Broad Lane, Sheffield, S3 7HQ
Telephone: 0114 289 2000
Facsimile: 0114 289 2500

**HEALTH & SAFETY
LABORATORY**

**Workforce Participation in the Management of
Occupational Health & Safety**

Report Number

HSL/2005/09

Project Leader: **Dr Peter Shearn**
Author(s): **Dr Peter Shearn**
Science Group: **Human Factors Group**

CONTENTS

EXECUTIVE SUMMARY

OBJECTIVES

The following review of literature is designed to report on the:

- The nature and extent of worker participation in the management of occupational health and safety.

- The effectiveness of worker participation.

- The barriers to worker participation.

MAIN FINDINGS

- In general, the justifications for workers' participation in occupational health and safety management have been broadly separated into three major categories: potential improvements in psycho-social and organisational development, potential productivity and efficiency gains, and the fulfilment of ethical and legal imperatives. The many justifications cited include: participation of the workforce enables fuller debate; the provision of enriched available information base; acquisition of an increased sense of safety initiative ownership; positive impact upon both quality and productivity at the workplace; and, potential improvements in industrial relations.

- There are a range of types of worker participation. For the most part the literature discusses the use of indirect forms of participation, such as safety committees. There is, however, a wide-ranging debate on the use of direct participation. In particular, discussion focus upon the implementation of quality (safety) circles and a small number of other notable forms of workplace reorganisation. Of the academic research in this area, there appears to be little in the way of consensus on the relative benefits of different forms of participation, and a limited discussion in the area of occupational health and safety. Where discussion does exist, predictably, enthusiasts and sceptics have different views about the forms of workers' participation and contexts in which workers' participation might become effective.

- The issue of effective workforce participation has received little investigation in the OHS research literature. Where evidence is provided, it is almost exclusively focused upon the performance of safety committees, with other forms of workers' participation receiving relatively little attention. Although further research is warranted, some general conclusions may be derived.

- As is demonstrably the case with all organisational initiatives, the success of any workforce participation initiative rests upon the tangible commitment of management. Secondly, employee commitment is essential for participation to be effective. The research indicates that participation will not be effective where employees do not desire a participatory role, are not committed to organisational and OHS goals, or do not perceive the initiative to be within their sphere of interest. Within the worker participation in occupation health and safety literature, few authors provide any recommendations on approaches for improving

levels of commitment. In general, authors conclude that participation will affect commitment and satisfaction differently for different people and situations, and may not be, in some cases, the most effective mechanism for generating any desired improvements.

- There is general support for the contention that worker participation is more effective within workplaces where trade unions provide support for workers. Similarly, unions appear to have a positive impact upon safety performance, or conversely that nonunion workplaces have poorer levels of safety performance.

- The effectiveness of participation will be closely tied to the levels of the participant's knowledge and know-how. The criteria for inclusion, therefore, emerge based on participation in particular social settings, and will generally be predicated on technical safety expertise or experience-based expertise. Similarly, research findings suggest that, in many cases, training is a prerequisite for participation. Furthermore, training has been found to influence participant's commitment to make health and safety changes.

- Many authors who advocate the use of workers' participation schemes indicate that they should ideally constitute part of much broader OHS management initiatives.

- Research evidence on participation appears to be fragmentary, and limited to a relatively few psychological and sociological preconditions and consequences of participation, such as commitment, knowledge and conflict structures. This body of knowledge hardly begins to reflect the complex questions that participatory social systems pose in real world settings.

- The findings of this review are best summarised as providing support for initiating worker participation schemes and encouraging employers to increase the opportunities for employees to participate in the safety process.

- The broadly positive findings concerning the effectiveness of workers' participation schemes may be tainted by the presence of the relatively narrow body of research evidence in this area. Furthermore, the degree of homogeneity in findings is limited to certain issues. Overall, the findings on the impact of safety committees are positive but not wholly conclusive.

MAIN RECOMMENDATIONS

On the basis of available evidence, it would seem that there is a widely held acceptance of the potential effectiveness of WP schemes for bringing about improvements in OHS.

Should organisations choose to make use of such schemes, the following recommendations should apply:

- Work groups and teams should be carefully designed. Account should be taken of the size of the workgroup and the regularity of meetings. The 'group cohesiveness' should be monitored, and efforts made to overcome any problems that may arise in this respect.
- Participants should be selected on the basis of their technical expertise, or their experience based expertise. Stakeholders that have a vested interest (e.g. employees and employers) in the outcomes of any participatory scheme should be indirectly or directly involved.
- The commitment of worker and management participants should be assessed, with the intention of addressing any deficits that may be apparent.

- For WP initiatives to be effective they must be backed up by a positive management culture of commitment to health and safety. If used in isolation, their impact will likely be minimal and may even be counterproductive, in terms of the implicit messages which are communicated to operational staff, with regard to the perceived low priority placed upon health and safety by the company and its management.
- Management commitment might be demonstrated by allocating specific resources to undertake tasks, or through the inclusion of senior level management in participatory processes. Workforce commitment might be demonstrated by their level of attendance within workgroups or the numbers of recommendations that they submit.
- Levels of worker commitment may be enhanced where they have assured levels of access to the making of decisions and the formulation of any outcomes.
- Where appropriate, members of safety workgroups or committees should be provided with training that will assist them in the fulfilment of their role. For example, training provided on safety topics and how to conduct and participate in the decision-making process.
- The workgroup should not become isolated from the larger workforce; efforts should be made to communicate widely, and seek feedback on any proposed changes that transpire from WP.

For the most part, the available research evidence has a narrow focus, with most attention being paid to traditional forms of participation, such as safety committees and safety representatives. Furthermore, it is apparent that the range of factors considered to improve the effectiveness of WP is relatively narrow, and there is a high degree of consensus regarding the most salient influences. There is a need for further detailed research into the effectiveness of worker participation and consultation in OHS.

Research evidence is significantly lacking in the following areas:

- Detailed case studies which attempt to 'scratch the surface' and unearth the inherent benefits and limitations of WP in real world settings.
- Forms of participation that are favoured in SMEs and non-unionised workplaces.
- Evidence from either case studies or surveys pointing to the ability of participatory processes to generate new knowledge and greater levels of commitment for OHS.
- Evidence concerning the impact of WP schemes on accident rates, or other measures of effectiveness.
- Evidence of the impact of group characteristics, task attributes and leader attributes on WP schemes.
- It is clearly the case that the commitment of both employers and employees is required to facilitate effective WP initiatives. Research should, therefore, focus on the factors which motivate these groups into becoming effective participants.

1   GENERAL INTRODUCTION

1.1   OBJECTIVES

The following review of literature is designed to report on the:

- The nature and extent of workforce participation in the management of occupational health and safety.

- Evidence of the effectiveness of workforce participation in enhancing standards of health and safety management.

- Barriers to workforce participation.

1.2   SCOPE

The benefits that can be derived through Workforce participation (WP) and the management of occupational health and safety (OHS) has been a topic of investigation and debate for several decades. Much of the recent interest in the UK stems from the recommendations for changes to the regulation of health and safety that were outlined in the Report of the Committee of Inquiry on Safety and Health at Work (otherwise known as the Robens report (Robens 1972)). A fundamental recommendation of the report was to shift the emphasis away from government imposed control towards self regulation, requiring that employers and their employees should collaborate to bring about safer worker environments. Subsequently, regulations under the Health and Safety at Work Act (1974) imposed obligations upon an employer to consult with employees or their representatives on matters relating to their health and safety at work.

Over the years a range of approaches to WP have been implemented. Findings from the literature review provide insight into recent developments in WP and the management of OHS, and provide evidence of WP impacts upon health and safety outcomes. This review offers an evaluative perspective, and weighs up the pros and cons of WP interventions in order to inform a more rational basis for future work carried out in this area by the Health and Safety Executive.

In order to gain a comprehensive insight into the issues of interest, literature has been drawn from a wide range of secondary sources; including peer reviewed academic journals, relevant 'grey literature'[1] and policy documents. Particular efforts were made to identify and discuss any studies that evaluate, both qualitatively and quantitatively, the process and outcomes of WP in OHS management. The review comes to identify any transferable lessons that arise from these studies. In addition, efforts have been made to identify the scope or potential for replicating 'good practice' effects in other contexts and localities.

Overall, there is a reasonable quantity of literature on the subject of WP. There appears, however, to be less literature providing detailed case study examples that include formal evaluations of the effectiveness of WP and its impact upon health and safety outcomes.

From the outset the intention was to provide insight into the range of WP forms. However, the bulk of the available research is centred on traditional mechanisms of participation, such as indirect participation through safety representatives and safety committees. Consequently, the

---

[1] Reference and evidence sourced from the health and safety periodicals are referred to as 'grey literature', as a means of distinguishing them from published academic articles in refereed journals.

review has a relatively narrow scope, although efforts have been made to broaden discussion to other forms of WP.

1.3 INTRODUCTORY COMMENTS

Before entering a discussion about WP and OHS a number of introductory comments are in order.

- The term 'worker' is intended to encompass the range of individuals that are employed to carry out tasks at specific workplaces. In contrast to the term *employee*, which restricts attention to individuals that are directly contracted by an employer, the term *worker* acknowledges that there exist a range of economic employment relations. Nonetheless, the bulk of the discussion in the WP literature, and related regulatory guidance notes on employee representation, assume a direct employer-employee relationship.

- Over recent decades, it has become fashionable to strive for wider stakeholder involvement in decision-making. The current Government has promoted this agenda. In line with other Government programmes, the Health and Safety Commission's *Revitalising Health and Safety* strategy (DETR 2000) identifies an aspiration to promote the concept of social learning within the workplace with respect to OHS management (see also HSC 1999).

- The underlying assumption of most WP schemes is that by involving workers in decision making, by enrolling their viewpoints, by making the workplace more democratic, certain outcomes (including safety performance) should improve.

- Although there is no hard and fast definition of what constitutes WP, it is widely acknowledged that workers have basic rights to representation and communication with employers. At the very least, employers are legally obliged to ensure that their employees are provided with information about workplace hazards; are able to refuse to undertake tasks for which the risks are uncertain or pose an imminent threat; and, that they are consulted either directly or indirectly. In the UK there is, however, little in the way of a legal framework for WP (Marchington 1996). This has to some degree resulted in variable patterns of understanding, adoption and implementation.

- The Health and Safety at Work Act (HSW 1974) lays down general principles on consultation and representation of employees. These rights have been increasingly accepted, at least in principle, and changes to the health and safety regulations, between 1977 and 1996, established a legal framework which imposes a duty on employers to provide information, enable consultation, and to provide assistance for representatives of their employees. The Safety Representatives and Safety Committees (SRSC) Regulations 1977 came into force in October 1978. However, given their focus on the rights of recognised trade unions to appoint safety representatives, and the absence of trade union representation in a growing number of workplaces, the Health and Safety (Consultation with Employees) Regulations 1996 (HSCE regulations) were introduced, requiring that employers consult with employees not covered by representatives appointed in accordance with the SRSC regulations.

1.4 THE RATIONALE FOR WORKERS' PARTICIPATION

There are a number of strong prima facie arguments for wider inclusion of workers in decision-making and planning for OHS. Typically the justifications for WP in OHS management can be broadly separated into three major categories: 1) potential improvements in psycho-social and organisational development, 2) potential productivity and efficiency gains, and 3) ethical and

legal imperatives. A review of these factors is highly salient, and will provide the reader with a more comprehensive understanding of the motivations for attaining greater levels of WP.

We outline the research evidence that considers the effectiveness of WP at greater length in Section 3 below. Without pre-empting this discussion, the subsequent sections address the question, 'why should workers participate in the management of OHS?'. To this end, the discussion identifies the recurring practical justifications for broadening WP, essentially arguments that can motivate government, management, trade unions or workers to endorse WP.

1.4.1 Improvements in psycho-social & Organisational Development

Numerous articles refer to psycho-social and organisational development as the motivation for greater levels of participation. On the whole, these perspectives address the management of organisations and the propensity of participation to overcome some dysfunctional problems within them. In this respect, and with reference to OHS management, employee participation can serve a number of purposes.

1. *Improved social learning and industrial relations*
• Participation can promote and strengthen social learning. Inclusion of the workforce enables fuller debate, which has the effect of ensuring that more of the available options and assumptions are questioned and tested. Following this line of thought, participation is seen as a problem of efficiency rather than democracy. Thus, individuals or groups contribute to a consultation process because they are believed to possess some relevant 'lay' insight which has potential to enhance some aspect of the learning process.

The participative approach ensures that useful information that is known to workers, at lower levels, may be passed upwards with resultant improvements in knowledge distribution and acquisition (Peters & Waterman 1982; Ritchie & Herscovitch 1995). The workforce may possess valuable working knowledge of their capabilities and potential for improvement within their domain, e.g. a greater awareness of any local working conditions and hazards (Biggins & Farr 1988b). An output of improved social learning processes might be a well designed procedure for monitoring accidents and near misses, and mechanisms for preventing future incidents.

• There is enhanced potential for greater understanding on the part of the workers who are to execute initiatives which will result from participatory decision-making. This may involve such factors as greater goal clarity, a fuller grasp of the methods to be used in accomplishing the work, or a more thorough understanding of the reasons for organisational changes, decisions and policies. Additional improvements in social learning can be achieved where workers are encouraged to provide feedback or formally participate in the evaluation of OHS programmes. Furthermore, feedback can provide a useful qualitative check on the practical performance of programmes (Bohle & Quinlan 1993, p.435).

Through processes of social learning between employees and management representatives, and where co-operative working relationships are maintained, it is reported that WP initiatives have the potential to improve industrial relations (Marchington 1996; TUC/CBI 2001).

2. *Improved commitment and job satisfaction*
The motivational mechanisms of WP are widely discussed by behavioural scientists (see e.g. Locke & Schweiger 1979; Miller & Monge 1986). Although there is relatively little in the way of an examination of these mechanisms within the OHS literature, it is widely assumed that the process of participation at all organisational levels can result in workers becoming more clearly involved as stakeholders and therefore more committed to OHS management, and accepting of

any changes. In short, it is contended that levels of motivation are enhanced by internalisation of objectives, or acceptance via involvement. This, in turn, has been attributed to greater trust on the part of workers (Lawler 1975; Johnson & Johansson 1991) and greater levels of job satisfaction (Johnson & Johansson 1991), which results from being consulted about proposed changes. On the other hand, it has been suggested that simply treating workers as recipients of OHS advice that stems from management decision-making could be a possible cause of workers' resistance to change (and heightened anxiety, etc.).

WP is regarded as one among several means of overcoming debilitating effects of traditionally designed (e.g. hierarchical) organisations on their members. However one caveat should be noted, participation will affect commitment and satisfaction differently for different people and situations, and may not be the most effective mechanism for generating any desired improvements.

1.4.2   Productivity and Efficiency Gains

Closely associated with improvements in employee motivation and social learning, and in some cases identified as a correlate, are studies that identify the potential of WP to affect increases in innovative behaviour, economic efficiency and productivity. Of the academic research in this area, a notable review paper by Locke and Schweiger (1979) concluded that employee participation had little consistent affect on productivity. On the other hand, Spector (1986) provides a more optimistic viewpoint, indicating that employee participation can be associated with higher motivation and performance, fewer intentions to quit, and lower turnover. Despite these apparent differences, most authors agree that the effectiveness of WP schemes depend upon numerous contextual factors, and that productivity benefits can only occur when certain factors are present (see Section 3 of this review).

Noting the levels of occupational accidents and ill-health, and the resulting cost of lost time, reduced efficiency, lower quality and quantity of production, absenteeism, high turnover of staff and increased labour unrest, management theorists and business leaders have looked to a variety of social science techniques – including various forms of participation – as a solution to these costs.   There exists a growing body of evidence that improved OHS performance can have a positive impact upon both quality and productivity at the workplace. Direct links have been made, for example, between the removal of hazards and improved levels of productivity (Mossink & Licher 1998; Oxenburg 1991; Shearn 2003); i.e. where interventions provide some measure of benefit to the economic performance of a company, and where the benefits outweigh the implementation costs.   However, relatively less information is available regarding productivity improvements that might be gained through WP in OHS decision-making – although related inferences have been made (see: Grunberg 1983; Quinlan 1996; Simard & Marchand 1995).

1.4.3   Rights & Legal Imperatives

A major motivation for the introduction of WP initiatives is the moral belief that workers *ought* to have the opportunity to become involved in collective decision-making at work. This position is broadly based upon shared values regarding the rights of workers in democratic societies. In short, to offset the imbalance of power present in most workplaces and to afford greater levels of employee autonomy and participation, formal mechanisms are established through which employees can contribute to the operation of their workplace in a broader context beyond that of their specific job. Furthermore, WP is considered to be one strategy that can align employer and employee interests and reduce the conflictual elements in the employment relationship.

4

Duties to consult at a collective level are imposed upon UK employers, through statutory regulations. The statutory rights of workers, therefore, underpin the employer's legal duty to consult employees at the collective level; i.e. the obligations upon UK employers to consult with employees under the SRSC and HSCE regulations. For a significant part of the literature, especially the 'grey literature', it is apparent that the success of any WP initiative can be measured against the fulfilment of these rights or legal duties. However, for the most part, the general literature is concerned with, broadly speaking, business motivations for WP; for example, productivity and safety performance improvements that might be realised through greater levels of employee consultation and participation in OHS management.

2   THE NATURE & EXTENT OF WORKERS' PARTICIPATION

2.1   THE NATURE OF WORKERS' PARTICIPATION AND CONSULTATION

Despite the presence of regulatory guidance on the employee consultation, the content includes no specific recommendations regarding process and facilitation (James & Walters 2002, p.149). In cases where employers and employees (or their representatives) are aware of SRSC and HSCE regulations, it may not be immediately apparent what options are available and what might constitute 'best practice'. In view of this shortfall in the available guidance and with a view to outlining terms of reference for subsequent sections of this review, the following discussion concerns the nature of WP.

One of the central attributes of an organisation is participation. At the very least participation is required to make decisions, to ensure the co-ordination of activities and to fulfil common goals. In short, organisations could not function without some degree of participation. The following discussion is, for the most part, concerned with the organisational treatment of participation; it will consider the mechanisms that enable workers to contribute to the transformation of the work-place or -practice.

The WP literature indicates that where WP is practised, it takes on a wide range of forms, and that WP can be tailored to match local requirements, resources and aspirations. At an abstract level, there are a number of models that have been used to describe WP (e.g. Locke & Schweiger 1979; Strauss 1982). For simplicity the properties of WP can be classified into four general dimensions (based on Dachler & Wilpert's (1978) properties of participatory arrangements):

- *Direction of communication*. The communication of OHS issues in the workplace will be most commonly directed in a top-down manner - meaning that managers communicate issues in a manner intended to instruct or provide information for staff. This may involve team briefings, the circulation of information through a range of media, the instigation of rules and standards and informal means of communication between managers and their staff. This form of participation requires the workforce to comply with management decisions, and the democratic aspirations of many WP schemes would appear to be absent. Nevertheless, top-down communication is arguably an efficient manner of engaging the workforce and conveying messages that require particular actions on the part of the employee. In addition, top-down communication, given the direction of information flow, entails a level of management commitment to particular initiatives. It should also be noted that management commitment is widely considered to be critical to the success of safety improvement initiatives (Boden et al 1984; Fuller 1999; Kochan 1977; Rogers et al 1993; see also section 3.2.2). With respect to the goals of communication, it is plausible that workers become educated through the associated processes of knowledge communication and acquisition, although the reception of the message will depend on the way it was communicated and the context in which it is received (Biggins et al 1991). Top-down communication, especially following the growth and popularity of team briefings during the 1990s, are widely reported to be amongst the most common form of WP in Britain (Millward 1992). On the whole this form of WP falls outside of the sphere of interest of this review, mainly because it cannot be construed as meaningful WP in *decision making* for OHS management. Rather, it is simply the foundation upon which a participation process can be built.

By contrast, bottom-up communication starts at the shop floor or employee level. This form of communication is premised on democratic notions of participation. According to this model the worker is encouraged to contribute to OHS management through individual or group level

participation. Perhaps the best known example of related techniques are quality circles, intended to inculcate upward problem solving. Bottom-up participation has a number of objectives, such as to increase the stock of ideas within an organisation, to encourage self-determination and autonomy and to encourage co-operative relations at work. Through related participation processes significant levels of legitimacy can be achieved, and this has been evidenced by the presence of a more proactive and comprehensive approach OHS management initiatives (Alder et al 2000; Biggins et al 1991).

Top-down and bottom-up communication models are ideal types of WP. The respective shortcomings of both models has led most commentators to agree that the most pragmatic paradigm is likely to be a synergetic and negotiated process combining elements of both bottom-up and top-down models. In the context of the workplace it is difficult to imagine anything other than a two-way dialogue of continuous communication, i.e. a cyclical process, as either extreme would be effectively unworkable and politically undesirable.

• *Formal-informal* WP. Formal WP implies that organisational involvement is planned from the outset, that it is legitimised or imposed through some system or procedure, or that it is implemented in accordance with external rules or regulations. Formal systems of WP would presumably be widely acknowledged and understood throughout the workplace and there would be associated systems for recording the outcomes of participatory activities. Examples of formal systems are attitude surveys, suggestion schemes, toolbox talks and quality circles. In contrast, informal involvement can lead to consensus through less acknowledged processes. For example, informal discussion about OHS management can lead to the generation of ideas and solutions to problems, or simply generate a wider level of debate. Related outcomes are most likely to occur where managers routinely delegate decision making, and workers have some autonomy in the management of OHS. The requirements for such a system are that workers are encouraged to communicate ideas and that communication has the potential to lead to practical outcomes. The most apparent weakness of informal participation processes, wherein managers and workers freely exchange ideas, is the absence of any obligation for managers to act on related advice or requests (Bohle & Quinlan 1993, p.424). However, these weaknesses may be observed in formal participatory systems and are likely to relate to the characteristics of the organisation and its members (see also *level of access* below). The separation between formal-informal systems is not always clear-cut, both systems can have characteristics of the other system: formal systems can create informal arrangements, and formal systems can be imposed on existing informal participatory arrangements.

• *Direct-indirect* WP. Direct participation implies immediate, personal involvement of workers in decision-making processes - usually at the shop floor where the worker has the opportunity to assert his/her views. Task participation or job redesign are good examples of direct participation. Indirect participation, as with many democratic systems of governance, relies on participation through representatives drawn from amongst the wider population. In respect of OHS management, the professionalisation of representation is common, safety representatives being a good example of agents that are indirect representatives. There are a range of arguments for the adoption of indirect or direct forms of participation (e.g. see Section 2.2), in practice the two forms can be combined, although outcomes ultimately depend upon the context in which they operate.

• *Level of access* to decision-making. Participation by itself is an unviable proposition unless workers can realise some degree of influence over decisions and practical outcomes. A number of authors remind us that there is a qualitative distinction between providing evidence that will contribute to the decision-making process and being positioned such that individual's influence can shape or veto decisions (Biggins et al 1988a; Knights & McCabe 1998). The

levels of access can be portrayed on a hypothetical continuum of influence, for instance: '1) No (advance) information is given to employees about decisions to be taken; 2) Employees are informed in advance of the decision to be made; 3) Employees can give their opinion about the decision to be made; 4) Employees' opinions are taken into account in the decision process; 5) Employees have a veto, either negatively by blocking a decision that has been made, or positively by having to concur in advance; 6) The decision is completely in the hands of organisation members, with no distinction between managers and subordinates' (Dachler & Wilpert 1978, p. 14). Although these distinctions may not be clear-cut in practice - e.g. can we realistically distinguish between 3 and 4? (Cotton 1993) - access issues should be carefully observed, especially where WP programmes are being recommended or implemented.

In addition to these four dimensions of participation, some authors pay attention to the workforce involvement in deciding the range of issues to be considered (Strauss 1977), e.g. planning of procedures and design of risk assessments and method statements. It seems clear that for participation to be effective the issues must be understood and viewed as worthwhile to the workforce. A further consideration is the range of participants: what individuals, departments or groups should be included in the decision-making process? The way that workers are selected, or become involved, will relate to contextual political processes with potential to profoundly influence the balance of power, the setting of agendas and baselines for actions (Dachler and Wilpert 1978; Grunberg 1983; O'Toole 1999).

Given the multidimensionality discussed here, from a research perspective WP can be an elusive concept, often difficult to pin-down. For the most part articles identified in the 'grey literature', and a high proportion of articles that emanate from peer reviewed academic journals, focus upon specific forms of participation, with less attention being paid to the nature, or dimensions, of participation. Where reference is made to dimensional constructs, they appear to be selective, demonstrating little insight into the inherent complexity. Some discussions are based on levels of access, whilst others are predicated upon the social make-up of participation, a detailed consideration of dimensions being absent.

Much of the academic and management debate surrounding WP in OHS management does not systematically deal with the dimensions of WP, and involvement is often subsumed under the generic 'employee involvement' heading. This levelling of the concept is also assumed in many evaluative studies that attempt to weigh-up the benefits of WP schemes, often resulting in underdetermined conclusions.

2.2 FORMS OF PARTICIPATION

In real world settings WP in OHS management is commonly implemented through a number of discrete mechanisms. The most common and widely discussed form of WP is the joint worker-management Safety Committees[2].

- *Safety Committees* confer upon workers and management alike an important means for dealing jointly with the prevention and the resolution of occupational hazards. Traditionally in Britain it has been the role of the trade unions to represent workers' interests, especially with regard to OHS. In many workplaces this will remain the case, but over recent decades the

---

[2] Within OHS management literature the bulk of the discussion focuses upon safety committees, with significantly less attention being paid to other forms of representation in OHS management. This point is most notably true for evaluative studies (see section 3), where the bulk of formal evaluations are focused upon the impact of representation through safety committees.

gradual erosion of union influence has meant that workplaces and their safety committees are increasingly non-unionised (James & Walters 2002; Cully et al 1998).

Committee structures appear to vary considerably between workplaces (Boden et al 1984). They are generally composed of worker and management representatives from within the workplace; typical configurations include management-only, joint union-management, joint employee-management, or employee-only committees. It is not uncommon that outside experts attend committee meetings to provide additional information or insight. For example, trade unions may invite a regional representative or management may enrol the services of health and safety consultants.

Where the composition of mandated safety committees is inclusive of the relevant stakeholders, they can play an important role in ensuring that:
1. information is shared concerning workplace hazards;
2. workers and their representatives contribute to health and safety management;
3. responsibilities and actions are discussed and approved;
4. progress is monitored (given regular meetings or updates);
5. operations are compliant with regulations;
6. consensual outcomes are achieved.

Overall, the available evidence within the academic literature indicates that safety committees can lead to enhanced levels of safety performance (see section 3.1). Committees have, nevertheless, been subject to a number of criticisms. For instance, their purpose and outcomes are not always transparent to the workforce that they represent and they do not always facilitate more open communication, or foster a culture of greater trust and participation (Cole 1984; Eaton & Nocerino 2000). There is also evidence that workers' safety representatives can become distanced from their 'constituents', thereby raising questions concerning the representative's level of engagement and commitment (Coyle & Leopold 1981).

In view of these shortcomings, in certain situations it may be desirable to tap directly into worker's knowledge and facilitate involvement wherein workers can have an immediate and personal impact. A number of related formal approaches to WP have been devised, and subsequently adopted by organisations seeking to raise the levels of WP in the management of OHS.

- *Attitude Surveys* have been implemented with a view to directly gaining wide-level 'participation'. Although the nature of the workers' input is characteristically determined by the design of the survey tool, this method has the potential to gain feedback on a wide scale, at relatively low costs.

- *Focus Groups* (or safety workshops) are another example of direct participation which have the advantage of face-to-face interaction, allowing the generation of a greater depth of participation. Focus groups are facilitated, discussion groups. They were initially developed in commercial market research, but are useful tools that can be adopted within a company context (see Ritchie & Herscovitch 1995). Focus groups allow the generation of relatively unstructured and naturalistic conversations among small groups of people, who are specially recruited as participants. A focus group facilitator has the task of guiding discussion, taking note of the key points and assimilating the worker's viewpoints and insights. There is relatively little discussion of the use of focus groups within the WP literature.

- *Quality Circle* (QC), sometimes referred to as 'safety circle', is a related form of participation with functionally similar attributes and outcomes. In addition to involving

workers in discussion of OHS management, QCs aim to directly engage workers in problem-solving, decision-making and OHS management. Interest in QCs arose following their adoption in Japan, where companies had become increasingly innovative and productive during the 1970s. Subsequently, British industry managers began to view QCs as a means to bring about improvements in industrial relations, whilst at the same time achieving continuous business improvement (Cotton 1993; Goldstein 1985).

In respect of QCs that are convened to discuss OHS issues, they tend to be composed of voluntary members from the same work area – and usually in large workplaces (see: Hillage et al 2000, p.50). Circle discussion would be focused upon the identification of OHS problems and methods to solve them. These groups have limited impact in that they can generate ideas, but cannot guarantee that management will agree to their implementation. Some commentators have noted that for these groups to survive it is vital that the circle activities have the potential to be followed through, or that they can influence future management initiatives (Penzer 1990). In summarising his review of QCs, Cotton (1993) identified that QCs tend to be fragile entities that rarely take hold within companies.

In order to ensure that the QC programmes become more durable it is widely held that a) QCs require support from managers and employees; b) groups should be provided with enough time to form an identity and specify clear agendas[3]; c) training and information should be provided for circle members; and, d) the group should be provided with regular feedback from the management (Cole 1984; Cotton 1993; Penzer 1990). Overall, the available evidence suggests that the success rate of QCs is variable. Batstone and Gourlay (1986) cite a number of limitations of QCs when they argue that management can tightly control QCs, and place restrictions on the scope of WP. Furthermore, they argue that QCs are not aimed at participation, but instigated with a covert intention of bypassing trade unions, and forming alternative relationships in order to increase the standing of management in the opinion of employees[4].

- *Total Quality Management.* Many of the failings of QCs have been attributed to the manner in which early Western attempts appropriated the most visible aspects of Japanese production systems (namely QCs), without recognising that they functioned as part of an organisation-wide approach to quality improvement and change. For this reason, much of the recent academic and management WP literature has focused on direct participation as a component of *Total Quality Management* (TQM) systems. TQM, unlike QCs which tend to be discrete entities within a company, emphasises organisation-wide cultural change. In this respect TQM would not relate to single issues like behaviour based safety, but company wide improvements that encompass safety and communication, etc. It is reported that the most important problems that QCs face can be remedied by adopting the principles advocated for TQM; that management should have a distinct role in improving quality; that emphasis should be placed on decentralising responsibility downwards; and, that high levels of organisation-wide education and training should be provided, to inculcate mechanisms of change (Hill 1991; Rahimi 1995; Weinstein 1998). The underlying message is that TQM requires greater levels of organisation wide participation; greater commitment of resources to be given over to activities that are not directly related to core business activities; and, that organisation structures are reshaped such that communication can be multidirectional. In the face of these requirements, hierarchical power relations can intervene and short-term profit demands, that are endemic

---

[3] QCs are most likely to fail during the first nine months. Where they manage to survive, successes are commonly realised during the 6 to 18 month period (Cotton 1993 p.76).
[4] It should be noted that these criticisms have been levelled at all forms of WP (see also Marchington 1996).

within British industry, have undermined the effectiveness of TQM innovations (Knights & McCabe 1998).

Of the academic research in this area, there appears to be little in the way of consensus on the benefits of either QCs or TQM. Nevertheless, most authors concur that the success of direct participation will vary in relation to such characteristics as the level of access to decision-making, the support structures that are implemented, and the organisation culture - comprising behaviours, attitudes and beliefs. Although some of these difficulties can be overcome through quality approaches to management, predictably, enthusiasts and sceptics have different views about the contexts in which quality systems might become effective.

Much of the published research on forms of participation is not specific to OHS; therefore a cautious interpretation of the findings is required, as the motivations to ensure that WP schemes in OHS succeed, when compared with other company objectives, may differ.

Although they have received significantly less attention, there are a number of other WP approaches. Workforce participation through task participation and job redesign is widespread, although it is difficult to estimate the extent given the lack of comprehensive data. Similarly, sociotechnical approaches to technology or job design are popular, and widely promoted within the research literature. The success factors for these approaches will be similar to those discussed for QCs and TQM.

2.3 THE EXTENT OF WORKERS' PARTICIPATION AND CONSULTATION

Over recent decades a number of industry surveys have been conducted with a view to determining the extent of WP and consultation in British workplaces (e.g.: Cully et al 1998; HSE 1981; Hillage et al 2000; Walters & Gourlay 1990). The key findings from these studies provide valuable background information. For example, an early HSE survey (HSE 1981), conducted in 1979, of 6630 workplaces (of all sizes) found that 79 % of employees had access to safety representatives (and 81 % of them worked in premises where joint health and safety committees were present). Two subsequent surveys were carried out on behalf of HSE. A survey conducted in 1987 (Walters & Gourlay 1990) found that 53 % (N=4715) of workplaces with recognised trade unions had safety representatives. The most recent survey conducted in 1999 (Hillage et al 2000) found that 48 % (N=1010) of the workplaces (of all sizes) had at least one health and safety representative (see Table 1).

Table 1
Survey findings: The Extent of Worker Participation

	1979 Survey[a]	1987 Survey[b]	1999 Survey[c]
Sample (N)	6630	4715	1010
Workplaces with Safety Reps (%)	79	53[*]	48

[*] Workplaces with recognised trade union only.
[a] HSE 1981; [b]Walters & Gourlay 1990; [c]Hillage et al 2000

Due to sampling differences any comparisons between the surveys, or inferences about the changing nature of WP and consultation, should be treated with a degree of caution. Nevertheless, the findings are informative and provide an indication of the changes in workplace practices over time. It would appear that safety representation in Britain is decreasing. This conclusion appears to be, at least partially, supported by the findings across the reviewed literature. There are a range of factors that can explain this trend. Perhaps the

most widely reported reasons for the changes in levels of formal WP and consultation are the rising proportion of smaller enterprises – the vast majority of which do not have safety representatives; and, the declining number of workplaces with recognised trade unions – resulting in less emphasis upon worker representation

Where safety representation exists on a formal or informal basis, methods of consultation between employers, safety representatives and workers have been found to be wide ranging (see Table 2). In all cases informal discussions were reported to be the most widely used form of consultation.

| Table 2 | | |
| Methods of Consultation | | |
	Through Worker Representatives (%)	Direct Consultation or information provision (%)
Informal Discussions	61	66
Ad hoc meetings	37	-
Memo/letter	32	32
Safety committee	27	n/a
Email	5	5
All staff meetings	n/a	47
Noticeboards	-	36
Team Briefings	n/a	33
Newsletter	-	16
Other meetings	-	13
Tool box meetings	n/a	6
Quality circles	n/a	3
Other	10	3
Total (N=) weighted data	428	673
Total (N=) unweighted data	647	810

Source: Hillage et al 2000 (employers' survey)

Overall, it is reported that larger enterprises are more likely to implement direct forms of participation. It was found that 13 % of larger workplaces (200+ employees) compared with approximately 3% of smaller workplaces (<200 employees) use QCs to enable direct consultation. The exception to this trend relates to the uptake of informal discussions as a means of direct participation, with approximately 65% of smaller workplaces compared with 58% for larger workplaces reporting that they employ this form of direct consultation. The degree to which enterprises supplement informal discussions or execute dialogue related actions is uncertain, and the absence of any paper trail means that the level of confidence in these figures remains limited.

In the context of this discussion, we feel that the reported levels of awareness of the SRSC and HSCE Regulations can provide useful insight into the impact of regulations upon WP and consultation practices. The most comprehensive findings on this matter are reported by Hillage et al (2000). Results from their survey suggest that only a minority of employers (questionnaire respondents) were aware of the regulations, indicating that only one-third were aware of the SRSC Regulations and that two-fifths were aware of the HSCE Regulations. Overall, the findings from both employer and employee surveys led the researchers to conclude that, 'most employers and employee representatives felt that the regulations had made little difference' (Hillage et al 2000, p. 83). Failure on the part of employers to comply with the SRSC and HSCE Regulations, and the low levels of awareness of the regulations indicates that the extent of WP and consultation may be less than optimal. Additional findings from the survey indicate

that 10% of employers do not consult in any form with employees on health and safety issues. James and Walters suggest that this situation may be exacerbated by HSE's failure to take any direct action to enforce the SRSC regulations (James & Walters 2002, p.149).

2.4 SUMMARY & CONCLUSIONS

- Research highlights four general dimensions that describe worker involvement: 1) The direction of communication, i.e. the selection of top-down or bottom-up models of participation. 2) Formal-informal workers' participation, i.e. where involvement is planned from the outset or involvement is ad hoc and unregulated. 3) Direct-indirect workers' participation, i.e. immediate personal involvement or participation through representatives. 4) And, the level of access, i.e. often portrayed on a hypothetical continuum, the highest level allowing employees to shape or veto decisions, the lowest level providing employees with no specific role in health and safety decision making / policy generation process.

- In practice, these dimensions are mixed in varying and often complex combinations. It is evident that within much of the literature, especially the 'grey literature', authors have a limited understanding of the properties of workers' participation schemes. Participatory schemes are often treated as if they could be identified along any one continuum, whereas the many, seemingly significant and interdependent, properties of participatory schemes require a multidimensional analysis. For evaluation to be relevant and informative, most commentators concur that appropriate analysis of these, or conceptually comparable dimensions, are required to provide data to assess the nature of participation against which effectiveness can be measured.

- There are a range of types of worker participation. For the most part the literature discusses the use of indirect forms of participation, such as safety committees. There is, however, a wide-ranging debate on the use of direct participation. In particular, discussion focuses upon the implementation of quality (safety) circles and a small number of other notable forms of workplace reorganisation. Of the academic research in this area, there appears to be little in the way of consensus on the relative benefits of different forms of participation, and only a limited discussion in the area of occupational health and safety. Where discussion does exist, predictably, enthusiasts and sceptics have different views about the forms of workers' participation and contexts in which workers' participation might become effective.

- Evidence provided by industry surveys, conducted over the past 30 years, indicates that formal schemes of workers' participation and consultation in OHS management are on the decline. The most recent survey of this type indicated that less than half (48%) of British workplaces have a health and safety representative.

- When discussing regulations, the literature indicates that enforcement of the regulations is very limited. Added to this, levels of awareness of awareness amongst employers of statutory regulations for workers' participation are low.

3   EVIDENCE OF THE EFFECTIVENESS OF WORKERS' PARICIPATION IN OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

To put the debate about WP into a more informed context, we have reviewed the literature that analyse the effectiveness of WP and the impact upon health and safety outcomes.

Throughout the 'grey literature' there is a high level of consensus regarding the merits of WP schemes as a means of improving OHS performance. Many of the articles make impressive claims, for example: '*employee involvement yields improved safety record*'. Given this general level of consensus, it is perhaps surprising that there are relatively few reliable studies that formally evaluate WP initiatives, and provide any meaningful measure of impact on safety performance, safety culture or efficiency, etc. We anticipate that the strength of this consensus arises, at least in part, from two contributory factors:

- Firstly, throughout the literature, the success of WP initiatives is considered an end in itself. It is assumed that conforming to the legal duty to inform and consult employees at a collective level will automatically be effective in bringing about improvements in OHS performance.
- Secondly, this has resulted in a tendency to confuse measures of WP effectiveness with factors which influence WP effectiveness; an apparent confusion between WP means and WP ends or outcomes (Bryce & Manga 1985).

In short, a number of articles sourced from the grey literature demonstrate that the authors have unsubstantiated evidence of the effectiveness WP schemes or have a limited understanding of the complexity of the causes of beneficial outcomes.

Employers, employees and employee representatives have widely demonstrated their enthusiasm for WP, presumably based on direct experience of consultation activities. Evidence provided by a recent survey (see Hillage et al 2000, pp.65-6) indicates that the majority of employers are of the opinion that consultation schemes are of benefit, with 63% agreeing with the statement that, '*consultation with the workforce has improved health and safety in this organisation*'. Notably, employers without employee representatives were less inclined to agree. As part of the same survey employee representatives were asked a similar question about the improvements resulting from consultation, the vast majority believed that consultation does lead to improvements (i.e. 80% 'agreed' or 'strongly agreed'). By contrast, academic authors tend to be more cautious, often noting difficulties encountered when attempting to measure the impact of WP schemes. The subsequent discussion will consider the empirical work designed to assess the effectiveness of organised WP.

Without exception the major objective of OHS WP initiatives is to improve the health and safety record of the workplace and to improve the quality of working life. WP effectiveness can perhaps best be measured using a number of variables or factors. Of the reviewed literature the following measures of the effectiveness of WP initiatives were applied through analyses, or cited as potential measures:

1. Reported or recorded accident and illness rates.
2. Perceived levels of effectiveness in improving health and safety performance.
3. Perceived or measured levels of workforce/participant awareness of OHS issues.
4. Perceived safety levels.
5. Propensity to implement safety initiatives.

The measures of success used are frequently different between studies, making the direct comparisons of results somewhat difficult. With respect to measures of effectiveness, one point of caution should be observed: there are many factors that can influence 'objective' measures of

safety performance and perceptions of participation outcomes. Readers should therefore recognise the limitations of inferring causal relationships from the research findings. In cases where it is demonstrated that employee involvement can be successful, it is often difficult, if not impossible, to determine whether this is because of participation or other contending factors.

A number of key findings concerning WP in OHS management come from *case studies*. These studies usually involve small numbers of workplaces and their employees, and provide predominantly anecdotal evidence of the outcomes of wider worker involvement in consultation and the management of OHS. Following a long tradition of qualitative research, case study work sets out with the intention of accessing the world of the actors under investigation, and to interpret this world and its problems from the inside. The principal advantage of this type of approach is that it provides a rich and detailed insight into how stakeholders frame and understand the issues of interest, as seen in participants' own terms. It is notable that the reviewed case studies focus almost exclusively on perceived benefits, with relatively little attention paid to the negative characteristics or potential pitfalls of WP (see e.g.: Alder et al 2000; Bell & Phelps 2001). This is perhaps an outcome of the difficulties of accessing cases that have weaknesses, or that have failed outright, as employers might refrain from research activities that would portray their activities in a negative way.

In addition, s*urveys* have been applied which address the relationship between a range of factors that influence WP effectiveness. Studies that analyse the success of WP schemes have used both perceptual measures of effectiveness (typically from questionnaire responses) and 'hard' measures of workplace health and safety (typically from reported accident rates). Some problems have been reported with these sources of data, and limitations to their validity should be kept in mind. In the case of questionnaire responses, the internal validity of this method of data collection and measurement may be questioned, compared to the method of direct observations by trained observers. In addition, accident and injury data tend to be limited and subject to distortion and variability in the propensity of people to report incidents. Various methods of analysis (including multivariate analysis, factor analysis, etc.) of survey data and other data sets have been applied.

In a few notable cases, research has been conducted employing combined methods (Coyle & Leopold 1981; Eaton & Nocerino 2000; Hillage et al 2000); i.e. research that combines analyses of macro variables, with analysis of contextual sources (e.g. committee minutes) and the use of interview and survey techniques. A methodological strength of the combined methods approach is that the qualitative insight into the complexities of people's beliefs and attitudes can be validated on a larger population sample thereby increasing confidence in overall conclusions. Arguably the best way to analyse the impact of WP schemes on industrial accidents would be through examining WP activities over a period of time (Coyle & Leopold 1981), although most studies rely on single sets of data and respondents perception of changes over time.

Overall the issue of WP effectiveness has received little investigation, and the range of articles that analyse the effectiveness of WP and consultation schemes is very narrow. Where research evidence is provided on the effectiveness of WP schemes it tends to focus upon the performance of safety committees, with other forms of WP receiving relatively little attention. This outcome might be anticipated given the widespread use of safety committees when compared with other forms of formal worker participation and consultation. Only one of the evaluative studies reviewed considers informal forms of WP or consultation and their benefits (see Ochsner & Greenberg 1998). Arguably, this represents a significant deficit in our knowledge, as informal negotiations are the most commonly reported form of interaction between workers and management representatives (Hillage et al 2000; see also section 2.3). The fleeting and unplanned nature of informal interactions might prohibit widespread research on related

practices and their outcomes, although qualitative research approaches could effectively capture relevant insights.

A fundamental question throughout this section is whether or not WP programmes exhibit beneficial effects, and to what extent the reviewed literature has identified the underlying constructs, or factors, which characterise the core determinants of WP effectiveness.

3.1   RESEARCH ON THE EFFECTIVENESS OF SAFETY COMMITTEES

Safety committees exist in around one-quarter of workplaces, they are most commonly found in larger workplaces - 90% of workplaces with >200 employees use safety committees (Hillage et al 2000, p.43). They are, therefore, a principal mechanism for indirectly involving workers in the management of OHS.

There are a number of factors associated with the overall effectiveness of safety committees[5], they can be classified under two headings (following Coyle & Leopold 1981): internal factors, or factors that the committee may be able to directly control, and; external factors which are generally beyond the direct influence of committees (see figure 1).
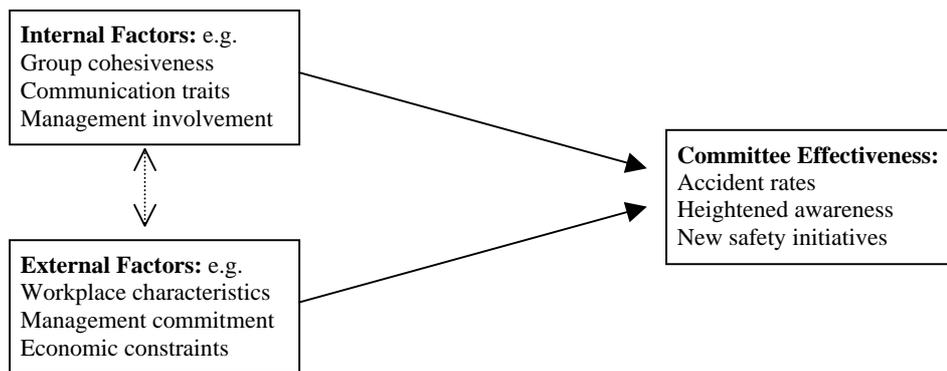

Internal Factors: e.g.
Group cohesiveness
Communication traits
Management involvement

External Factors: e.g.
Workplace characteristics
Management commitment
Economic constraints

Committee Effectiveness:
Accident rates
Heightened awareness
New safety initiatives

Figure 1.   Model of the association between 'committee effectiveness' and factors that influence effectiveness.

Bryce and Manga (1985), for instance, identify eighteen factors that can have some degree of impact on the functioning and effectiveness of the committee. Discussion will be restricted to those factors for which empirical evidence has been generated to support the nature of their effect.

3.1.1   Internal factors

The impact of internal factors on committee outcomes is relatively well understood. Although not all internal factors are significant predictors of the effectiveness of safety committees, the research in this area highlights the importance of the structure and function and of committees. For example, the size and regularity of meetings have been shown to affect the sense of ownership and the development of working relationships amongst committee members (Coyle & Leopold 1981; Mackmurdo 2002).   Although some detail differences exist, in general, available findings suggest that the regularity of meetings, the balance and numbers of workers, and the function of the committee require careful discussion and negotiation to achieve optimal

---

[5] The discussion in this section is focused on safety committees. A number of the factors discussed here have also been associated with the effectiveness of other forms of participation (see section 3.2).

outcomes. Given the contextual sensitivity of these issues, the authors appear reluctant to provide any firm recommendations on related topics.

1. *Range of participation*
Most commentators identify the importance of involving a wide range of employees from across the workforce hierarchy. The social range of participants will usually be determined by the management or trade union policies on recruitment for committees. Research in this area is almost exclusively concerned with joint worker-management committees. There does not appear to be any published research that makes direct comparisons of management- versus employee-only committees.

A number of studies indicate that well structured joint worker-management committees, wherein discussion and decision-making is shared, result in positive outcomes and can have a significant impact on committee success. For example, a US study of the effectiveness of health and safety committees in public sector workplaces provides some support for this interpretation. The study reports that committees with greater levels of involvement from non-management members, both in terms of numbers and in agenda setting, are associated with fewer reported instances of workplace accidents and ill health (Eaton & Nocerino 2000). Indeed, this finding would appear to support the general contention for worker involvement in the management of OHS (see also O'Toole 1999). In particular, representatives from company sections that have a vested interest in the most pressing safety issues should be included in the committee.

Similarly, other research has identified the importance of senior management participation in committee meetings. In an early study of WP, Kochan et al (1977) found that the presence of senior management and their attitudes and expressed policies were a positive and significant determinant of committee success. Careful analysis of the engagement of senior management has revealed that a committee can be perceived as ineffective if management do not demonstrate some level of commitment and are not immediately available to provide approval of any proposed changes (Coyle & Leopold 1981; Leopold & Beaumont 1983; Walters & Gourlay 1990). The presence of senior management, therefore, can provide some degree of legitimacy for the committee. Should employees detect that there is not a genuine commitment from the top, there is a very real risk that the committee will become devalued and will reduce effectiveness. Ultimately the committee will require some level of influence and power such that worker's influence can shape or veto decisions.

2. *Committee training*
The more complex tasks of committees can require greater levels of experience and skill. Of the limited references on the topic of training, some commentators suggest that the training of committee members has a beneficial impact upon the effectiveness of committees. Following their study of 48 joint health and safety committees in the manufacturing sector, Coyle & Leopold identified that the most effective members of committees had all received health and safety training (see also section 3.2.1). Eaton & Nocerino (2000) also provide evidence that training plays a positive role in perceptions of committee effectiveness. On the other hand, an extensive study commissioned by the Ministry of Labour of Ontario in 1986 (cited in Eaton & Nocerino 2000) indicated that effectiveness is contingent upon member's knowledge and expertise, although training by itself did not appear to matter. In most cases the presence of a health and safety officer or advisor, whose job it is to provide expert technical input, is reported as a necessary addition to the committee composition.

3. *Group cohesiveness*

As one might anticipate, perceived levels of 'group cohesiveness' is strongly correlated with perceived levels of committee effectiveness (Boden et al 1984; O'Toole 1999; Simard & Marchand 1995). However, if the effects of committees depend on the nature of the group, it follows that committees might not only be ineffective in some circumstances, but might be actually harmful. For example, committee meetings could lead to intragroup conflict caused by such factors as fundamental value differences or the resentment of members whose ideas are rejected.

In addition, conformity and groupthink fostered by group pressures could lead to poor decision quality, especially if the need for agreement takes priority over the motivation to try to obtain accurate knowledge to make appropriate decisions. On the whole, such harmful effects have not been reported in the OHS literature, although attention should be drawn to the difficulties of making any hard and fast rules concerning the management and composition of committees (see e.g. Brown 2000).

5. *Communication*
As a general rule the studies of safety committees provide some evidence of the overall effectiveness of committees and identify suitable committee tasks and structures, but provide relatively little insight into the manner in which representatives communicate with the workforce, either in part or as a whole - a number of tangential references are made to posting of safety committee minutes upon notice boards, etc. Indeed, the literature appears to be lacking in any thorough analyses of the systems of participation; i.e. analyses that look beyond direct linear effects.

Of the available literature the Ontario study referred to above indicates that communications with non-member workers and managers is a significant determinant of perceived committee success. Leopold & Beaumont (1983) similarly stress the importance of a two-way flow of discussion, typically via a safety representative, as a suitable form of committee communication. But there remains little discussion about the practicalities of implementing such channels of communication, or maintaining communication in a functionally effective manner. A survey of 200 UK safety representatives provides some insight on this matter, it provides evidence that safety representatives can become isolated from the workforce: seven per cent of respondents felt isolated, and a further quarter of the representatives felt fairly isolated (Hillage 2000). One could hypothesise that there are situations that prevent some safety representatives from communicating in an effective way, and it follows that in some instances this will have a negative impact upon the effectiveness of safety committees. On a more positive note, Biggins et al (1991) in a survey of 147 Australian safety representatives provides evidence that fellow workers are most likely to raise workplace health and safety issues, when compared with health and safety representatives, indicating that good levels of interest and involvement can exist between workers.

3.1.2 External factors

The available evidence concerning the effect of external factors, or the background in which a committee is situated, is relatively less straightforward. There does exist, however, some insightful research on external factors and their impact on the effectiveness of committees.

1. *Workplace commitment*
Boden et al (1984) concluded from their research that:
> 'the objective attributes of the committee may be less important to its success than the commitment of management and labour to solving workplace safety problems. Most of the variables that were correlated with perceived [committee] effectiveness, complaints, and citations can be interpreted as reflecting such commitments' (p. 834).

Although presenting a somewhat dissenting view on the effectiveness of internal factors, most research does concur with their conclusions about the importance of worker and management commitment to the general objectives of the committee. The reviewed literature suggests that committees need a supportive milieu in which to function, and that committees are more prone to success where support is forthcoming from the management and the workers themselves (Biggins & Farr 1988a; Walters 1996; and others, see also Section 3.2.2).

2. *The influence of Trade Unions*
Another influence associated with committee effectiveness is trade union support. In workplaces where trade unions are actively involved in bringing about safety committees research has provided evidence that the perceived levels of committee effectiveness are significantly increased (Eaton & Voos 1994; Ochsner & Greenberg 1998; Weil 1999). We discuss the influence of trade unions in Section 3.2.3 below.

3. *Risk status*
The risk status of industries is a factor that has been postulated to influence the propensity of workplaces to organise safety committees, especially where management and employees perceive that committees can be a major influence to help detect and abate work hazards. It follows that where the inherent risks of the workplace are low the need for regular committee meetings might be less apparent. This viewpoint is outlined by a production director of a clothing factory:

> 'It is a low risk area. It doesn't get the priority. Safety committees and works councils are not taken terribly seriously. They are a nuisance' (cited in Leopold & Beaumont 1983, p.138).

Although workplaces that are perceived to be dangerous may well make larger investments in safety measures and have more committees with broader agendas (Coyle & Leopold 1981), Eaton and Nocerino (2000) in their survey of employee representatives noted that workplaces with greater inherent risks were associated with lower perceptions of committee effectiveness. These authors argued that where risks are particularly high or complex it may be predicted that the influence of committees will be less apparent to the workforce, and that the abatement of hazards might not be readily achieved by the actions of committees on their own.

Overall, the evidence from surveys indicates that the majority of employers, safety representatives and employees view safety committees as an effective means for improving the safety performance of companies (Alder et al 2000; Coyle & Leopold 1981; Hillage et al 2000). As outlined above, surveys have also provided evidence concerning the range of factors that have a perceived impact on the effectiveness of committees. However, the broadly positive findings concerning the use of safety committees may be tainted by the presence of only a narrow body of research evidence in this area. Furthermore, there is no available evidence to indicate that the respondent's perceptions of effectiveness are significantly correlated to 'actual' (or reported) improvements in safety performance (although see Eaton & Nocerino 2000).

3.1.3 The Impact of Safety Committees

A handful of studies have attempted to measure the effectiveness of safety committees through reported levels of work-related accidents and illnesses. O'Toole (1999) specifically tested the differences in safety outcomes, based on mandatory versus voluntary safety committee implementation at six US manufacturing plants over a period of ten years. Although the results may be open to a number of interpretations, support was provided for initiating employee safety committees, on the basis that the frequency and severity of occupational injury rates were reduced for the workplaces with both the mandatory and voluntary committees; the voluntary committees witnessed slightly better reductions. These results are further supported by the

absence of any significant changes to the frequency and severity of occupational injury rates within two control plants during the study period.

This conclusion appears to be, at least partially, supported by findings from a study by Reilly et al (1995). Their study used the data from the British Workplace Industrial Relations Survey 1993 – which include employer's estimates of injury rates - to examine the relationship between different types of health and safety consultation and the injury rates within manufacturing establishments. In the context of the present discussion the most notable finding from this study was the estimated impacts of safety measures for reducing injury rates. The strongest reducing factors existed for establishments with joint consultative health and safety committees. The study reports that:

> 'Establishments with joint consultative committees exclusive for health and safety matters – and with all employee representatives chosen by unions – have, on average, 5.7 fewer injuries per 1000 employees compared with establishments where management deals with health and safety matters without any form of worker consultation' (p. 283).

These authors also found there were 4.9 fewer injuries per 1000 employees in workplaces where non-union nominated joint consultative committees exist, when compared with establishments where management alone decide health and safety arrangements.

On the other hand, a study conducted by Hillage et al (2000, Appendix C) did not establish results that were consistent with Reilly et al. Using the more current Workplace Industrial Relations Survey 1998 they attempted to replicate the Reilly et al study. Although their results were mixed they found that, when compared to the workplaces with no employee representation, *general* health and safety committees (that cover various OHS topics) were associated with lower rates of injury, whereas *specific* health and safety committees were associated with higher rates of injury. One explanation for the discrepancy between these two studies – in particular, Hillage et al's finding of a the positive association between workplaces with specific safety committees and higher injury rates – is that specialised committees are more likely to be formed in workplaces with greater levels of inherent risk, where injury rates would plausibly be higher. However, these conditions would presumably affect all studies, and results would be expected to reflect this consistency.

Similarly, Eaton & Nocerino, following their survey of 427 safety representatives and managers in US workplaces, conclude that the results of their multivariate analyses provided 'little consistent evidence for any significant effect of the simple existence of a committee on reports of illness or injury cases' (2000, p.288).

As in the case of research on the perceptions of committee effectiveness, the findings on committee impact are generally positive, although in this case the analyses have not always established any significant effect of the presence of a committee. To what extent these results can be compared and contrasted is unclear. The results may reflect differences that are attributable to the study design, the models that were employed, and the data that were collected.

3.2 RESEARCH ON THE EFFECTIVENESS OF WORKERS' PARTICIPATION

There are a number of factors associated with the overall effectiveness of worker participation initiatives – they provide similar overall conclusions to the safety committees. The following discussion summarises the findings.

3.2.1 Knowledge & Expertise

Knowledge and expertise are basic requirements for any form of participation. The research on WP reminds us that individuals are not equal in the extent of their knowledge or expertise and their roles in participatory processes will not be equal. However, current thinking on participatory processes recognises that expertise is a broad concept. For example, from Wynne's perspective (1999), there is the sense that although scientific expertise (including safety expertise) is partial (in the sense that it rests on cultural assumptions and norms, etc.) its 'gaps' can be 'filled' by others with complimentary expertise in the relevant areas. These areas might include: local knowledge about a work-place or -process. In this way the criteria for inclusion emerge based on participation in particular social settings. And the criteria for participation can be predicated on experience-based expertise. The effectiveness of participation will be closely tied to how much the participants know and contribute (Lippin et al 2000; Bryce & Manga 1985).

WP will be most helpful in generating high quality decisions when the participants have relevant knowledge to contribute. It follows that some level of training would be required in workplaces where representatives (and their colleagues) do not have the required insights for advising on or managing the abatement of workplace hazards. In a context where there exist regulatory requirements for training, this issue is of particular relevance - a key requirement of the HSCE and SRSC regulations is that representatives of employee safety are entitled to training at the employer's expense and to paid time off to attend such training for the performance of their functions.

In many cases training is a prerequisite for participation. As mentioned during the discussion of committees, the training of safety committee members is associated with effectiveness of committees. Equally, training has been reported to effectively improve the quality and quantity of other forms of WP in OHS management (Biggins & Phillips 1991a; Gaines & Biggins 1992; Lippin et al 2000). Moreover, the research findings suggest that training can influence participants' commitment to make health and safety changes, evidenced by them raising concerns, advising colleagues about safer work practices, and increased preparedness to respond to hazardous situations. Lippin et al (2000) further suggest that having secured management commitment for training programmes there is an increased likelihood that managers' attitudes toward health and safety will improve and that they will increasingly act to reduce workplace hazards.

3.2.2 Commitment

As highlighted within the context of the effectiveness of safety committees in section 3.1, the levels of employee and management commitment are widely reported to be important factors that impact on the effectiveness of WP initiatives.

1. *Management Commitment*
The most widely reported finding across the reviewed literature is the beneficial impact of management commitment for WP initiatives (usually meaning senior management). This factor, more than any other, is associated with effectiveness of WP initiatives. There is a clear need for management commitment towards participatory approaches and their goals from the highest organisational level (see for example, Biggins & Farr 1988a; Boden et al 1984; Fuller 1999; Kochan 1977; O'Toole 1999; Penzer 1990; Simard & Marchand 1995). A primary reason for gaining management commitment is that they play a key role in authorising any changes or recommendations that might transpire from employee participation initiatives. Furthermore, Ramsay (1991) makes the point that gaining commitment from the highest echelons of management will not only invariably lead to commitment from lower management levels, but is

an essential prerequisite for this to filter down throughout the organisation. A number of authors (Mackmurdo 2002; Penzer 1990) stress that management has to set the tone, and should employees detect that there is not a genuine commitment from managers, the workers may devalue participative efforts.

A further important point to note is that many authors who advocate the use of WP schemes, whether based on evidence from survey or case study research, indicate that they should constitute part of much broader OHS management initiatives (Boden et al 1984; O'Toole 1999; Rahimi 1995). For good reasons, as already mentioned, WP initiatives need wide support. Ongoing efforts to improve safety performance might be viewed as manifestations of broader commitments to WP in OHS.

2. *Worker Commitment*
It is understandably the case that the effectiveness of WP initiatives will depend on the commitment of the workers to both participatory initiatives and OHS management. The research on worker commitment to participation is relatively weak in the OHS area. There does, however, exist a large body of empirical work on individual characteristics for participation potential (e.g. Latham et al 1994; Locke & Schweiger 1979; Miller & Monge 1986). For example, on the topic of commitment the research indicates that participation will not be effective where employees do not desire a participatory role, are not committed to organisational and OHS goals, or do not perceive the initiative to be within their sphere of interest. Although valuable, the insights might be of limited relevance in the context of participation for OHS. Nevertheless, these general findings appear to gain some level of support from the OHS literature (Bryce & Manga 1985; Ochsner & Greenberg 1998; Simard & Marchand 1995). Leopold and Beaumont, for instance, in their study of safety committees claim:

> 'The vast majority of representatives reported that their members expressed little concern and interest in the work of the committee. The exception was where an issue directly affected the interests of the individual member or group of members when they would show a close interest and pursue the matter until it was satisfactorily resolved' (1983, p. 142).

Many of the authors conclude that participation will affect commitment and satisfaction differently for different people and situations, and may not be, in some cases, the most effective mechanism for generating any desired improvements. Few authors have provided any recommendations on approaches for improving levels of commitment, although there is some evidence that, paradoxically, employees with low levels of work motivation have demonstrated enhanced levels of motivation following involvement in participatory activities (Locke & Schweiger 1979) – presumably involvement gives them a feeling of control which is manifested in greater job involvement.

A final point of consideration is that a number of additional factors exist that may affect the worker's commitment during the implementation of WP initiatives, namely, group characteristics, task attributes and leader attributes. For the most part, these factors are not discussed in the OHS literature (however, see related discussion in section 3.1.1), and relatively little constructive guidance is provided in this respect. One topic that receives a small amount of coverage is discrimination against representatives or worker participants. Although representatives are protected from detrimental treatment and dismissal related to the carrying out of their functions, discrimination, whether it is implicit or direct, is perceived to affect commitment, albeit in only a small number of cases (Warren-Langford 1993).

3.2.3 Workers' Participation and the Influence of Trade Unions

Robens style legislation and the shift toward self-regulation was predicated on a strong union movement facilitating this process. For instance, trade unions exist to provide advice, training and support, and to improve the bargaining position of employees. However, the presence of unionised workplaces has significantly declined over recent decades. In response a number of commentators have suggested that wide-scale management initiated worker involvement and consultation could act as an alternative to union driven mechanisms for collective bargaining (see: Marchington 1996; Weil 1999). The available evidence suggests that WP has not been widely adopted as a substitute for trade unionism in workplaces. Results from the Workplace Industrial Relations Survey (Culley et al 1998), which involved interviews with a management representative in 2191 workplaces, found that in 89% of workplaces without union members there was no worker representatives. Similarly, in workplaces where unions are present, but they have no recognition, 81% have no representative. This contrasts with workplaces where there are recognised unions where only 17% have no worker representative. Overall, the nonunion industrial and commercial firms surveyed had relatively few formal mechanisms through which employees could contribute to the operation of their workplace in a broader context beyond that of their specific job.

Given the trend of reduction in trade union density, a number of observers have assessed the effects on workplaces. Of the studies that analyse the effectiveness of WP schemes there are a small subset which specifically address the role of unions in shaping opportunities for WP. An example is Ochsner and Greenberg's (1998) study which provides forceful evidence that effective worker involvement is more apparent within workplaces where unions provide support for workers. In their survey of 421 American health and safety professionals, their analyses indicate that 'formal union negotiations' and 'worker activism' are the two most important characteristics of an effective program.

In workplaces where trade unions take an active role in the implementation of committees reductions in accident and injury rates have been reported. For example, a study by Reilly et al (1995) that examines the data from the British Workplace Industrial Relations Survey (1993) provides some support for this interpretation. The authors of this study conclude that:

> 'we find that joint consultative committees with all employee representatives appointed by unions, significantly reduce workplace injuries relative to those establishments where the management alone determine health and safety arrangements' (Reilly et al 1995, p.276).

Comparable findings are reported by Weil (1999) who suggests that management initiated safety committees do not act as effectively as union organised safety initiatives in complying with regulations. On the other hand, Eaton & Nocerino (2000) were not able to find any strong association between WP effectiveness and union support. There is, however, general support for the contention that unions have a positive impact upon safety performance, or conversely that nonunion workplaces have poorer levels of safety performance (Debobbeleer et al 1990; Grunberg 1983; Weil 1991). In a review of related literature Walters (1996) concludes that WP is an important mechanism for reducing accident rates, but in order to be effective they need a supportive milieu in which to function:

> 'Existing evidence indicates that trade unions are the major providers of this support. It has also been pointed out that recent research on industrial relations in Britain suggests that, while trade union influence may well have waned in British workplaces, it has not been replaced by any sustainable alternative' (p. 637).

There are a large number of other potentially relevant factors that may influence the effectiveness of WP that currently suffer from a lack of supporting research evidence. For example, the probable role of factors such as group characteristics, government pressures,

communication to the wider workforce, and size of workplace have not been included due to the paucity of relevant studies.

3.2.4   The Impact of Workers' Participation

With the exception of committees, there is a notable lack of rigorous scientific research on the various forms of worker participation and their impact on safety performance. There does exist however a wealth of research concerning WP with respect to other industrial goals, such as productivity and efficiency gains (e.g. Cotton 1993; Dachler & Wilpert 1978; Locke & Schweiger 1979). The presence of different contextual considerations means that the temptation to generalise from these findings should be resisted.

One of the upshots of participation and main motivations for wider levels of participation is the potential discovery and dissemination of task-relevant knowledge which participation could facilitate. As stated in the introduction, it is the case that employees often know more about how to do their jobs effectively than do their managers. Thus, including shopfloor workers in the decision-making process is viewed as enabling leaders or managers to make better decisions than they would make alone. Although this would intuitively appear to be the case, there exists no substantial research to establish this association in the area of participation in OHS management. Likewise, it is widely held that participation can improve workers' commitment to change. Again the evidence of this effect is not substantiated within OHS research. On the other hand, case study evidence in this area provides a range of anecdotal insights about the effectiveness of WP for disseminating knowledge and raising levels of commitment (see: Alder et al 2000; TUC/CBI 2001; Walters & Goulay 1990).

3.3   SUMMARY & CONCLUSIONS

- Intuitively, WP schemes have the potential to enhance standards of workplace OHS. However, there are significant barriers to gathering reliable evidence of their impact.

- Articles within the 'grey literature' are very upbeat regarding the claimed improvements in safety performance which can be achieved through the use of WP schemes. It should be borne in mind that many of these are of these are authored by OHS consultants publicising their own schemes or initiatives. Similarly, employers, employees and employee representatives have demonstrated enthusiasm for WP. By contrast, academic authors generally appear unwilling to dismiss such schemes out of hand but appear to be more cautious, often noting difficulties encountered when attempting to measure the impact of WP schemes.

- Only one of the evaluative studies reviewed considers informal types of WP or consultation and their benefits. Arguably, this represents a significant deficit in our knowledge, as informal negotiations are the most commonly reported form of interaction between workers and management representatives.

- The issue of effective workforce participation has received little investigation in the OHS research literature. Where evidence is provided, it is almost exclusively focused upon the performance of safety committees, with other forms of workers' participation receiving relatively little attention. Although further research is warranted, some general conclusions may be derived.

- As is demonstrably the case with all organisational initiatives, the success of any workforce participation initiative rests upon the tangible commitment of management. Secondly, employee commitment is essential for participation to be effective. The research indicates

that participation will not be effective where employees do not desire a participatory role, are not committed to organisational and OHS goals, or do not perceive the initiative to be within their sphere of interest. Within the worker participation in occupation health and safety literature, few authors provid any recommendations on approaches for improving levels of commitment. In general, authors conclude that participation will affect commitment and satisfaction differently for different people and situations, and may not be, in some cases, the most effective mechanism for generating any desired improvements.

- There is general support for the contention that worker participation is more effective within workplaces where trade unions provide support for workers. Similarly, unions appear to have a positive impact upon safety performance, or conversely that nonunion workplaces have poorer levels of safety performance.

- On the topic of safety committees, research evidence indicates that perceived levels of 'group cohesiveness' is strongly correlated with perceived levels of committee effectiveness. However, if the effects of committees depend on the nature of the group, it follows that committees might not only be ineffective in some circumstances, but might be actually harmful. For example, committee meetings could lead to intragroup conflict caused by such factors as fundamental value differences or the resentment of members whose ideas are rejected. There are a number of seemingly important factors for which evidence is absent. In respect of group characteristics, task attributes and leader attributes, the relative absence of literature in this area makes it very difficult to draw any firm conclusions, other than that of the need for further empirical research on this issue.

- The effectiveness of participation will be closely tied to the levels of the participant's knowledge and know-how. The criteria for inclusion, therefore, emerge based on participation in particular social settings, and will generally be predicated on technical safety expertise or experience-based expertise. Similarly, research findings suggest that, in many cases, training is a prerequisite for participation. Furthermore, training has been found to influence participant's commitment to make health and safety changes.

- Many authors who advocate the use of workers' participation schemes indicate that they should ideally constitute part of much broader OHS management initiatives.

- There are a large number of other potentially relevant factors that may influence the effectiveness of workers' participation that currently suffer from a lack of supporting research evidence. For example, factors such as group characteristics, access to participation in decisions, government pressures, communication to the wider workforce and size of workplace have not been included, due to the paucity of relevant studies.

- Research evidence on participation appears to be fragmentary, and limited to a relatively few psychological and sociological preconditions and consequences of participation, such as commitment, knowledge and conflict structures. This body of knowledge hardly begins to reflect the complex questions that participatory social systems pose in real world settings.

- The findings of this review are best summarised as providing support for initiating worker participation schemes and encouraging employers to increase the opportunities for employees to participate in the safety process.

- The broadly positive findings concerning the effectiveness of workers' participation schemes may be tainted by the presence of the relatively narrow body of research evidence in this area. Furthermore, the degree of homogeneity in findings is limited to certain issues.

Overall, the findings on the impact of safety committees are positive but not wholly conclusive.

4   RECOMMENDATIONS

On the basis of available evidence, it would seem that there is a widely held acceptance of the potential effectiveness of WP schemes for bringing about improvements in OHS.

Should organisations choose to make use of such schemes, the following recommendations should apply:

- Work groups and teams should be carefully designed. Account should be taken of the size of the workgroup and the regularity of meetings. The 'group cohesiveness' should be monitored, and efforts made to overcome any problems that may arise in this respect.
- Participants should be selected on the basis of their technical expertise, or their experience based expertise. Stakeholders that have a vested interest (e.g. employees and employers) in the outcomes of any participatory scheme should be indirectly or directly involved.
- Issues dealt with by groups should be relevant to members of that group.
- The commitment of worker and management participants should be assessed, with the intention of addressing any deficits that may be apparent.
- For WP initiatives to be effective they must be backed up by a positive management culture of commitment to health and safety.   If used in isolation, their impact will likely be minimal and may even be counterproductive, in terms of the implicit messages which are communicated to operational staff, with regard to the perceived low priority placed upon health and safety by the company and its management.
- Management commitment might be demonstrated by allocating specific resources to undertake tasks, or through the inclusion of senior level management in participatory processes. Workforce commitment might be demonstrated by their level of attendance within workgroups or the numbers of recommendations that they submit.
- Levels of worker commitment may be enhanced where they have assured levels of access to the making of decisions and the formulation of any outcomes.
- Where appropriate, members of safety workgroups or committees should be provided with training that will assist them in the fulfilment of their role. For example, training provided on safety topics and how to conduct and participate in the decision-making process.
- The workgroup should not become isolated from the larger workforce; efforts should be made to communicate widely, and seek feedback on any proposed changes that transpire from WP.

It is apparent that the range of factors considered to improve the effectiveness of WP is relatively narrow, and there is a high degree of consensus regarding the most salient influences. There is a need for further detailed research into the effectiveness of worker participation and consultation in OHS. The following recommendations highlight weaknesses in the available research:

- Future research should combine studies of macro variables (e.g. economic indicators or accident rates), with analysis of available contextual sources (e.g. committee minutes) and the use of interview and survey techniques.

- Research activities should clearly analyse and specify the dimensional constructs of participatory processes, and demonstrate insight into the inherent complexity.

- WP espouses the values of democracy, autonomy, responsibility and trust, while it is often introduced within an employment context characterised by job insecurity, hierarchical

power relations and short-term profitability. All this precludes the development of the values of WP. In this respect managers and employees may encounter and respond to WP initiatives that rarely meet with their expectations. As well as seeking factors that might directly or indirectly contribute to the effectiveness of participatory processes, future research activities should focus on any tensions that can arise during implementation.

Research evidence is significantly lacking in the following areas:

- Detailed case studies which attempt to 'scratch the surface' and unearth the inherent benefits and limitations of WP in real world settings.
- Evidence from either case studies or surveys pointing to the ability of participatory processes to generate new knowledge and greater levels of commitment for OHS.
- Evidence concerning the impact of WP schemes on accident rates, or other measures of effectiveness.
- Evidence of the impact of group characteristics, task attributes and leader attributes on WP schemes.
- It is clearly the case that the commitment of both employers and employees is required to facilitate effective WP initiatives. Research should, therefore, focus on the 'factors' which motivate these groups into becoming effective participants.
- None of the evaluative studies reviewed consider informal forms of WP or consultation and their benefits. Arguably, this represents a significant deficit in our knowledge, especially given workers' and managers' apparent preference for informal consultation on OHS issues. The fleeting and unplanned nature of informal interactions might prohibit widespread research on related practices and their outcomes, although qualitative research approaches could effectively capture relevant insights.

5 REFERENCES

Alder, A., Tipping, A., Meldrum, A., Brazabon, P., and Wright, M. 2000. *Examples of effective workforce involvement in health and safety in the chemical industry.* Contract Research Report 291, HSE Books: Sudbury.

Aronsson, G. 1999. 'Contingent workers and health and safety'. *Work, Employment and Society* 13 pp. 439-459.

Batstone, E., and Gourley, S. 1986. *Unions, Unemployment and Innovation.* Oxford: Basil Blackwell.

Bell, J., and Phelps, C. 2001. *Employee Involvement in Health and Safety: Some Examples of Good Practice.* HSL Report: WPS/00/03.

Biggins, D.R. & Farr. T.H. 1988a. 'Occupational health and democratisation of work. Part 1: Challenges for management'. *The journal of Occupational Health and Safety – Australia & New Zealand* 4(3) 233-238.

Biggins, D.R. & Farr. T.H. 1988b. 'Occupational health and democratisation of work. Part 2: Challenges for unions. *The journal of Occupational Health and Safety – Australia & New Zealand* 4(4) 307-312.

Biggins, D., Phillips, M. and P. O'Sulivan. 1991. Benefits of worker participation in health and safety'. *Labour and Industry* 4(1) pp. 138-59.

Biggins, D., and Phillips, M. 1991a. A survey of health and safety representatives in Queens land Part 1: Activities, issues, information sources. *Journal of Occupational Health and Safety – Australia and New Zealand*, 7(3) pp. 195-202.

Biggins, D., and Phillips, M. 1991b. A survey of health and safety representatives in Queens land Part 2: Comparison of representatives and shop stewards. *Journal of Occupational Health and Safety – Australia and New Zealand*, 7(4) pp. 281-86.

Boden, L. I., Hall, J.A., Levenstein , C. and Punnett, L. 1984. 'The impact of health and safety committees'. *Journal of Occupational Medicine.* 26(11) 829-34.

Bohle, P., & Quinlan, M. 1993. *Managing Occupational Health and Safety.* MacMillan: Sydney.

Brown, R. 2000. *Group Processes.* Oxford: Blackwell.

Bryce, G. K., and Manga, F. 1985. 'The effectiveness of joint health & safety committees', *Relations Industrielles* 40(2): 257-82.

Carder, B. and Ragan, P. W. 2003. A survey-based system for safety measurement and improvement. 34(2) pp. 157-65.

Clarke, S. 1998. 'Organisational factors affecting the incident reporting of train drivers. *Work and Stress.* 12: pp. 6-16.

Clarke, S. 1999. 'Perceptions of organisational safety: implications for the development of safety culture'. *Journal of Organisational Behaviour*, 20: pp. 185-198

Cole, M. G. 1984. 'Quality circles and safety committees', *Professional Safety,* April: 33-37.

Cooke WN, Gautschi FH. 1981. OSHA, plant safety programs, and injury reduction. *Industrial relations* 20: pp. 245-57.

Cotton, J. L. 1993. *Employee Involvement: Methods for improving performance and work attitudes*. Newbury Park, CA: Sage.

Coyle, J.R. and J.W. Leopold. 1981. 'How effective are health & safety committees?' *Occupational safety and health* (November): pp. 20-2.

Cully, M., O'Reilly, A., Millward, N., Forth, J. Woodland, S., Dix, D., and Bryson, A. 1998. *The 1998 Workplace Employee relations survey, First Findings*. Department of Trade and Industry. HMSO: London.

Dachler, H.P., and Wilpert, B. 1978. 'Conceptual Dimensions and Boundaries of Participation in Organizations: A Critical Evaluation'. *Administrative Science Quarterly*. 23(1), pp. 1-39.

Davis E. and Lansbury R. (eds). 1996. Managing Together? Consultation and Participation in the workplace. Longman Cheshire: Melbourne.

Dedobbeleer, N., Champagne, F., and German, P. 1990. 'Safety Performance among Union and Nonunion Workers in the Construction Industry'. *Journal of Occupational Medicine,* 32(11) pp. 1099-1103.

Eaton, A. E., and Voos, P. B. 1994. 'Productivity-Enhancing Innovations in Work Organization, Compensation, and Employee Participation in the Union versus Nonunion Sectors'. *Advances in Industrial and Labor Relations* 6: pp. 63-109.

Eaton, A. E., and Nocerino, T. 2000. 'The Effectiveness of Health and Safety Committees: Results of a survey of public-sector workplace'. *Industrial Relations* 39(2): 265-89.

Frick, K. and Walters, D. R. 1998. 'Worker representation on health and safety in small enterprises: Lessons from a Swedish approach'. *International Labour Review*. 137 (3):

Frick, K., Langaa Jensen, P., Quinlan, M., and Wilthagen, T (eds). 2000. Systematic Health and Safety Management – Perspectives on an International Development. Pergamon: Oxford.

Fuller, C. W. 1999. 'An employee-management consensus approach to continuos improvement in safety management'. *Employee Relations* 21(4): pp. 405-17.

Gaines, J. and Biggins, D. 1992. A survey of health and safety representatives in the Northern Territory. *Journal of Occupational Health and Safety - Australia and New Zealand*, 8(5): 421-28.

Goldstein, S. 1985. 'Organisational dualism and quality circles'. *Academy of Management Review*, 10: 504-17.

Grunberg, L. 1983. 'The effects of the social relations of production on productivity and workers' safety'. *International Journal of Health Services*. 13(4): 621-634.

Health & Safety Commission. 1999. *Employee Consultation and Involvement in Health and Safety*. Discussion Document 12, HSE Books: Sudbury.

Health & Safety Executive. 1981. 'Safety Appointed', *Employment Gazette*, February pp. 55-8.

Hebdon, R. and Hyatt, D. 1998. The effects of industrial relations factors on health and safety conflict. *Industrial and Labor Relations Review*. 51(4) pp. 579-92.

Hillage, J., Kersely, B., Bates, P., and Rick, J. 2000. *Workplace Consultation on Health and Safety*. Contract Research Report 268, HSE Books: Sudbury.

James, P. and Walters, D. 2002. Worker representation in health and safety: options for regulatory reform. *Industrial Relations Journal* 33(2) pp. 141-56.

Janssens, M. Brett, J.M. and Smith, F.J. 1995. Confirmatory cross-cultural research: testing the viability of a corporation-wide safety policy. *Academy of Management Journal*. 38: pp. 364-382.

Johnson, J.V., and Johansson, G., (eds). 1991. *The Psychosocial Work Environment: Work Organization, Democratization and Health.* Baywood: NY.

Knights, D. & McCabe, D. 1998. 'Dreams and Design on Strategy: A Critical Analysis of TQM and Management Control'. *Work, Employment & Society*, 12(3): 433-56.

Kochan, T. A., Lee, D., and Lipsky, D. 1977. *The Effectiveness of union-Management Safety and Health Committees*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Kuorinka, I. And Patry, L. 1995. Participation as a means of promoting occupational health. *International journal of International Ergonomics*. 15(5): 365-70.

Latham, G. P., Winters, D.C. & Locke, E.A. 1994. 'Cognitive and motivational effects of participation: A mediator study'. *Journal of Organizational Behaviour*. 15 pp. 49-63.

Lawler, E. E. 1975. 'Pay, Participation and Organzational Change', in E. L. Cass and F. G. Zimmer (eds), *Man and Work in Society*. Van Nostrand-Reinhold Company: NY.

Leopold, J. and Beaumont, P. 1983. health and safety and industrial relations: a United Kingdom study. *New Zealand Journal of Industrial Relations,* 8: pp. 135-45.

Lingard, H. & Rowlinson, S. 1994. 'Construction site safety in Hong Kong'. *Construction Management and Economics*, 12: pp.501-10.

Lippin, T. M., Eckman, A., Calkin, K., and McQuiston, T. H. 2000. 'Empowerment-Based Health and safety Training: Evidence of Workplace Change from Four Industrial Sectors'. *American Journal of Industrial Medicine,* 38: pp. 697-706.

Locke, E. A., and Schweiger, D. M. 1979. 'Participation in decision-making: One more look'. In L.L. Cummings and B. M. Staw (eds), *Research in Organzational Behaviour* (vol. 1). Greenwich, CT: JAI.

Mackmurdo, R. 2002. 'Effective employee involvement', *The RoSPA Occupational Health and Safety Journal*. May: pp.12-15.

Marchington, M. 1996. 'Employee Involvement in Britain: Voluntarism and Diversity', in *Managing Together? Consultation and Participation in the Workplace*. Davis E., & Lansbury R. (eds). Longman Cheshire: Melbourne.

Marsh, T., Davies, R., Phillips, R. A., Duff, A. R., Robertson, I. T., Weyman, A., and Cooper, M. D. 1998. 'The role of management commitment in determining the success of a behavioural safety intervention'. *Journal of the Institute of Occupational Safety and Health*, 2: pp.45-56.

Miller, K. I., and Monge P. R. 1986. 'Participation, satisfaction and productivity: A met-analytic review'. *Academy of Management Journal,* 29: 727-53.

Millward, N., Stevens, M., Smart, D. & Hawes, W. 1992. *Workplace Industrial Relations in Transition*. Dartmouth: Aldershot.

Mossink, J., and F. Licher (eds). 1998. *Costs and Benefits of Occupational Safety and Health*. Conference Proceedings, The Hague 28-30 May 1997. NIA-TNO. Amsterdam.

Ochsner, M., and Grunberg, M. 1998. Factors which support effective workers participation in health and safety: a survey of New Jersey industrial hygienists and safety engineers. *Journal of Public Health Policy*. 19: pp. 350-366.

Ontario. 1986. Advisory council on occupational health and occupational safety, Eighth Annual Report, Vol 2.: An evaluation of Joint health and safety committees. Toronto, Ontario Canada: Ontario Ministry of Labor.

O'Toole, M. F. 1999. 'Successful Safety Committees: Participation Not Legislation' *Journal of Safety Research* 30(1): pp. 39-65.

Oxenburgh, M. 1991. *Increasing Productivity and Profit through Health & Safety*. CCH International.

Penzer, E. A. 1990. 'Keeping Team Spirit Alive'. *Incentive*, 164(4) pp. 86-87.

Peters, T. J., and Waterman, R. H. 1982. *In Search of Excellence*. Harper & Row: New York.

Quinlan, M. 1996. 'A Participatory approach to Occupational Health and Safety at the Workplace', in *Managing Together? Consultation and Participation in the Workplace*. Davis E., & Lansbury R. (eds). Longman Cheshire: Melbourne.

Rahimi, R. 1995. Merging strategic safety, health and environment into total quality management. *International Journal of Industrial Ergonomics* 16(2) pp. 83-94

Ritchie, J., and Herscovitch, F. 1995. 'From Likert to Love it: engaging blue collar workers in focus group inquiries', *Journal of Occupational Health & Safety*, 11(5): pp. 471-79.

Reilly, B., Paci, P., and Holl, P. 1995. Unions, safety committees and workplace injuries. *British Journal of Industrial relations*, 33: pp. 273-88.

32

Rogers, R., Hunter, J. E., & Rogers, D. L. 1993. 'Influence of top management commitment on management program success'. *Journal of Applied Psychology*, 78(1): pp.201-211.

Robinson G. H. 1982. Accidents and sociotechnical systems: principles for design. *Accident Analysis & Prevention* 14(2) pp. 121-130.

Royal Society. 1985. *The Public Understanding of Science.* London: Royal Society.

Shannon, H. Walters, V., Lewchuck, W., Richardson, J., Verma, D., Haines, T. and Moran, L. 1992. *Health and Safety Approaches in the Workplace*. MacMaster University: Toronto.

Shannon, H., Mayr, J.S. and Haines, T. 1997. Overview of the relationship between organisational and workplace factors and injury rates. Safety Science. 26 pp. 201-17.

Shearn, P. 2003. *Case Examples: Business Benefits Arising From Health & Safety Interventions*. HSL Report: HSL 2003/13

Simard, M. & Marchand, A. 1995. 'A multilevel analysis of organizational factors related to the taking of safety initiatives by work groups'. *Safety Science*. 21 pp.113-129.

Spector, P. E. 1986. 'Perceived control by employees: A meta-analysis of studies concerning autonomy and participation at work'. *Human Relations* 39: 1005-1016.

Spinks, M. 1993. 'Taking the bull by the horns', *Work and People*. 14(3): 5-7.

Strauss, G. 1977. 'Managerial Practices', in J.R. Hackman and J. Lloyd (eds) *Improving Life at Work,* pp. 297-363. Santa Monica: Goodyear.

Strauss, G. 1982. 'Workers' participation in management: An International perspective'. In L.L. Cummings and B. M. Staw (eds), *Research in Organzational Behaviour* (vol. 4). Greenwich, CT: JAI.

TUC/CBI. 2001. *Creating Partnerships for Prevention.* TUC: London.

Vassie, L. H. and Lucas, W. R. 2001. An assessment of health and safety management within working groups in the UK manufacturing sector. *Journal of Safety Research*. 32(4) pp. 479-90

Walters, D. R., and Goulay, S. 1990. *Statutory Employee Involvement in Health and Safety at the Workplace: A Report of the Implementation and Effectiveness of the Safety Representatives and Safety Committees Regulations 1977.* Contract Research Report 20, HSE Books: Sudbury.

Walters, D. R. 1996. Trade Unions and the effectiveness of worker representation in health and safety in Britain. *International Journal of Health Services*. 26 pp. 625-41.

Warren-Langford, P., Biggins, D. and Phillips. 1993. Union Participation in occupational health and safety inWestern Australia. *Journal of Industrial Relations*, 35(4) pp. 585-606.

Weil, D. 1991. 'Enforcing OSHA: the role of the labour unions'. *Industrial relations*. 30 pp. 20-36.

Weil, D. 1999. 'Are mandated health and safety committees substitutes for or supplements to labor unions?' *Industrial and Labor Relations Review,* 52(3) pp. 339-359.

Weinstein, M. B. 1998. 'Improving Behaviour-based Safety through TQM'. *American Society of Safety Engineers*, Jan: 29-33.

Zink, K. J. 1991. Participatory ergonomics-Some developments and examples from West Germany. In K. Noro and A.S. Imada (eds) *Participatory Ergonomics*. Taylor and Francis, London. Pp. 165-80