into conflict with the concept of group working. It was also felt that the supervisors would find considerable difficulty in finding a new role and in understanding how they should relate to the autonomously functioning groups.

Ailsa Trucks Ltd.

The company has already gone a long way in setting up small work groups dealing with manufacture of the double-decker bus, similar to those in their parent company, Volvo Ltd. The assembly line in the production department is organized around a series of work stations, each with a section leader, responsible for a complete sub-assembly. Within each work station, the employees can organize the work themselves under the guidance of the section leader, to achieve the required output. A workshop advisory committee meets monthly to discuss productivity and efficiency, quality materials usage, attendance statistics, safety, training, etc.

The problem facing the company was how to maintain and strengthen these activities and in particular the team wanted to consider ways and means of:

- maintaining the impetus created by the work design and consultation policies, especially as the volume of work increases;
- rationalizing and developing these activities, e.g. through structuring and training;
- resolving conflicts which arise between section leaders and supervisors due to lack of clear definition of authority and responsibilities.

The plans which the team put forward concerned both the autonomy of the groups and some of the individual jobs within the groups. At the first level, groups were responsible for the allocation of work tasks, achievement of production schedules, availability of small tools, housekeeping and standards of workmanship. At the individual level, additional training would enable the men to undertake a much wider range of tasks and responsibilities (see Table 1).

Table 1. Current and potential tasks and responsibilities at Ailsa Trucks Ltd.

| | Current | Potential |
|---------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Welders | Welds; Burrs | Inspect; Dress Load jigs; Drill; Assemble |
| Storemen | Receives and checks; Feeds line; Bins and picks; Paperwork; Drives internal transport; Drives pick-up truck | Purchasing; Stock control; Perpetual inventory control; Degreasing |
| Spray painter | Collects material; Sprays chassis; Sprays small parts; Cleans guns; Routine maintenance. | Dealing with some of assembly operations outside spray paint booth. |

Tannoy Products Ltd.

The company team from Tannoy were facing a unique situation in that they had come from a factory which was just establishing its production lines in a 'green field' site and at the time the workshop had only just started the main recruitment programme.

The problem for the team was not in trying to redesign a work organization which was very structured and inflexible, but rather to try and create a form of work organization which would have positive design features from the start. The area they considered was the final assembly section dealing with hi-fi loudspeakers, and then employing only ten people.

The plans for the future of the line were that the number of employees and the volume of output should be considerably expanded.

The team felt that the jobs would become very routine and boring and that a wider range of tasks would make the jobs more interesting. At the same time, the final assembly operators could become an autonomous work group with responsibility for the scheduling and inspection of products. The grouping of tasks which they suggested is illustrated in Figure 2.

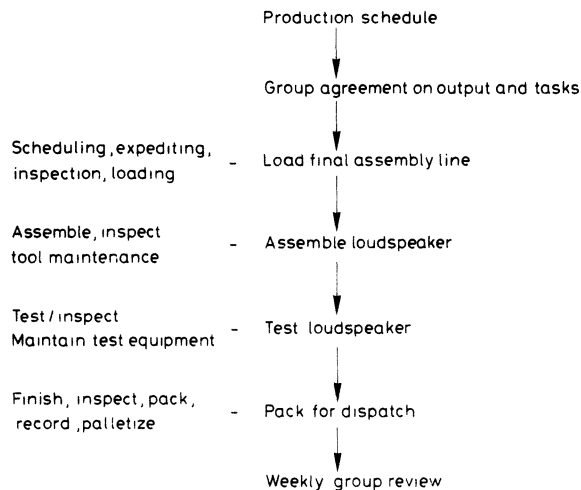


Figure 2. Suggested grouping of tasks in the hi-fi loudspeaker final assembly section of Tannoy Ltd.

It must be emphasized that all the plans which the teams suggested would need to be agreed with the other employees concerned, when they returned to their companies, as well as with management. However, the presence of senior managers when these plans were being presented was extremely helpful, and there was general agreement among them of the relevance and value of the plans which the teams had created.

Themes and issues raised

During the course of the workshop a number of themes were raised which were common to several of the companies participating, and

some time was spent in discussing these and considering how they might affect the successful implementation of the plans which had been drawn up. The main issues concerned were:

Selection and training. What is the optimum size for an autonomous working group? What criteria should be used for selecting group members, bearing in mind the different needs and expectations of people? How should group members be trained to cope with greater autonomy and responsibility?

Attitudes of trade unions. Would there be resistance from trade unions to the increased scope of the jobs of their members?

Role of the supervisors. Could a new role be found for supervisors? What help would they need to adapt from an authoritarian, rigid supervision, to acting as a support and resource for the autonomous working groups?

Codes of conduct and discipline. Given greater autonomy, could groups be expected to achieve output targets and observe timekeeping? Would autonomy create disharmony and resentment within groups, if some individuals took advantage of their wider scope?

Wage payment systems and incentives. In what way would wage payment systems need to be adapted to support and encourage group working rather than creating conflict and individual orientation?

From the discussion on these questions, the team members gained help and ideas on which issues would be particularly relevant in their own situation and how they might cope with problems which could arise.

Retrospect and prospect

The workshop was generally agreed to have been an extremely valuable and stimulating experience, and the model for the workshop was a major contributing factor to this success. Because teams were working on their own 'live' problems and had already done some

homework before coming to the workshop, they were keen and able to take full advantage of the help and guidance available. In addition, the composition of the teams being a 'vertical slice' of people through the various levels of the company, provided a range of perspectives on the problems being considered. This acted almost as a self-correcting mechanism and brought greater reality and effectiveness to the plans which were formulated. In drawing on the 'interests and energies of its people' in this way, the workshop proved a useful and interesting learning experience which could be diffused to other areas within the companies.

The future of the projects is still uncertain. The workshop staff have maintained contact with the companies and continue to provide assistance. In addition, the companies themselves are beginning to create a network of people with common interests and experience which they can share. A two-day follow-up workshop is planned to give feedback and further assistance to the companies, which will provide encouragement for their continued efforts. But whether the projects will 'truly flourish' remains to be seen. There is no doubt, though, that participating in the redesign of one's own work is itself an exciting learning process supporting the movement in Scotland towards greater democracy and autonomy at work.

Postscript, July 1977: a review meeting

Once the teams had returned to their companies and began to implement the plans they had drawn up at the workshop, they inevitably achieved a mixture of successes and difficulties. Also the speed with which they could implement their plans varied enormously, for example Ladybird introduced major changes almost immediately, whereas other companies proceeded much more slowly, and in fact later felt they may have been overcautious.

When the projects had been running for six months a review meeting was held to consider the progress which had been made. It was encouraging that all the companies had made good progress on the plans they had drawn up at the initial workshop and had main-

tained a keen interest in their projects. Discussion also centred on the lessons which they had learned in starting on the projects, since this provided a valuable interchange of experience. The important lessons were as follows:

Communications. One of the most urgent tasks of the teams on their return was to communicate to other members of their working group the concepts which they had discussed and the plans they had tentatively drawn up. The Ladybird team were very thorough in communicating to everyone in the factory, but, for example, the Tannoy team felt that insufficient time had been spent in communicating an understanding of autonomous group working.

Company team membership. As far as possible the team who attended the workshop should stay together in implementing their plans. Unfortunately the team leader and shop steward for the Scottish and Newcastle Breweries team had both changed soon after the workshop, which meant that time had to be spent in gaining the commitment of new team members and explaining to them the team's plans.

Agreement of trade unions. Of course, the agreement of trade unions was essential before any changes were made, and this was closely linked with the stage of other negotiations. At Ailsa Trucks the annual wage negotiations were extremely difficult and protracted, and this consequently delayed the implementation of the team's plans.

Phasing of the changes. Similarly, the impact of other organizational changes in personnel and technology may create problems if the plans from the workshop are difficult to phase in with such wider changes. The team from Philips felt that the timing of the workshop would have been more opportune for them some months later, but, even so, had made significant progress with their plans.

The role of the workshop staff in encouraging the company teams and stimulating them to set target dates for achieving changes, was felt to be very helpful. During the next few months it is planned to arrange for the teams to visit each other at their companies, to gain first-hand knowledge of the way they are tackling their problems.

Then a final workshop to summarize and evaluate the changes will be held in a further six months' time.

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29. Setting up a sociotechnical training programme at an engineering school in France: 1976/1977, a transitional year

Michel Liu and Oscar Ortsman *

The 'École Centrale' and its technical teaching

The École Centrale des Arts et Manufactures was founded in 1829 by a manager, a chemist, a physicist, and a professor, to give engineers the extensive and general knowledge necessary to be efficient in the different sectors of industry. It is considered to be one of the most prestigious engineering schools in France, second only to the École Polytechnique and on a par with the *École des Mines de Paris*. Every year it accepts 300 students for a three-year period. The campus of the school is thus comprised of more than 1,000 people, 900 of which are students, plus personnel and professors. The students are recruited by competitive examinations. Preparation for the examinations, which usually last for two years after the *baccalauréat*, is comprised mainly of mathematical knowledge. During the first two years at the school, the technical training is not specialized and treats mainly basic scientific knowledge: mathematics and probability, mechanics, physics, chemistry – on both the theoretical and applied levels.

In the third year the teaching is subdivided into seven branches and the engineering student may specialize in one of the engineering disciplines: mathematics applied to industry; energetics and mechanics of fluids; science of materials; electricity; chemistry; public works; mechanical engineering.

* École Centrale des Arts et Manufactures, Chatenay-Malabry, France.

Non-technical teaching existing at the school before the introduction of sociotechnical training

In 1975, the following non-technical training was proposed to first year students:

- five introductory lectures on the social and economic role of the company and the engineer – each one and a half hours long;
- six portfolios of documentation given to students on the company and its environment;
- a field survey and a bibliographical study comprising:
 - six hours of preparation for interviewing,
 - five half-days reserved for field surveys.

Each survey was made by a group of three students, on a total of 400 themes having to do with management, economics, law and social aspects.

The conception of sociotechnical teaching

In October 1974, one of us was engaged to study the creation of an option for third-year students: 'The study of socio-technical systems'. The aim of this option was to give students competence and attitudes which would help to improve the exercise of their profession as engineers. On the basis of this outline, a project was drawn up which was influenced by anglo-saxon 'industrial-engineering' training but with strong social specialization and sociotechnical training.

Upon reflection, the administration changed their minds for the following reasons:

1. The social and sociotechnical training was to be addressed to all students and not only to those thirty who had chosen this option.
2. The special option was to be directed primarily to students who intended to be production engineers by profession; the directors

of the school thought that in fact the engineering students were divided into four categories as to their professional vocation, and that each should be provided with an academic programme. These categories were:

1. production engineers;
2. engineers serving in such functions as technico-commercial, technico-financial, public service, administration, etc;
3. research engineers capable of innovating techniques;
4. engineers desiring to create their own companies: entrepreneurs.

As these programmes of studies would be added on to the existing technical studies, there was a problem of dividing up time among the technical and sociotechnical studies. Consequently, the sociotechnical teaching could only be allotted a small amount of time and had to become a programme of sensitization.

Conception of the programme

The conception of the programmes was revamped on the basis of the following ideas:

1. The programmes should be based on experiments that students experienced outside the school, in contact with the workplace (during a training period of six weeks in the second year¹ and a three-month training period at the end of his studies).
2. Training within each of the four branches should offer a wide variety of choice in terms of subjects treated and teaching approaches adopted. Hence each student should be able to follow a training corresponding to his expectations and to which he would be personally committed.
3. The teaching would be, at any rate, active.

1. The training period in the second year for the whole class was in the process of being set up and took place for the first time in 1975/1976.

From this conception there resulted four training programmes. The hypothetical length of training was once a week in the third year: 23 days of teaching.

Faculty resistance

As the project progressed and the hypothetical duration became known, the scientific and technical faculty began raising objections. Opposition crystallized around the problem of the length of the sociotechnical training:

1. the total programme seemed much too long, since the time allotted to scientific disciplines was already insufficient.
2. the distribution of days throughout the year threatened to take student's attention away from scientific disciplines which were more difficult and austere.

Around this debate arose two conflicting concepts of the function of engineers as well as two teaching models: the first postulated that the student should receive mainly scientific and technical training; the second proposed a multidisciplinary training, through active teaching oriented towards professional life. Finally the directors of the school decided to reduce the length of the programme to seventeen days, ten in the second year and seven in the third. This compromise allowed the two teaching systems to coexist, but it is impossible to foresee at this point whether collaboration will eventually arise between the two systems.

The negotiations were greatly facilitated by the relationship established between the 'sociotechnical' professors and the students, brought about by experimental modules. Students' pressure to encourage new teaching certainly played an important role in the agreement which was concluded with the technical teaching corps.

Experimental phase with the students

While various hypotheses about teaching in the third year were being discussed, the writers were authorized to try out a few teaching experiments. These experiments were negotiated with the students in the following manner:

- In 1974/1975, 38 second-year students voluntarily participated in a three-month training programme² within a company, one and a half months of which were spent in the workshop and the other one and a half months in a technician's job.
- When they returned from their training programme, the two professors evaluated this experiment with the students and discussed with them how certain directions of thought, which had emerged in practice, might be explored in depth.
- This project was well received by the students, who proposed several themes themselves and discussed the themes brought up by the professors. From this discussion emerged what were later called 'experimental modules'.

Experimental modules

These modules focused upon six themes which arose in the course of discussion: work in groups, expression, communications, new forms of organizing work, unionism, and technological transfer. A questionnaire was addressed to the whole second-year student body to see whether these themes might interest them. Response to the questionnaire confirmed the students' interest in these fields. Actually, thirty students were ready to enrol in one or several modules, despite the overload of work that this entailed. Thus, considering overlap, a little less than half of the class had demon-

2. This voluntary experiment paved the way for the institution of a training period for the entire second-year student body.

strated such interest (a certain number of students had enrolled in several modules).

Finally, taking into consideration the overlap, availability of professors, students, and people called upon from companies, five modules were put on the programme (by combining the expression and communications modules) and four actually took place: work in groups, expression and communications, new forms of organizing work, and technological transfer. The unionism module was cancelled at the students' request, since lectures on this theme were organized by the student committee that year. The objectives fixed in the beginning were finally reached:

- to test out sociotechnical courses on the level of content as well as in terms of teaching form;
- to establish relationships of confidence with the students by means of which a more systematic programme could be planned in the future.

Field training

When the field training³ was expanded to the whole student body of the second-year class, the sociotechnical professors were asked:

- to prepare a written document for this programme;
- to evaluate the results of the programme through discussion with the students in groups of 30, upon their return.

The written document which was prepared consists of a series of open questions concerning life in the workshop. In the end, it proved to be highly useful, for it allowed students to focus their training programme report on problems of improving working conditions. At present, we consider that sociotechnical training begins with the distribution of this document which is used during the programme (see Appendix 3).

3. It lasts six weeks and is almost totally made up of labour as a worker at a work station.

The evaluation of the training programme with the students allowed us to realize:

- the great student interest in this experiment;
- the importance of interpersonal relationships created with the workers;
- the variety of questions raised by this experiment and the new curiosity aroused.

Negotiations with the students

Throughout the negotiation with the faculty the students were only partially informed of progress in the planning of the programme. Nevertheless, once an agreement on the length of the sociotechnical programme was reached, the situation changed on the students' side:

1. The student committee was renewed, as it had been every year, and new members were brought into decision-making positions.
2. Throughout France, student oppositions to a proposed reform of university studies leading to the master's degree disturbed the general French context.
3. Students were now confronted not just with a teaching proposal, but with certain realities: the choice of a branch of study, and the choice of the courses that branch had to offer.

Placed in this situation the students, through their representatives, made the following demands:

1. Non-separation of the class into four branches: to them the choice among four branches in the second year was meaningless. At this period of their training they did not feel capable of making such a choice, which would commit them to one professional profile rather than another. On the contrary, they wanted to choose courses regardless of branch.

2. Guarantees as to the ideological objectivity of the studies: in this regard, the students feared that they were about to undergo training which would be too biased towards defending corporate interests. This fear was reinforced by the fact that up to this point they had received no training enabling them to make critical analyses of the political and social aspects of the problems presented.
3. More direct participation in the setting up of courses: the newly elected students had been surprised to be presented with a completed set of proposals and wanted to be able to have their say concerning both new courses and the school's more traditional courses.

The intermediate solution retained

All these demands led to a direct confrontation between students and administration. We then proposed that a transitional programme be set up in the third year:

1. The choice of a branch would not be obligatory; courses comprised in these branches would be open to everyone.
2. The teachers were to be chosen from professionals with highly diversified social and professional backgrounds: academicians, company executives, union members. Furthermore we promised to request that they stimulate debate on themes of study which would lead to fundamental questions of alternatives.
3. The students were to elect a committee to take stock and keep a record of the first year of this programme.

All these proposals enabled courses to be set up, mainly because students now enrolled in modules, which they had previously refused to do.

The steps planned for negotiation, evaluation and modification of courses

On the advice of E. Thorsrud⁴ a commission was formed, made up mainly of businessmen, highly concerned with problems of improving working conditions. This commission helped plan the new courses. Furthermore, most of the members took charge of part of the teaching. This commission has met three times since the beginning of 1975. Members of the students' committee were invited to the last meeting. Thus, we can say that this informal body (it has no legal decision-making power) will in the future, as in the past, allow courses to be arranged

- as the problems in enterprises and in the areas of study evolve;
- at students' demand.

This commission is an essential element of the regulatory system which allows the various groups – the school administration, technical professors, sociotechnical professors, businessmen, students – to discover solutions of adequate quality on the design of their training.

Appendix 1: Preparation for the function of engineer, a note concerning aims and teaching methods

This training is proposed to prepare students for the function of engineer, in all those aspects of this profession which are complementary to the technical domain.

1. Aims

As very little time is allotted to this training, the objective is to try to introduce students to a certain amount of information and to sensitize them to the need for the following activities and processes:

4. Of the Work Research Institute, Oslo.

- integrating the various economic, technical, social and human factors entering into the definition of a problem, and taking into account the interaction among these factors;
- carrying out critical analyses (diagnostics) of complex and unclear situations;
- being aware of the various steps needed in changing the enterprise towards improved working conditions;
- recognizing various dimensions of interpersonal relations or those between groups by means of exercises in arousing such awareness.

2. *The teaching methodology*

The teaching methodology of training cannot be independent of its objectives. Thus, there would be a contradiction, for example, between teaching which seeks to familiarize engineering students with change, using *solely* didactic lecturing which presents the knowledge imparted as definite and unchangeable. This is why, as a function of the defined aims, the teaching methods of this course should be based upon:

1. Development of engineering students' initiative in personal work and their work in groups;
2. Learning in an experimental situation;
3. Dialogue with people able to reconstruct an experience as it happened;
4. Exposure to diverse points of view allowing engineering students to gain enough perspective to form their own personal judgements;
5. The possibility of students themselves evaluating the results of their work.

3. *Modes of training*

Three types of training are proposed:

1. *Modules*

These consist of training given on two consecutive days, dealing with all or part of major theme. It is directed to a maximum of thirty students, and may comprise a great variety of teaching methods such as factory visits, presentation and discussion of real cases, exercises in animating a group, and round tables.

2. *Seminars*

Each seminar allows engineering students to explore a major theme (totally or partially), through personal work in close conjunction with one or several of the people leading the seminars. The projected number of students per seminar is approximately fifteen. Learning during the seminars is arranged in several ways:

- The person responsible for a theme will present a paper or invite personalities from outside to provide the participants in the seminar with relevant knowledge.

- At the outset each student or pair of students chooses a subject for study within the theme, and is responsible for carrying out a personal study.
- The teacher in charge meets with the students (or the pairs) separately, to make certain the subjects or study are followed.

3. *Presentation of folders*

All the themes are described in a concise folder, including a bibliographical list. These folders are to be made up gradually, in the course of one or two years' experimental teaching.

Appendix 2: Second year of study: preparation for the function of engineer, final enrolment form

This form concerns eight days of study. To these eight days are added one day of preparation for the worker training programme, and one day to evaluate this programme, which takes place from 15 November to the end of December, hence, just before the beginning of the eight-day study period. It should be noted that this period of study takes place solely in the form of modules. Seminars are actually limited to third-year engineering students.

9

| | | | |
|--------------------|------------|---------------------|-----------|
| name | first name | date | signature |
| group and subgroup | | number of residence | |

Please circle your choice in the calendar below for each day, the number of modules reserved

Each module must be taken in its entirety. The total modules reserved should take up 8 days without overlap or gaps

The deadline for returning the card to the inspectors is without fail *TUESDAY, OCTOBER 26, 1976*, but it is to your advantage to return it as soon as possible

Places in each module are actually limited (10 to 30 people in principle) and will be designated in order of enrolment

If assignment to one of the modules requested is impossible (due to an excessive or insufficient number of requests) you will be called upon to choose a substitute module.

| | | | | |
|-----|--------------------|----------|---------|--------------------------------------|
| No. | Modules/ themes | No. days | Doubles | Calendar Jan. Jan. Jan. Feb. Feb. |
|-----|--------------------|----------|---------|--------------------------------------|

1. Expression and communication
2. Work in groups
3. Social legislation
4. Unionism
5. Conflicts and negotiations
6. Personnel policies
7. Training
8. Technological transfer
9. Socioeconomic balance in enterprise
10. Hygiene and safety
11. Ergonomics
12. New forms of work organization
13. Environmental protection
14. The product and the process of fabrication
15. Optimization and regulation of production
16. Innovation and society
17. Innovation and enterprise
18. Innovative methods
19. Mathematical and computer tools for innovation
20. Fields of innovation
21. Market study
22. Planning techniques
23. Analysis of means of finance
24. Organization and documentation of large projects
25. Planning in a decentralized economy
26. Problems of installation
27. Price and income control
28. Enterprise game (stimulating growth)
29. Diagnosis of an industrial and commercial enterprise
30. Creating and launching an enterprise
31. Developing and making an enterprise profitable
32. Structuring, steering an enterprise
33. Diagnosing an engineering enterprise
34. Elaboration, management, and pilot projects in engineering

Numbers 1 to 15 are the responsibility of the authors.

Appendix 3: The worker training programme

This programme lasts six weeks. It takes place during the engineering student's second year at the school, preceding sociotechnical training. The programme necessitates a previous preparation and a subsequent evaluation in groups of approximately twenty students. During the programme the engineering students are asked actually to occupy a work situation and

participate in the work in the same way as other workers. After the programme the engineering students should hand in a written report concerning one or several of the following fields:

- interest in the job;
- functions of the person in charge on the next level above;
- job organization;
- engineer-personnel relations;
- social relations;
- activities of functional services;
- other aspects of the job situation.

Before departure a training programme file is provided to students, in order to allow them to write up their report. This includes a whole series of open questions and grids to be filled in with the workers of the service in which the training is carried out. This constitutes an important element of the engineering student's apprenticeship. In certain cases, it actually seems that it was also beneficial to some enterprises who invited the student.

SECTION EIGHT

CONCLUDING NOTES

30. Concluding notes

Max Elden *

Some things, it has been said, simply do not ‘happen’ unless they are reported. At the very least we hope that the Q.W.L. activities reported here now have a better chance of ‘happening’ for a larger, more international audience than otherwise would have been the case. The reports presented were not gathered in a way which could allow us to make a series of statements, with full supporting detail, about the status and future of Q.W.L. trends in Europe. Nevertheless, they do illustrate one trend in efforts to improve the quality of working life – the democratization of organizational change. This point was regarded as having special significance, as an important outcome of the interaction of the original project group; it is more fully discussed later in this note.

We agreed to produce a manuscript and we see this book as fulfilling our obligations for this particular project to the International Council for the Quality of Working Life and the German Marshall Fund. In addition, however, we have further defined, for ourselves, an important outcome of the project: that it should contribute to further development and collaboration of Q.W.L. workers in different countries. To this end we have elaborated a proposal for a workshop – again, described later – in which the international contributors to this volume, with relevant others, would be able to take part.

It is of special interest to the correspondents that, while their work has produced many valuable insights, the difficulties they encountered in working together – the initiation and maintenance of a complex process of cooperative study of their experiences, of

* Institute for Social Research in Industry, Norwegian Technical University, Trondheim.

their orientations and of their views on Q.W.L. development – have clarified a set of uncompleted and continuing tasks. This type of interaction has its own value, and it is hoped to arrange for some report on our continuing discussions and on their continuing social process to be made available at some future date. The original change, from four editorial surveys to a book with thirty-three authors, of necessity led the original correspondents to confront problems of criteria for the selection of project reports. In addition, they recognized that their own clarification and modification of their individual approaches to O.W.L. affairs, with their evaluation of their interaction and of its results, led on to a much wider conclusion outlined in the preface but perhaps better expressed in hypothesis form. It is this: the six criteria which emerged from the search for a basis to select project papers have a much larger significance; they represent a first statement of criteria to forecast which European O.W.L. projects are most likely to achieve their objectives and to continue their development.

The cases selected and reported in this project are highly diverse as a group; but they share at least one striking feature: employee participation in the planning and management of organizational change. This way of working on Q.W.L. development differs significantly from earlier sociotechnical experiments, in that it aims at, and indeed relies on, the active participation of people in managing change processes which affect their own lives at work. In this approach, sociotechnical and related concepts are not applied only by experts; they are seen as conceptual tools which workers, after relatively simple training, can and do use to redesign their own workplaces. We find this democratization of the change process illustrated in the cases where, for example, employees participate directly in managing or guiding the redesign of their workplaces (e.g. the papers by Alioth, Liu, Johansen, Elden, Mumford, Hort, Sandberg, Engelstad and Ødegaard, and Weir); but this feature is also expressly noted in country overviews (e.g. of Sweden, Britain, and Holland). In other project reports there is evidence of movement in the direction of increasing employee involvement in the change process as the project develops over time (e.g., in the order

they occur in the book: den Hertog and de Vries, Mollica, Allegro and de Vries, and Lovelady).

In most of the cases we have collected, the tasks needed in planning and carrying out practical change at the shopfloor level (e.g. analysis of a particular work situation; recommending changes; monitoring results, etc.) are shared with the employees concerned, even if they are not their responsibility. The idea is that, given any necessary general sanction from management, trade unions or works councils, the most appropriate changes (especially those necessary if Q.W.L. improvement processes are to become self-sustaining) are most likely to occur when those affected are able (in terms of both ability and authority) to make changes they find necessary in their own-workplace. The first and most obvious question is: What changes are necessary? Workers, managers and researchers can be expected to have quite different answers to this question. Cases of worker-managed change show that workers on their own (or with modest, short-term assistance from experts) can answer this question, and more. But they require a chance to get started.

Thus, a typical point of departure in these cases is not automatically a sociotechnical analysis by an expert. It might rather be an inventory, perhaps by the employees themselves, of what the problems are as they see them (as in Elden, Liu, and Sandberg). Or it might be some training in simple sociotechnical concepts that the employees can readily use to begin redesigning their own jobs (as in Alioth, Hort, Weir, and Engelstad and Ødegaard). Or it might be organizing a process in which they test out and evaluate themselves (as in Johansen, Ortsman and Liu, Mumford, and, after a while, perhaps, Lovelady). The essential point is that the expert's job is not to change things but to help create conditions where the workers involved change things themselves.

Those cases where democratizing organizational change seems most advanced share several characteristics:

- a design team representative of (if not elected by) the employees – at the very least employees agree to a change of effort;

- employees receive some training in work redesign concepts and techniques;
- participatory search processes initiate the change effort and are not necessarily limited to the design team;
- the design team develops its own criteria and alternatives (little reliance on installing some predesigned package);
- all employees participate at least in evaluating alternatives;
- there is a high degree of participation in all phases of the redesign process (planning, developing alternatives, evaluating, etc.) which is focused and paced by the people affected (not primarily by management or change experts);
- outside experts have a shared learning role that changes over time (*from* some teaching *to* learning *with* the participants and eventually *to* learning *from* them) (Elden 1977).

While we have not studied this issue in depth, we note that quite recent examples, similar to those we found in Europe, have been documented in the United States (Duckles et al. 1977; Taylor 1976; Trist et al. 1977), in India (Nilakant and Rao 1976), in Australia (Emery and Emery 1976), and elsewhere. Democratization of organizational change appears to be a feature shared among case studies which otherwise have little in common.

One further conclusion is implicit in the work reported: any single publication, as we have said, is not likely by itself to make a large impact on improving international Q.W.L. collaboration. Action research in this field is a recent development in Europe. To summarize points implicit or explicit in the constituent papers; almost all of the projects reported in the book began in the last two to three years and were specially written up for this publication; they represent no more than a third of the projects we learned about; and there is no doubt that a great many others are under way and have as yet escaped international attention. Further search is warranted and additional publications of this kind could be useful.

Further publications however – to underline the point once more – are a necessary but not a sufficient condition for extended international collaboration in Q.W.L. activities. Working together,

especially in an action research mode, requires more than purely intellectual exchange, as we have already argued. We think, therefore, that unless those working on Q.W.L. developments in different countries have a chance to get to know each other we cannot expect much increase in effective collaboration. Given the newness of Q.W.L. research in Europe, however, there are as yet very few opportunities for this. How could Q.W.L. workers from different countries be brought together in ways likely to foster continuing contact? To be more specific on this point, the experience of working on this project could best be completed by a meeting of those who have contributed to this publication, together with others with allied experiences and interests. Such a gathering would allow some mapping of the professional and intellectual issues arising from concrete field projects: it would not be simply an academic exchange, but a 'network-building workshop' or a 'search conference' aimed at clarification of shareable values. It would combine several purposes: a concrete follow-up of this book; a practical way of reviewing and evaluating leading Q.W.L. issues; and a logical next step in building an active, viable network of collaborative relations among Q.W.L. workers in different countries. The outcomes from such a workshop could include:

1. An evaluation of this book, especially the extent to which its contents do or do not adequately illustrate current Q.W.L. issues in Europe;
2. Publication of a report identifying important Q.W.L. problems and issues and how they are or could be worked on in concrete projects;
3. Development of work groups of people from different countries interested in tackling some or all of these issues in some concrete way;
4. The organizational basis of a network to facilitate further international collaboration with specially designed events and meetings.

Such a workshop could be relatively 'open', and, as far as possible,

'self-organizing' around themes, issues and values which participants discover to be of common interest; for this main task of the workshop – discovery or 'finding out' – would be made more difficult if too much of the time together were pre-packaged. The intention would not, however, be to have unplanned 'happening'. The conference could start with a review and evaluation of the book, concentrating especially on what seem to be at least *some* of the leading issues in contemporary Q.W.L. action research in Europe, for example;

1. The varying roles of trade unions – opportunities and constraints – in improving Q.W.L., as illustrated in concrete national projects;
2. The effects of Q.W.L. improvements on the overall quality of life – family, community, leisure, etc.;
3. New areas of application, or an increased value of action research in services (social, medical, education, and administrative) and in governmental and other white-collar workplaces;
4. The organization and management of Q.W.L. improvement programmes: In what circumstances can they effectively be self-managing? Where this is possible, what changes does this imply in the role of researchers and other 'change agents'?

Regardless of its outcome, this project has already begun to produce exactly the kind of cross-cultural Q.W.L. communication and collaboration at which it was aimed. There have been a number of visits and exchanges between Q.W.L. professionals in different countries. Perhaps the most striking was the result of two research institutes in two different countries suddenly discovering that they were planning almost identical research projects each intended to last several years. As a direct result, the research team from one institute has visited its colleagues in the other country and plans are now under way to coordinate the two projects in the two different countries. Neither institute publishes in English. Neither was known to the other. Once contact was established, collaboration followed quite naturally. Perhaps through such efforts as the pro-

posed international meeting, new cross-cultural contacts will lay the groundwork for further collaboration.

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Appendix: Addresses of contributors to the volume

Alioth, Andreas

Swiss Federal Institute of Technology, Leonhardstrasse 3, 8006 Zurich, Switzerland.

Allegro, J. T. and de Vries H. J. J.

Institute of Social Psychology, Utrecht University, Utrecht, Holland.

Bittel, R. and Trepo, G.

Centre d'Enseignement Supérieur des Affaires, 1 rue de la Libération, 78350 Jouy-en-Josas, France.

Blake, Jenny

(recently on staff of Tavistock Institute, London)
11 Redpit, Dilton Marsh, Nr. Westbury, Wiltshire, England.

Boekholdt, M. G.

Institute of Social Psychology, Utrecht University, Utrecht, Holland.

Butera, F.

Istituto di Ricerca Intervento sui Sistemi Organizzativi, Via Caradossa 7, 20123 Milan, Italy.

Butteriss, Margaret

Formerly of U.K. Department of Employment Work Research Unit, now of LP/4, Shell International, Shell Centre, London SE1 7NE, England.

Della Rocca, Guiseppe

Istituto di Ricerca Intervento sui Sistemi Organizzativi, via Caradossa 7, 20123 Milan, Italy.

Den Hertog, J. F. and de Vries, H. J. J.

Industrial Psychology/Video, Philips Gloeilampenfabrieken, Eindhoven, Netherlands.

Elden, Max

Institute for Social Research in Industry, IFIM, University of Trondheim, NTH-N-7034, Trondheim, Norway.

Engelstad, P and Ødegard

Work Research Institutes, Ullevalsvei 105, Oslo 3, Norway.

Granel, Michael

Project Manager, Humanization of Working Life Project, Volkswagenwerk A.G., D-3320 Salzgitten 33, Federal German Republic.

Gunzburg, Doron and Hammarström, Olle

Formerly Ministry of Labour, Sweden, now of Swedish Center for Working Life, Box 5606, S-114 86 Stockholm, Sweden.

Hodgson, Alan and Burden, Derek

Mr. Hodgson's address is: Job Satisfaction Unit, Civil Service Department, Old Admiralty Building, Whitehall, London S.W.1., England; and Mr. Burden's address is: Imitax Ltd., Consultants, 1 Chancery Lane, London W.C.2., England.

Hort, J.

c/o Alioth, Swiss Federal Institute of Technology, Leonhardstrasse 3, 8006 Zürich, Switzerland.

Johansen, Ragnor

Ship Research Group, Work Research Institute, Ullevalsvei 105, Oslo 3, Norway.

Liu, Michael

École Centrale, Grande Voie des Vignes, 92290 Cahtenay-Malabray, France.

Lovelady, Louise

Lecturer in Personnel Management, Department of Business and Administration, University of Salford, Salford, Lancashire, England.

Menden, Dr. Werner

Formerly of the Ministerialrat Bundesministerium für Forschung und Technologie, Federal Republic of Germany, now Scientific Attaché, Embassy of the Federal Republic of Germany, Washington, D.C., U.S.A.

Mollica, Stefano

Istituto di ricerca Intervento sui Sistemi Organizzativi, via Carradossa 7, 20123 Milan, Italy.

Mumford, Enid

Manchester Business School, Booth Street West, Manchester M15 6PB, England.

Ortsman, Oscar

13 Impasse du Moulin Vert, 75014 Paris, France.

Poirot, Josephine

126 rue Jules Guesde, 92302 Levallois-Perret, France.

Regnaud, Denis

C.E.S.I., South East Study and Training Centre, Grenoble, France.

Sandberg, Åke

Department of Sociology, University of Uppsala, Sweden.

van Beinum, H.J.

Formerly of the Foundation for Business Administration, Delft, Holland, now Director, Quality of Working Life Unit, Ministry of Labour, Government of Ontario, 400 University Avenue, Toronto, Ontario, Canada.

Van der Vlist, R.

Social Psychology Institute, University of Leiden, Rijnsburgerweg 169, NL-Leiden, Holland

Weir, Mary

No. 6, The University, Glasgow, Scotland.

Welter, Rudolf

Swiss Federal Institute of Technology, Leonhardstrasse 33, 8006 Zürich, Switzerland.