

## TECHNOLOGY, THE WORK ENVIRONMENT, AND INDUSTRIAL RELATIONS

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I should like to take a brief look at some of the Sociological research into the area of technology and the work environment, particularly regarding industrial relations. Although the research results do not apply specifically to the harvesting industry they nevertheless have implications for the management of harvesting systems.

### Industrial Conflict - Some General Points

Industrial conflict frequently occurs because some workers feel dissatisfied with certain aspects of their work environment. This dissatisfaction manifests itself in a number of ways - yet for various reasons we tend only to view the 'industrial strike action' with any real concern, ignoring the other symptoms of industrial discontent. Undue emphasis on strike action and failure to recognise other forms of dispute are faults of society generally and (more important) management (Fox, 1971). We cannot afford to overlook the less spectacular factors such as absenteeism, high turnover, and accident rates as these often reflect the level of industrial harmony which exists. These forms of "conflict expression" are of course based on "individual" rather than "collective" action. Ironically it is "collective" action on which management tends to concentrate, primarily because it is seen to involve greater expense and a higher degree of visibility than individual action. Yet at the national level the number of 'accident caused' lost working days is far greater than the number of 'strike caused' lost working days. It is not unreasonable to suggest that organisations might better prevent confrontations with their work force by monitoring a number of tension indices and using them as "cues for intervention".

Regarding this issue (Fox 1971) makes a conceptual distinction between "substantive" and "procedural" conflict. The former concerns itself with the disharmony which arises from dissatisfaction with areas such as wages, social and physical characteristics of the work environment, job security, "fringe" benefits, and so on. This sort of conflict has been the prime focus of the various groups involved in the field of industrial relations, simply because it is seen to engender a large number of industrial disputes. These disputes are usually solved by making some alteration to the total work environment. Often the ability to make such alterations lies directly within the scope of management.

"Procedural conflicts" however are of a different order. They involve disagreements over the ways in which decisions are reached and actioned within the industrial and organisational setting. They become particularly important whenever organisations change their approach to production. This may be in terms of the technology employed, or the way work tasks are allocated - or both. These sorts of conflicts complicate the industrial relations scene because the means to a solution do not always fall within the scope of existing management structures and procedures. In fact it is the very nature of these structures and procedures that is being questioned in this type of dispute. In addition industrial difficulties are often compounded when - in order to facilitate a solution - disputes of a procedural nature are converted into issues of a substantive kind. This is seldom successful since a residual element of conflict remains - and thus the solutions can only offer temporary relief.

Correct and open diagnosis is essential if we are to avoid the industrial situations coloured by mutual doubt and suspicion which arise from inappropriate solutions. It is pertinent to ask at this point how the patterns of industrial conflict relate to the systems of technology which characterise particular work settings.

### Technology and Social Relations

Writers on this theme suggest that technology provides the limits within which certain attitudes and patterns of interaction develop, although it is generally accepted that the specific patterns of interaction depend on the way management handles its work force. For example, (Blauner, 1964) relates the level of "alienation" experienced by the worker to the type of technology present in the workplace. Industries are categorised according to the extent to which production is mechanised and the products standardised. While "craft" industries are characterised by minimal standardisation and high "human input", "machine minding" industries tend to display a higher degree of standardisation and mechanisation. It is in the "assembly-line" situation however that the highest form of standardisation and work "rationalisation" occurs. In the mass production setting the feeling of alienation is most developed with workers sensing a lack of control over their immediate work environment and finding little sense of purpose or self expression in their work activity. With the "process" industries (e.g. the chemical industries) it appears that this trend towards increasing alienation and worker discontent is partially checked.

Looking at the work group (as opposed to the individual worker) Sayles (1958) suggests that there is a link between the type of technology and the way in which conflict surfaces within an organisation. In the case of the "craft" industries, workers are more likely to feel a sense of "belonging" to a clearly defined occupational community that enhances the unhindered development of social relations within the workplace. Machine minding and assembly line industries on the other hand tie people to the machine. This makes the establishment of self selecting social relationships more difficult with the result that the potential for social discontent and conflict is increased.

However, it is not only the characteristics of worker attitudes and workgroups that have been explained in terms of technology type. The work of Reeves and Woodward (1970) suggests that technology is a major factor in determining the form of control exhibited within an organisation. For example, in 'unit' or 'small batch' technology control tends to be "personal" whereas in "process" industries, control is more likely to be "mechanical". In other words, it is what the "computer" says rather than what the "boss" says that is important, although in both cases the criterion on which control is based is usually clearly defined. In the "assembly line" situation however, there tends not to be any agreed upon control criterion, that is control tends to be "fragmented" rather than "unitary". It could well be this fragmentation that predisposes these sorts of organisations to industrial conflict and disharmony.

While space does not permit much elaboration it is worth noting that not all studies emphasise technology in this way. For instance, Goldthorpe et al. (1968) offer the view that work attitudes are largely developed outside the workplace. They infer that attitudes and behaviour on the work floor are best explained by reference to non-work factors. In the case of what they refer to as the "affluent instrumental" worker, satisfaction within the work situation seems to be of less importance than the ability to "consume" and to form social relationships within their local communities. However all of the studies noted above refer to environments in which there is technological stability. But what of technological change? What are the implications of this sort of change for the patterns of social interaction and the level of industrial harmony.

### Technological Change

It is to be expected that changes in technology will affect the established pattern of social interaction within an organisation; not only by way of inducing possible redundancy, but also by bringing about a need for the redistribution of tasks within the organisation. Problems of status and power also come to the fore in that technological changes can result in a rearrangement of the relative rewards received within the workgroup. In addition, changes in the technological base can influence the extent to which workers are able to "self-select" members for their immediate work environment. Further to this, the need to import "new" skills to man the "new" technology may destabilise existing relationships, this resulting in lower worker satisfaction.

Thus technological change should not be seen as being necessarily the best way to solve "productivity" problems. I am not being over cynical when I suggest that the only people ensured of some reward in all of this are those involved in supplying and financing the installation of the relevant technology. It is also clear from research that the way in which change is introduced is a key variable in determining the level of industrial harmony and the extent to which change is resisted (cf. Mumford and Banks, 1967). Effective consultation and communication with the work force would seem to be essential if the "transition phases" are to be less problematic for both management and worker.

### Management of Harvesting Systems

The themes discussed above allow a number of points to be addressed to the harvesting industry generally and smallwood harvesting in particular. It is of course the smallwood environment that is most conducive to further mechanisation. However, a few cautionary comments and "recommendations" are in order, and it is on this note that I will conclude this paper.

- (1) Currently, the harvesting industry might be best described as a "craft" industry. Training is mostly gained in an informal way (Wells, 1980). To a large extent the worker is able to "self select" the members of his/her work environment. The standardisation of the "product" tends to be relatively low and there is considerable "human input" in terms of specific skills and knowledge.

- (2) The good industrial relations record of the industry (certainly in terms of "strikes") is in part due to the degree of worker autonomy implied in (1). However absenteeism turnover and accident rates are still high and thus there is a need for management to carefully monitor these particular phenomena in order to identify those factors which contribute to these rates.
- (3) If the trend towards increased mechanisation is something the industry wishes to encourage, for whatever reasons, it should realise at the outset that the further introduction of machinery could well result in the harvesting industry losing the "craft" like qualities referred to earlier. Instead one may witness the emergence of an industry that is characterised by a "machine minding" approach to production. During transition periods, the patterns of social interaction within the immediate work environment are likely to alter as status and power shifts occur within the work force. These shifts may come about through management emphasizing certain skills by way of differential rewards and/or by the organisation "importing" skills not already found in the current work force.
- (4) In periods of change, particularly where technology is involved, management should be sensitive to the distinction made between "substantive" and "procedural" disputes. The level of industrial harmony during these periods, will be largely determined by the way in which decisions regarding mechanisation are reached and acted upon. This will be especially true at a time when the possibility of redundancy creates considerable anxiety within the work force.
- (5) The extent to which an industry can flexibly cope with its industrial relations scene depends in part on the "value" of the "product" in question. In the forestry setting, this value is largely determined by the "products" ultimate use. In situations where this value is relatively low, as it is in smallwood case, the ability to deal with the demands of the work force may be reduced. This inflexibility can lead to obsessions with "productivity levels" and increased supervision rather than with improved co-ordination (Kolodny, 1979).
- (6) Even though a move to further mechanisation is likely to improve certain aspects of the work environment, management should develop, wherever possible, methods by which effective consultation with its work force can be introduced and maintained during discussions on the pros and cons of increased technology. In this respect, the relative economic and social advantages and disadvantages of both capital and manpower investment will require frank and open discussion if we are to ensure that human concerns are never lost sight of in the drive towards increasing technological sophistication.

This speaker diverged considerably from his prepared paper. The following notes form the basis of his actual address.

1. Several points of emphasis arose:

- Technology must be taken to mean the knowledge and skill required to run the 'hardware', and not just the hardware itself.
- Technology provides the limits within which the patterns of worker relationships develop.
- Conflict is likely to occur if a 'change' in the technology is not handled properly.
- This conflict will manifest itself in a number of ways, e.g. absenteeism, turnover, strikes, sabotage, accidents.

2. As we do not have time to treat each of these in detail, we will have to confine ourselves to one major experience of conflict. The one we will emphasise is labour turnover, as this has obvious practical implications for:

- Continuity in work planning
- Cost of maintenance servicing
- 'Cost' of the investment in training either on or off the job within the harvesting industry.

3. Research shows that the major 'correlates' of turnover are:

- Length of service (the longer a person stays employed the less likely he is to leave).
- Age (the younger the workforce the higher the turnover).
- Level of employment (the greater the number of job opportunities, the higher the turnover).

The logging industry faces problems here because the work involves a healthy, young workforce. This requirement may change if there is a move to further mechanisation, but this will introduce new problems of its own.

4. In general terms research has shown that major 'determinants' of turnover are:

- The level of 'integration', which is the extent to which the workforce may participate in 'primary' relationships in the workplace. If this is higher then turnover tends to be lower.
- The degree of 'centralisation', which is the extent to which decision making is concentrated within the hands of a few people, usually management. The higher the degree of centralisation, the higher the labour turnover.
- The degree of 'communication', which is the extent in which information is transmitted to all parts of the work system. The higher the degree of communication, the lower the labour turnover.
- The level of pay. Research results are confusing here, but many studies suggest that increases in pay reduces turnover. It must be remembered though that 'amount of pay' is not the same as 'satisfaction with pay'.

In the logging industry the level and degree of 'integration' and 'centralisation' characteristic of the work organisation would tend to favour lower turnover, however, the last two could be problematic. The 'communication' factor lies within the hands of the management. In the end only they can do something about this. For example, greater recognition could be given to the 'informal leader' within the work gang, and emphasis could be shifted from the 'supervision' to the 'co-ordination' of the work process.

The 'pay' factor is a little more difficult because of the inflexibility which results from the 'low value' of the resource being handled. This may change if in the future there is greater competition for the smallwood resource, say between

*pulping and energy interests. The logging industry has some of the elements in its favour as far as labour turnover is concerned - it is over to the management to concentrate their efforts on those factors which are more of a problem. Certainly I will be concentrating more research effort in this area.*

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