# Psychological and Social Processes Influencing Health and Safety in Small to Medium-Sized Enterprises

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# CONTENTS

## INDEX OF TABLES



## INDEX OF FIGURES

# Abstract

AIM: Small and medium sized enterprises have notable difficulties in engaging with health and safety activity and experience proportionally higher levels of accidents than larger businesses. SMEs have also been described as problematic to access for research and intervention purposes. The aim of this research was to investigate the role of psychosocial factors in health and safety behaviour among small or medium sized enterprises (SMEs).

METHODOLOGY: The research employed a mixed method design over two phases of study. In the first phase, fifty semi-structured telephone interviews were used to derive behaviours that the SMEs considered relevant to their type of business. In addition, the SMEs provided views on the rationale for, perceived effectiveness and facilitators of health and safety behaviour they had undertaken. In the second phase, a questionnaire survey was conducted using key SME health and safety behaviours and health and safety-related attitudes derived from the telephone interviews and key theoretical construct domains. Three hundred and thirteen SMEs completed questionnaires distributed at trade shows in Scotland and England.

RESULTS: Overall, the level of health & safety activity undertaken by SMEs was reported to be low (with 59% spending one hour or less in a typical week according to questionnaire responses, the figure was 60% for the telephone interviews). Smaller businesses notably the micro business, spent significantly

less time on health and safety activity compared with larger organisations. Those spending approximately one day per week or more on health and safety activity were found to be the largest SMEs in the sample.

Hierarchical regressions performed on the survey data highlighted five key predictors of health and safety activity. These were positive and negative beliefs regarding resources, relationships with suppliers, and decision making by middle and junior level staff. It is notable that after taking into account the influence of the size of the company, these factors remained of significant importance. This suggests that the influence of these factors persist despite previous findings related to the size of the SME. Results also suggest that beliefs associated with the consequences of health & safety behaviour tend to lead to increased activity. Further, organisational design was found to mediate this effect.

CONCLUSION: Interventions designed to increase health and safety in SMEs would be advised to take into account the psychosocial influences on health and safety behaviour, in particular those highlighted in this study, as these may have implications for uptake and sustainability of any new initiatives requiring such activity.

# 1. CHAPTER ONE: INTRODUCTION

In this chapter the problem of engagement with health and safety is highlighted and introduced. An operational definition of health and safety is presented. Furthermore the chapter describes how health and safety is defined in relation to small and medium sized enterprises.

Health and Safety may be defined in a number of ways. Health and Safety law is powerful and far-reaching (HASAW 1974). Therefore it is pertinent to first consider the definition of health and safety according to the health and safety at work act The Health and Safety at Work etc Act 1974, also referred to as HASAW or HSW.

"An Act to make further provision for securing the health, safety and welfare of persons at work, for protecting others against risks to health or safety in connection with the activities of persons at work, for controlling the keeping and use and preventing the unlawful acquisition, possession and use of dangerous substances, and for controlling certain emissions into the atmosphere; to make further provision with respect to the employment medical advisory service; to amend the law relating to building regulations, and the Building (Scotland) Act 1959; and for connected purposes" (HASAW, 1974:1)

Health and safety may also be defined in terms of requirements of employers:

"It shall be the duty of every employer to ensure, so far as is reasonably practicable, the health, safety and welfare at work of all his employees" (HASAW, 1974:1).

Furthermore these requirements are further described thus:

"(a) the provision and maintenance of plant and systems of work that are, so far as is reasonably practicable, safe and without risks to health;

(b) arrangements for ensuring, so far as is reasonably practicable, safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances;

(c) the provision of such information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of his employees;

(d) so far as is reasonably practicable as regards any place of work under the employer's control, the maintenance of it in a condition that is safe and without risks to health and the provision and maintenance of means of access to and egress from it that are safe and without such risks;

(e) the provision and maintenance of a working environment for his

employees that is, so far as is reasonably practicable, safe, without risks to health, and adequate as regards facilities and arrangements for their welfare at work". (HASAW, 1974:1)

However, it may be argued that the definition of health and safety is fluid, and that health and safety has different connotations. It is therefore important to explore the meaning of health and safety among the target population of SMEs. It is interesting to note that whilst authors readily approach the problem of defining the SME, (Walters, 2001) health and safety as a concept is rarely explicitly introduced and operationalised. Health and safety is often referred to in terms of negative outcomes, for example work related death, injures and ill-health. An example of health and safety in an SME may be the process of checking for physical hazards in the work place by carrying out a risk assessment. Alternatively, it may involve carrying out a stress audit to assess the degree to which employees may be at risk of work related stress. An example of an objective measure of health and safety performance may be considered to be data on work-related injuries or work related ill health, however these measures may only provide a limited assessment of the overall standards. Furthermore, there may be difficulty in discriminating what is essentially work-related and from other influences, such as home or social factors (Walters, 2001).

Occupational health and safety refers to a wide range of concerns, these extend from hazards to physical health, to risks posed to mental health. The

greatest majority of commercial enterprises in the United Kingdom are small or medium sized enterprises (SMEs). In practice, there is a tension for the SME between generating income and ensuring staff are safe from occupational hazards. Their overall targets of reliability, quality and competitive costs may be at variance with the goal of good health and safety management.

Where recognised, SMEs take their health and safety responsibilities very seriously and conscientiously. They may be seen to utilise available support mechanisms and seek to apply them successfully. However, SMEs fall short of good health and safety practice (Health and Safety Executive, 1998) even when they can be seen to have an understanding of the issues and the implications of non-adherence with best practice and regulations. There is also a substantial number of SMEs who appear to be unaware of their legal health and safety requirements.

"Small firms often appear to be unaware of their legal obligations, do not realise the dangers of poor practice, do not think about the benefits of good health and safety practice and have insufficient resource to devote to health and safety" (McKinney, 2002)

The SME is described as a hard to reach population particularly in terms of health and safety research (Vassie, Tomas & Oliver, 2000). The SME is often

reluctant to disclose information for a number of reasons, notably fear of the regulator (namely the Health and Safety Executive, HSE) and insufficient time to cooperate with researchers. The implication of this is that there is insufficient information available on which to then formulate an appropriate intervention. It is also unclear what health and safety behaviours are considered most relevant to the SME. It is therefore difficult to ascertain what may motivate SMEs to undertake health and safety behaviours, particularly if the behaviours are ill defined.

There is clearly a problem for small businesses in successfully undertaking health and safety activity. To date, the approach to the problem appears to centre round the practical opportunities and constraints affecting health and safety behaviour. However, it may be argued that a more psychological underpinning to the approach to health and safety activity would be appropriate. Health and safety activity may be viewed in this sense as a 'health behaviour' which may be modified and therefore benefit from timely and appropriate interventions based on psychological theory. However in the first instance the physical barriers and opportunities need to be considered to inform the psychological approach.

The following review will assess the literature on health and safety in small or medium sized enterprises and seek to identify the perceived barriers and opportunities for health and safety activity. The literature review will also assess the extent to which interventions based on psychological theories have

been utilised to investigate and improve health and safety activity among SMEs and assist in the formulation of the research question.

# 2 CHAPTER TWO: LITERATURE REVIEW OF SMES AND HEALTH AND SAFETY

This chapter comprises the review of the literature on small and medium sized enterprises and health and safety. The barriers against and opportunities for health and safety activity and intervention among SMEs are considered. Furthermore, evaluations of interventions are documented in this chapter.

The following electronic databases were searched to locate articles on health and safety and small and medium sized enterprises: The Health and Safety Executive (HSE), Health and Safety Executive, Scotland; Health and Safety Authority (Ireland) HSA; Health and Safety Executive, Northern Ireland; Business Resource Premier, EMERALD, RILOSH, Trade Union Council, European Trade Union Confederation, European Agency for Health and Safety at Work, Federation of Small Businesses, Chamber of Commerce, Institute of Occupational Medicine, PSYCHINFO, MEDLINE, CINHAHLL, CENTRAL COCHRANE.

Selection criteria:

Studies, reviews and books that focused on health and safety and small or medium sized businesses were included in the review. Non English language studies were excluded. Small or medium sized enterprises were defined as

businesses that employ less than two hundred and fifty staff. (Borley, 1997; Walters, 2001). Individuals and organisations were contacted for unpublished material.

## *2.1 The SME*

The great majority of businesses in the UK and Europe are SMEs. Research into SMEs is problematic, therefore until recently, many of the SME interventions have been modelled on research and practice within larger companies. The interventions which have been designed for the smaller business often lack a theoretical underpinning. Notably, with the exception of three studies (Barrett, Haslam, Lee, & Ellis, 2005; S. Haslam, James, & Bennett, 1998; Stephens, Hickling, Gaskell, Burton, & Holland, 2004) psychological factors such as beliefs, knowledge and attention factors, which appeared to be salient, were not an explicit part of the interventions.

Small to medium sized enterprises have been defined as having between 10 and 50 staff (Borley, 1997; Walters, 2001). Further, they have been classified into the micro-enterprise (< 10 staff), the small enterprise (10 – 50 staff), and the medium sized enterprise (< 250 staff) ( Walters, 2001). Data from 1996 indicates that 96% of all UK enterprises were SMEs. In Europe, in some countries more than half of those employed work in enterprises with less than 100 employees, whilst in others more than 75% are engaged with such businesses ( Walters, 1996) , see Table 2.1. Further, the number of SME businesses has greatly increased in recent years (DTI, 1997). As organisations,

they are very heterogeneous in terms of employment sector, management processes, and outputs (Breakwell & Petts, 2001).

**Table 2.1. Employment and workplace size in selected European countries, from ( Walters, 1996)**

| Country | SMEs % of enterprises | SMEs % of workforce | Definition of SME |
|---|---|---|---|
| Belgium | 97% | 40% | < 50 staff |
| Finland | 99% | 45% | < 100 staff |
| France | 97% | 53% | < 50 staff |
| Greece | 99.5% | 74% | < 50 staff |
| Ireland | 97% | 50% | < 50 staff (in private sector) |
| Netherlands | 98% | ? | < 100 staff |
| Portugal | 98% | 51% | < 100 staff |
| Spain | 92% | 80% | ? |
| Sweden | 97.5% | 30% | < 50 staff |
| United Kingdom | 96% | 50% | < 100 staff |

In general they struggle to recognise and interpret relevant regulations (Borley, 1997, Vassie, Tomas, & Oliver, 2000). They are also wary of interaction with regulatory bodies such as the Health and Safety Executive (Borley, 1997). Employees of SME often have low collective power and little or no union representation ( Walters, 2001). The likelihood of inspection by the regulator is low and many SME workers realise this (Walters, 2001). Independent review of health and safety within SMEs indicates relatively poorer standards than large enterprises.

The SME has been prioritised as an area of concern by the Health and Safety Commission (Health and Safety Commission/HSC, 1998). Previously examined SMEs (British Chamber of Commerce, 1995) have been seen to

acknowledge the importance of health and safety but in the main , they tend to adopt a 'common sense' or ad hoc approach to it. There is less precedence given to health and safety activity in small businesses compared to other business activities, SMEs tend to under estimate and overlook the potential hazards in their workplace (McKinney, 2002; Vickers, Baldock, Smallbone, Phillips, & Ekanem, 2003). Managers are unsupportive of health and safety concerns according to employees and external parties (Vickers et al., 2003). To the SME, regulations appear to be overly complicated , and as organisations, health and safety is viewed as a minor business objective (L. Vassie & Cox, 1998). They are hesitant to contact the regulator for assistance for fear of encouraging an inspection by the regulator. This 'fear factor' has been well documented in the published literature (S. Haslam et al., 1998; Yapp & Fairman, 2006). The concern may be logical, if regrettable for the overall health and safety of the nation's SMEs.

SMEs have been shown to experience proportionately more accidents than large enterprises ( Walters, 2001), see Table 2.2. They tend to be immature organisations and therefore they are only statistically likely to experience an accident every 14 or so years (for enterprises with around ten employees) (McKinney, 2002; Tait & Walker, 2000a). Thus, it is unlikely that an SME will have ever experienced an accident throughout the lifespan of the average SME business (3 years).

**Table 2. 2 Standardised incidence rate of accidents at work by economic activity, size of the local unit of the enterprise and severity from Eurostat (2002)**

| | Employees | | | | | |
|---|---|---|---|---|---|---|
| | Total | 0** | 1 – 9 | 10 – 49 | 50 – 249 | 250+ |
| | More than three days absence | | | | | |
| Nine NACE branches* | 4090 | 2309 | 3886 | 5218 | 4085 | 3254 |
| Agriculture | 7039 | - | - | - | - | - |
| Manufacturing | 4502 | 6669 | 7848 | 5485 | 3716 | 3342 |
| Electricity gas water supply | 1517 | 1087 | 4658 | 4067 | 2001 | 1019 |
| Construction | 7801 | 4907 | 8990 | 9496 | 6400 | 5125 |
| Wholesale and retail repairs | 2483 | 937 | 2247 | 3434 | 3116 | 2315 |
| Hotels and restaurants | 3688 | 768 | 3272 | 5359 | 5237 | 3195 |
| Transport, storage and communication | 5689 | 4514 | 5046 | 7464 | 7138 | 4583 |
| Financial intermediation: real estate and renting | 1782 | 469 | 769 | 1841 | 3003 | 2839 |
| | Fatal accidents | | | | | |
| Nine NACE branches* | 4.7 | 3.6 | 6.4 | 6.1 | 3.1 | 2.4 |
| Agriculture | 13.3 | - | - | - | - | - |
| Manufacturing | 3.3 | 6.4 | 8.5 | 4.6 | 2.1 | 1.9 |
| Electricity gas water supply | 3.2 | - | 8.1 | 1.4 | 1.4 | 3.7 |
| Construction | 11.6 | 7.8 | 14.8 | 12.7 | 7.8 | 10.7 |
| Wholesale and retail repairs | 2.3 | 1.3 | 3.1 | 2.7 | 2.5 | 0.7 |
| Hotels and restaurants | 1.4 | 0.5 | 1.8 | 1.7 | 1.3 | 0.4 |
| Transport, storage and communication | 11.2 | 10.4 | 22.0 | 18.0 | 6.4 | 3.4 |
| Financial intermediation: real estate and renting | 1.6 | 0.7 | 1.1 | 2.3 | 2.0 | 1.8 |

* = Nine NACE branches: Agriculture, Manufacturing, Electricity gas water supply, Construction, Wholesale and retail repairs, Hotels and restaurants, Transport and communication, Financial.

**= 0: Self employed without employees

As organisations, caution should be exercised in the interpretation of research data elicited from SMEs. The SME population is typically reluctant to participate in surveys and questionnaires. Response rates of 10-15% are the norm in the SME research literature ( Vassie & Cox, 1998; Vassie et al., 2000). Evidently these organisations need to concentrate on maintaining a profitable business and such 'distractions' are viewed as a low priority by staff.

## *2.2 New Challenges for the SME*

Cultural change in the successful management of health and safety at work in recent years has highlighted new challenges for the SME. In particular, European legislation embracing the preventative risk assessment ethos has had a dramatic effect on European health and safety in industry. Cultural

shift has been the result for many businesses, where it is no longer sufficient to blindly follow narrow regulations. Strategic endeavours to avoid unforeseen incidents and potential hazards require a more proactive approach to safety and health management. Furthermore, the remit of health and safety extends far beyond the more traditional physical hazards, to the negative circumstances that may pose a risk to psychological well-being. It could be argued that these new challenges parallel those found in contemporary health settings where illness prevention and self-management of long-term conditions requires a similar proactive approach from both health professionals and patients (Department of Health, 2005)

To date, the challenges facing the SME have been considered without a strong theoretical consideration of the implications for engagement in health and safety behaviour. Those who are involved in health & safety or ergonomic change in occupational settings have acknowledged that often, organisational change in the workplace is rejected because of either violation or ignorance of key psychological behavioural change principles (Winum, Ryterband, & Stephenson, 1997; Barret, Haslem, Lee, & Ellis, 2005). Michie, Johnston, Abraham, Lawton, Parker, and Walker (2005) highlighted a similar problem in public health settings where changing the behaviour of health professionals has been problematic largely due to a lack theoretical understanding of the processes involved, in particular psychological processes.

There is a growing realisation that, in order for behaviour change to occur in occupational settings, underlying attitudes and beliefs need to be changed. This argument appears plausible given the evidence that health and safety demands have shifted beyond compliance to regulations, where individuals and organisations carry out health & safety activities against their own personal beliefs or company ethos.

The documented constraints and opportunities from the health and safety literature will therefore be reviewed according to a framework of psychological construct domains of health behaviour change proposed by Michie, Johnston, Abraham, Lawton, Parker, and Walker (2005). The framework is designed for use by psychologists and non-psychologists for interventions to improve evidence-based practice in public health settings. It comprises the following domains: ' knowledge', 'skills', 'social/professional role identity', 'beliefs about capabilities', 'beliefs about consequences', 'motivation and goals', 'memory and attention', 'environmental context and resources', 'social influences', 'emotion', 'behaviour regulation' and 'the nature of the behaviours'. These psychological domains feature in a number of theories but in the main are based on social cognition theory developed by Bandura (1977, 1986). According to social cognition theory, behaviour is determined by expectancies, incentives and social cognitions. Applied to health and safety behaviour expectancies includes: situation outcome expectancies, for example that not undertaking health safety activity may lead

to accidents; outcome expectancies for example that carrying out health and safety behaviour can lead to fewer injuries and self-efficacy expectancies 'we can carry out the required health and safety activity if we need to'. The theory posits that behaviour is influenced by beliefs about its consequences therefore incentives may be reinforced by the outcomes of behaviour. Social cognitions relate to the beliefs about the significant others and the wider social world, social cognitions relating to a behaviour are held to have an influence on the likelihood of that behaviour being carried out. For example if a business considered it important for their reputation that health and safety activity is carried out then it would be more likely that the company engages in health and safety activity.

Social cognition theory has also been used in the study of organisational behaviour. Organisational behaviour has been defined as 'the understanding, prediction and management of human behaviour in organisations (Luthans, 2008). The social learning model provided by social cognition theory arguably provides a basis to take into account both individual characteristics and organisational environment (such as perceived consequences of organisational behaviour and organisational behaviour itself). Organisational behaviour according to social cognitive theory can be explained in terms of an interaction between the individual and environment. One criticism is that previous models designed to explain individual behaviour may not be applied to individual behaviour in a group situation because they do not take

the influences of social processes into account, this may be particularly true for cognition models such as the Health Belief Model (Becker & Rosenstock, 1987). Social cognitive theory has attempted to address this omission by emphasising the social influence on intention and behaviour. However, this may not be sufficient to explain organisational behaviour as such behaviour may be both a producer of, and a product of environmental context and cognitive processes (Luthans, 2008), therefore other factors may need to be considered such as the degree of decisional control at differing levels of an organisation's hierarchy.

Other constructs such as affect or emotion have also been found to be predictive of health behaviours such as driving and smoking (Lawton, Connor & Parker 2007). Emotion forms part of the framework identified by Michie et al (2005) that will be used to consider the literature. The framework is discussed further in Chapter Three.

### 2.2.1 Constraints to Good Health and Safety

"Small firms are particularly difficult for the HSE to engage with. Business issues such as cash flow, sales, staffing and production are even more critical for small firms than for larger ones – and health and safety is often given a very low priority." (McKinney, 2002)

Constraining factors reduce the possibility of interventions among small and medium sized businesses. Constraints also affect the uptake of interventions

offered by external agencies. Restricted time and resources are frequently highlighted as a barrier in attending health and safety seminars (EASHW, 2004). To illustrate, reasons given for not taking part in the 'Fair Chance at Work' initiative for SMEs (only four out of 480 targeted businesses took advantage of free services to promote health at work) included: No time to spend on project, difficult year, pushed timescales, and other business priorities (Griffin, Hall, & Watson, 2005). According to the literature the SMEs clearly identify environmental and resource constraints as barriers to health and safety activity. However there may be other constraints that relate to the psychological domains of health behaviour change, which will be highlighted throughout the review.

### 2.2.2 Suspicion of Interventions

Negative beliefs about consequences of health and safety behaviour and lack of positive reinforcers such as observable evidence of improvement may undermine confidence in health and safety intervention offers. For example, health and safety seminars offered free of charge may be viewed with suspicion and perceived as low value. These may adversely affect their uptake by SMEs (EASHW, 2004). At the same time, interventions which incur charges for services may have reduced uptake because of inadequate resources available to small businesses (Dugdill, Kavanagh, Barlow, Nevin, & Platt, 2000). A grant scheme system for small businesses may have more

success in attracting interest and uptake, such as mentoring for micro-businesses. However, there is a problem of reaching those SMEs who need services the most (Bradshaw, Curran, Eskin, & Fishwick, 2001). Companies that tend to take up services already have more advanced health and safety arrangements in place (Technopolis, 2004). Schemes therefore may not be effective in delivering on targets to Revitalise Health and Safety (DETR/HSE, 1999) if enterprises with poor health and safety standards are not both targeted and recruited

Despite economic factors being intuitively associated with the lack of engagement and uptake of health & safety activity, studies (Griffin et al., 2005; McKinney, 2002) indicate that constraints may be more perceptual than economic. The perception that moves to improve heath and safety may not produce any improvement or benefit in real terms, may be more of an influence in undermining the motivation of SMEs to increase health and safety involvement. In turn, this perception may be sustained by the lack of evidence that initiatives are producing real, rather than supposed benefits. There is therefore, a need to demonstrate that initiatives are producing actual benefits in terms of health, safety and economy (Griffin et al., 2005). In order to achieve this, assessment of the effectiveness of interventions needs to be improved. However, this is not without its problems, given the reluctance of SMEs to take part in surveys needed to provide evidence of effectiveness.

The notion that interventions may not bring real improvements for the SME may also derive from the fact that early interventions were modelled on what appeared to be good practice in larger firms, rather than as a result of research findings among smaller enterprises. This could lead to a number of shortcomings, such as poor 'offer of intervention' timing, inappropriate stage of development for the small business, poor relevance, and/or a lack of marrying the needs of business and type of intervention (McKinney, 2002). The interventions may be considered incompatible with the SMEs' self-identity or professional standards. Smaller businesses may be less likely to have measures of performance, staff morale, sickness absence, and time lost through accidents in order to make objective and calculated evaluations of any intervention. Without such measures it may be argued that there is therefore a lack of reinforcers of good behaviour, as the rewards are not readily apparent. One exception being the SME involved in the construction industry, where commissions may be contingent on satisfactory levels of health and safety arrangement being in place (Lancaster, Ward, Talbot, & Brazier, 2003). Obstacles to the use of performance measures in SMEs are similar to those which are cited to impede health and safety activity; lack of human resources, managerial capacity, limited capital resources, a reactive approach, tacit knowledge and little attention given to the formalization of processes, and the perception that such systems are a cause of bureaucratization and an obstacle to the flexibility of SMEs (Garengo, Baize, & Biotitic, 2005). In psychological terms these may be construed as a lack of

self-efficacy or negative beliefs about capability to meet health and safety demands, concerns about environmental and resource constraints and poor attention given to performance measurement.

### 2.2.3 Legislation

The present situation in the UK is that the Health & Safety at Work Act (1974) and the Management of Health & Safety at Work Regulations (1999) apply equally to all organisations. However, certain sectors have fundamentally higher risks and therefore more legislation has been designed to address their needs than those perceived risks encountered in, perhaps, the service or retail sectors. For example, in one project aimed at small businesses, whilst 94% took up offer of free health and safety starter pack, only 33% used the intervention of free inspection. Notably, those who used the inspection option were involved in the construction industry (Dugdill et al., 2000), suggesting that the increased legislation in this area compared to areas such as retail, provided a motivating factor. This suggests that the beliefs in the consequences of non-compliance with legislation may promote uptake of interventions to improve health and safety.

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Arguably, the Heath and Safety at Work Act (1974) allows for a variance in interpretation of legislation concerning employers' responsibilities towards the health and safety of their employees. The common law principle of reasonable practicability requires the employer to "take into account the danger or hazard or injury which may occur and balance it against the cost,

inconvenience, time and trouble which would need to be taken to counter it" (Walters, 2001). This may be less than the requirements of EU framework directive 89/391 and has important implications for small businesses, where the resources needed to carry out health and safety duties may be seen to be greater than the risks. Businesses may be choosing between avoiding negative consequences of injury or saving resources such as time and money. Arguably there is also a greater onus on the SME to anticipate and recognise risk.

Survey evidence has also revealed that, for many SMEs, there is a lack of awareness of what specific health and safety legislation is pertinent to their business (Vickers et al., 2003). However, lack of awareness of specific regulations does not necessarily preclude engagement in health and safety activity. A number of SMEs were active in health and safety improvement despite being unsure of their legal requirements (Pilkington et al., 2002; Vickers et al., 2003).

### 2.2.4 Lack of Perceived Relevance of Advice Concerning Legislation

The relevance of health and safety advice to small firms has been questioned. For example, the COSHH Guidance manual published by HSE to improve chemical control has been perceived to be aimed at larger businesses (Wiseman & Gilbert, 2002). There has been difficulty in finding health and safety advice leaflets relevant to the specific needs of the organisation (Wright, Marsden, Collier, & Hopkins, 2003). Small firms tend to see their

own ability to interpret regulations as limited and therefore they require more specific advice to tell them exactly what to do. They therefore may lack a sense of self efficacy in their own capabilities. There is however a difficulty in providing advice specific to the SME because SMEs are also very heterogeneous in terms of both organisational structure and sector membership. The lack of perceived relevance may therefore be an issue of business identity, some firms may consider advice to be inconsistent with their own professional standards.

A lack of reported difficulties in complying with health and safety legislation (Vickers et al., 2003; Walters, 2001) could be interpreted as lack of awareness of legislation (a knowledge or communication issue) or desirability to present one's business in a good light (research methodology issue). The former explanation is less likely given findings indicating that: those who do report difficulties in complying with legislation tend to have both a greater awareness of health and safety regulation and better health and safety standards than those who claim to have no problems with compliance (Vickers et al., 2003).

The cost of fulfilling regulatory demands for health and safety at work are reported to be seven times greater for small firms than large enterprises (Lancaster et al., 2003). For example, the most disproportionate costs were found in attempts to adhere to manual handling regulations. Further, a

perceived "rip off" culture has been identified with private health and safety consultants. They have been reported to be over-expensive and providing complicated solutions to problems (Tait & Walker, 2000b). Therefore this may be seen as undermining the motivation for seeking external health and safety assistance.

### 2.2.5 Managerial or Organisational Factors

The characteristic size or structure of the SME may be responsible for other issues. Management style and business style has also been associated with levels of occupational health and safety activity. In one study, owner/manager-led companies tended to be less involved in health and safety activities than those companies adopting a participatory management style (Shampoux & Brun, 2003). In particular, those companies with less than five employees and which featured a style where "everyone was responsible" indicated relatively higher levels of health and safety activity. Management style rather than size may therefore be more important in predicting activity levels, with those companies which have a greater distribution of managerial responsibilities also displaying more support of health & safety activity. Lack of management training or understanding of good management practice is not only related to low health and safety support, but it can also challenge initiatives to improve health & safety engagement, e.g., worker representation ( Walters, 2001).

### 2.2.6 Social Characteristics and Dynamics

Social influences such as management commitment may be strong determinants of health and safety behaviour. For instance, personal considerations may deter owner-managers from the introduction of health promoting activities with staff. Owners, boss or senior managers are often gatekeepers of the resources available for the SME's health and safety activity (Stephens et al., 2004). However, these identified gatekeepers often block initiatives through their lack of interest in health and safety. Some companies have reported a lack of support from the staff, or a difficulty in co-ordinating people to discuss health and safety skills. Predictably, lack of coordination and communication within a company has also been shown to be a constraint on health and safety activities (Griffin et al., 2005). Other social characteristics and dynamics found in small businesses can be also linked to differing outcomes for health and safety. For example, favourable relations with owner/managers may persuade employees to accept riskier work conditions, ignoring personal needs in favour of the perceived economic interests of the enterprise (Eakin & MacEachen, 1998). On the other hand, poor employment relations may increase difficulties relating to health and safety issues. Ill health and injury can therefore be "shaped by, and itself shapes, social relations" (Eakin & MacEachen, 1998). Managers would, of course, wish to show understanding of the employees' difficulties, particularly where there are close working relations, and also a desire to preserve the autonomy of the employees. The employees may have unique understanding of their risks but

are still unwilling to compromise the discomfort from some personal protective equipment, for example, hearing defenders and visors used in forestry.

### 2.2.7 Worker Representation within the SME

Workers in SMEs may fear the consequences of complaining about poor heath and safety standards within the company. Worker representation on health and safety issues within the SME is low. Workforce contribution or direct participation where employees are encouraged to "become involved with the determination of their working environment" is uncommon in small businesses. Therefore, it is problematic for employees to use legal rights to refuse dangerous work or obtain information concerning the potential hazards of their work, as they may fear the perceived negative consequences for complaint, such as job loss. Worker representation, in combination with trade union representation, has been linked with better health and safety outcomes ( Walters, Nichols, Connor, Tasiran, & Surhan, 2005).

Legal claims against employers have been blamed by a number of SMEs for creating a culture where the locus of responsibility appears to lie solely with the employer. Managers have reported that they found it difficult to convince the employees to take health and safety precautions (Vickers et al., 2003). However, various issues could also be involved here, lack of effective communication between employer and employees, the perception that good relations may be threatened if employers attempt to impose unpopular

procedures, or a lack of interest in the health and safety of the employees, or not enough time to spend on addressing issues of health and safety when faced with other more immediate challenges.

### 2.2.8 Stress and other work-related psychological issues

There are a limited number of stress interventions among SMEs documented in the literature. A systematic search for interventions for stress among the SME elicited a paucity of studies. Furthermore, few workplace interventions, whether with large enterprises or SMEs, have been examined in terms of their effectiveness. This is perhaps due to the practical and methodological difficulties involved. Two difficulties cited were : the problem of obtaining consent from all relevant staff and randomisation of the sample. By contrast, one study claimed that these issues were less problematic when investigating stress interventions among the self-employed (Blonk, Brenninkmeijer, & Lagerveld, 2006) as only the consent of the sole trader was required. Comparison between cognitive behavioural therapy (CBT) and a combined intervention of workplace and individual approach for work- related psychological complaints among self employed individuals revealed significant effects for the combined technique (Blonk et al., 2006) in terms of length of time to return to work. However, there were no significant improvements in comparison to the non- intervention control group in reduction of psychological complaints. It is therefore not possible to assume on the basis of this study, that CBT is an effective option to reduce workplace

stress. Furthermore, one problem with the study was the lack of objective monitoring of the adherence to the intervention protocol and the content of the intervention sessions. There may therefore be problems in the procedure which had undermined the efficacy of the treatment. Another notable issue is that this intervention for psychological well being at this stage may be seen as reactive rather than a preventative intervention in so far as the individuals involved were already suffering from workplace stress to such an extent that they were absent from work. As highlighted, the new challenge for the SME and indeed larger businesses is to take primary preventative steps and anticipate problems. The need for rehabilitation of employees suffering from work related stress is indicative of the fact that this risk from type of stress, one of the major causes of absence from work (Blonk et al., 2006) has not yet been successfully reduced.

There is evidence to suggest that conditions that may be a source of stress are often features of the SME. Furthermore, SMEs are largely ill-equipped to manage stress in the workplace. McHugh and Brotherton (2000) found poor rates of well-being among textile producers despite reporting good financial performance. This may be a function of high demands but a lack of control. For example, the pressure exerted upon the SME by larger retail companies to supply high quality goods to stipulated timescales, led to long working hours and small profit margins. Workload control was an identified problem as SMEs were not in a position to specify their own terms of production for fear

of losing business (Simpson, Leather & Brotherton, 1990). Reduced control over workload has a well-known association with stress (Karesek, 1979) and markers of stress response. However, until recently, interventions aimed at SMEs that address the problem of poor job control have been slow to emerge.

The Management Standards for work related stress is an initiative developed by the Health and Safety Executive designed to be used by enterprises of all sizes. It is an intervention process aimed at primary prevention of workplace stress. Six key risk factors for stress, based on Karasek's model for work related stress (Karasek, 1979) and Cox's taxonomy of work related stressors (Cox 1993, Cox et al., 2000, 2002), structure target areas of prevention, namely demands (pressure such as work load and patterns of work), control ( the extent to which individuals can choose how to conduct their work), support ( from the organisation, line manager and other colleagues) , relationships (processes to avoid tension and intolerable behaviour), change ( how organisational change is dealt with in the organisation) culture (management commitment and transparency of procedures) and role (understanding of one's role and absence of role conflict). The intervention involves a two stage risk assessment process, the first stage utilises an indicator tool comprising a screening questionnaire to identify problem areas in the organisation associated with stress. The second stage involves the use of focus groups within the organisation to explore the specific nature of the problem.

The Management Standards are in the early stages of evaluation. Research into perceived barriers against the adoption of the standards has revealed a number of problems shared by large businesses and SMEs alike. Two notable barriers are lack of commitment by line managers to stress management and employees' fears associated with the stigma of stress. The commonly cited problem of 'lack of time' is also a feature associated with the adoption of stress interventions (Pearse, 2004). In the pilot, most departments reported that they had to make a formal business case, which included improved absence rates and productivity, in order to win the support of senior management during the piloting of the study (Gaskell, Hickling, & Stephens, (2007).

It has been claimed that the introduction of the Management Standards has encouraged businesses to adopt stress initiatives (Pearse, 2004). However, it is not clear how this conclusion has been reached. There were no reported baseline measures (of health and safety activity relating to stress) taken from the SMEs interviewed in the study. The representation of SMEs is also low (38% of the study sample) given that SMEs represent 96% of the UK business population. Early trials of implementing the Management Standards have nonetheless indicated that SMEs have reported no greater difficulty in adopting the standards than larger businesses (Gaskell et al., 2007).

Another resource has been developed for small businesses by Health Education Board Scotland (now NHS Health Scotland) to aid in both the risk assessment for stress and reducing stress in the workplace. The process comprises five steps; 1) awareness raising, 2) benchmarking, 3) risk assessment, 4) avoiding and reducing risk and 5) reviewing the position. Findings from the evaluation (McGregor & Cummins, 2004) suggest that the fourth stage was the most problematic, as this requires support from senior management and their allocation of resources to carry out stress reducing measures. This finding is consistent with that of the Management Standards pilot study which found that line managers were sceptical of stress interventions and appeals had to be made on the grounds of improved productivity. Business performance was identified as a motivator to take up the Work Positive programme, other motivating factors were moral obligations and legal obligations. The evaluation report also highlights the fact that although the tool was targeted towards SMEs, in the main it was larger businesses that were seen to engage with the initiative. This may have been an artefact of the survey methodology, however the authors conclude that it was reasonable to deduce that the SMEs struggled to both take part in the Work Positive Initiative and its subsequent evaluation. It can be argued therefore that in spite of interventions designed with the SME in mind there still remain problems for the SME to become involved in the process of both auditing stress and implementing steps to reduce stress.

### 2.2.9 Basic Steps Towards Compliance

Before considering how health and safety can be improved it is relevant to consider the basic requirements that an SME may be expected to meet. All companies that employ more than five employees should have a written health and safety policy in place. Even for those enterprises which employ five or less, it is considered good practice to have a policy (Toone, 2005). It should comprise: a health and safety organisation chart, a description of the health and safety role of each category of employee in the organisation, and strategies to identify and manage risk. In theory, the policy should then be used as a tool to outline the employers' commitment and approach, and delegate health and safety duties to employees. In practice, even the process of producing a comprehensive document may be problematic. For instance, both identifying hazards and reducing risk may be difficult therefore help is often needed at an early stage, for example, during the formulation of the health and safety policy. All businesses with employees must carry out risk assessments and endeavour to make the working environment as safe as can be practical. However, those who employ less than five members of staff are under no legal obligation to provide records of their risk assessment activity (Toone, 2005). With this form of extrinsic motivator removed for the micro business it would not be surprising if businesses with five or less employees were less inclined to engage in health and safety activity.

## *2.3 Improving Safety & Health in the SME*

As a nation if we are to improve the health and safety of the majority of our industrial organisations, it is of some importance to consider the most effective mechanisms to influence organisational behaviour. The SME presents special challenges in the identification of effective means of positively influencing behaviour. Various agents have been presented in the literature ( Walters, 2001) as potential mechanisms that may be exploited, these and others are discussed in the section below. The proposed psychological processes that may be relevant will also be highlighted according to domains in Michie et al's (2005) framework namely beliefs about consequences, knowledge, environment context and resource, skills, beliefs about capabilities, motivation and goals, social professional role and identity , social influences, emotion, behavioural regulation and nature of the behaviours

### 2.3.1 Third Party Support

SMEs have been reported to be unwilling to contact the regulator for assistance as a result of fears that they will be targeted for inspection. A third party facilitator has been suggested to offer a less intimidating means to provide practical, personal and effective health & safety support. For example, a printing company may have concerns regarding compliance with the manual handling regulations but may be resistant to seek advice from the HSE for fear that they may be inspected on a more general basis. If they 'keep quiet' they may never receive a spot check inspection. A third party

authorised or facilitated by the regulator may provide a less threatening service with the general benefit of an improvement in health and safety practice. Key psychological processes that may be relevant here are emotion, notably fear, which may be preventing SMEs from seeking external help, beliefs about the consequences of the engagement of third parties are also important, the benefits need to be seen to outweigh the costs. Knowledge about health and safety hazards and prevention can be provided by third parties along with skills training.

Many organisations could possibly provide third party assistance in support of the SMEs health & safety needs, for example, the employer's organisations, trade associations, health & safety consultants, trade unions and insurance agents. Several third parties have been used to promote engagement in the process of risks assessment. However, there are drawbacks according to the type of third party involved, for instance a number of employers were discouraged from attending awareness raising seminars because of the link with trade unions (EASHW, 2004). Also, despite the concentrated efforts of the European Union agency, the effort and money spent on initiatives involving third parties may be disproportionate to initial uptake, which has been reported to be only three percent in one national initiative for one Dutch project, (400 of 13,500 companies, (EASHW, 2004). Therefore, in order to convince wary SMEs, the benefits need to be emphasized, perhaps by

producing robust evidence for the efficacy of these third party initiatives and addressing the fears of the consequences of trade union involvement.

**Trade Unions**

Unionisation is low in SMEs ( Walters, 2001). Potential impact may be practically limited to availability of training, advice, and publications. However, although direct trade union membership is low in SMEs, the major trade unions and associated organisations can, and do play a leading role in lobbying for changes to regulation, development of codes of practice, contribution to regional support networks and underlying support for research activities. There are a number of examples to be found in the literature where trade unions have been highly active in supporting health and safety initiatives, although in the main, these are 'pilot' schemes, therefore their sustainability is yet to be demonstrated.

Research has indicated that initiatives instigated by the trade unions may result in various positive outcomes for the SME. For example, more effective consideration of statutory rights (Kirby, 2002). Tripartite initiatives including Roving Safety representatives (RSRs) and Worker safety advisors (WSAs, to improve worker representation) have been employed. Three such initiatives namely, Roving Safety representatives (RSRs) and Worker Safety Advisors (WSAs) and a worker safety advisory centre were evaluated by the TUC.

The employment of union health and safety representatives who are union members has led to physical improvements in the working environment and risk assessments have been carried out. However, several constraints were identified, namely the vulnerability of workers; they may not be asked to work again if it is known that they are health and safety representatives (Kirby, 2002). There also remains an issue of funding of such schemes after the pilot. Continuing funding is a problem not unique to this initiative. The problem of sustainability of projects is a recurring issue found in the evaluation of pilot schemes. Other Tripartite (TUC, TGWU, and HSE) initiatives (including TGWU Roving Safety representatives) have been promoted and piloted among farmers. The owner employers were more receptive to the initiatives than expected, however more widespread acceptance of such schemes may be challenging. Sustainability again is an issue in this sector. The role is demanding for the roving representatives as this entails travel and absence from their usual work commitments therefore recruitment beyond the pilot stage may be problematic. Trade unions can boost health and safety activity via a number of psychosocial processes: increasing knowledge of risk and its management, through the provision of social support from representatives and by supporting workers who may be working in risky conditions due to the fear of job loss if they do otherwise. Nevertheless trade union representatives may also be more vulnerable because of their role and link with the unions, employers' attitudes towards

them maybe negative, therefore they need particular support in this from the unions.

**Insurers**

Insurers are in a strong position to influence the SME (Wright, Norton Doyle,. Marsden,. Bendig & Shaw, 2005). They may stipulate conditions upon which liability insurance is granted and therefore provide a prerequisite to business practice. If the cost of insurance is considered to be a high percentage of company expenditure then potential savings may be high, providing an important motivator and incentive for improving health and safety activity. In order to achieve this, the relationship between health and safety performance and insurance premiums needs to be recognised as direct in order to cue motivation for improving such performance. The HSE has moved to make this association between performance and insurance costs more obvious by developing an SME index (Wright et al, 2005) which aims to link index scores based on incident rates, hazard exposure and management, to employers' liability insurance. The index is currently undergoing evaluation, in the meantime, there are factors that need to be considered. For instance, if there is a delay between improvements and renewal of insurance the strength of the motivation may be undermined. The long latency period of some diseases contracted after exposure to hazards is problematic, as it weakens the performance/premium connection. The strengthening of the motivation to improve health and safety performance by reducing insurance

costs depends on improvement of performance measurement. It remains to be seen whether this can be successfully achieved through initiatives such as the SME index. Arguably one of the key predictors of its success is whether insurers will actually recognise the index as a valid tool. However, the involvement of insurers in the development of the SME index assessment tool may add credibility to the measure.

Financial gains, reduced insurance costs, enhancing reputation, and improved employee wellbeing, may be more noticeable outcomes for a small business which has not previously experienced accident or injury and therefore provide more compelling arguments for health and safety engagement (Tait & Walker, 2000b).

Psychological processes by which insurers may therefore contribute to health and safety include: increasing knowledge of risk and responsibilities, behavioural regulation through communication and feedback to SMEs on their health and safety performance, appealing to the SMEs professional identity by enhancing reputation, increasing motivation and goal–setting with lower premiums incentives as rewards, and promoting positive beliefs about health and safety engagement by providing measurable cost benefits.

**Professional Organisations**

Professional bodies may be well placed to present and promote best practice for members and through this means may offer a constructive and

unthreatening input to improving the safety and health of the SME. Such organisations are already arbiters of a code of conduct such as the British Medical Association or Law Society, by which its members should abide in order to be protected by the organisation in the event of a claim or complaint against them. These organisations often provide an additional link to insurers by recommendation, which as previously indicated, may reward progress best health and safety practice via the incentive of lower insurance premiums. In addition to motivation, the main psychological factors of relevance may be professional identity and the behavioural regulation required to conduct business appropriate to the profession represented in the SME.

**Trade Associations**

Trade associations are networks which may shape SME business practice. On the positive side, these may enhance safety and health through the design of working conditions or exchange of informal advice. Negative influences may be exerted, via obligations, deadlines and spreading of bad practice habits. However, the positive contribution of trade associations has been encouraged recently in initiatives subsidised by the European Health and Safety Agency, where there have been a large number of joint ventures between associations, health and safety organisations, and SMEs. Trade associations have also been useful in identifying and distributing health and safety material that is perceived to be more relevant to the nature and sector of certain SMEs. For example, hairdressers were more likely to read material sent to them by the

Hairdressers Federation than information from the local authority or training colleges (Fairman & Yapp, 2005). Professional identity may thus be important along with the process of enhancing knowledge and providing social support to small businesses to achieve a safer working environment.

**Health & Safety Professionals & Colleagues**

Many SMEs employ the services of external consultants to aid the preparation of a health and safety policy and risk assessment tools. These specialists may be in a position to improve the focus and processes of the SME. However, they are often expensive for the SME to use and therefore contact opportunities may be low without the financial assistance seen in European health and safety schemes for small businesses (EASHW 2004). By contrast, more informal support may be available through larger enterprise colleagues and associates. This may provide the SME with a forum to discuss health and safety processes assumed by the large enterprise (LE) and discuss the feasibility of these approaches to their business (Borley, 1997). Social influences in the shape of support by colleagues may contribute to knowledge about health and safety and address problematic issues such as lack of resources to employ external consultants.

**Suppliers**

Suppliers will have generally low control on the target organisations. They may enquire about, safe storage facilities for chemicals under the general

provision of the Health and Safety at Work Act (1974) or specific regulations, e.g., manual handling (HSE, 2000). However, it would not always be feasible to do this. Although supply chain influences can be positive in terms of on health and safety practice, in the experience of a number of micro-enterprises, the supply chain may have a negative effect if demands for health and safety requirements are coupled with customer demand for low prices (Vickers et al., 2003).

The supply chain and enabling certification could be utilised to encourage health and safety activity. Specification in tender documents of health and safety certification is currently sometimes undertaken by organisations as a means to determine compliance. BS 5750 was the forerunner of ISO 9000 and was one of the first industrial quality assurance systems specifications. Customers have been reported to operate a 'no BS 5750, no contract, policy' (Redmann et al., 1995 as cited in Luise Vassie et al., 2000). However, there may be disadvantages as this approach may unintentionally exclude some organisations as a result of the administration resources involved (Luise Vassie et al., 2000). A lack of formal health and safety documents does not necessarily indicate poor standards. SMEs typically operate more 'relaxed' management systems (Storey & Westhead 1994, as cited in Luise Vassie et al., 2000). Evidence indicates however, that both performance and competence are improved when more formal quality management systems are introduced. Psychological processes which may be salient are the beliefs

about consequences (of not having certification to win contract) this may influence motivation and promote behavioural regulation in the form of planning and action to meet quality and health and safety requirements.

**Customers**

> "Requiring effective health and safety as a pre-requisite may be one of the best ways to lead the SME community to better practice" (Vassie & Cox, 1998).

The customer has the ability to strongly influence the SME's attitude to health and safety engagement, through the work tendering process. However it is unclear whether certification documents are checked and whether such paperwork indicates a genuine and sustained commitment to health and safety. However, customers also expect costs to be competitive; this expectation may restrict the resources allocated to health and safety investment. The demands of customers may involve psychological processes to promote health and safety activity such as the SMEs' beliefs about consequences reinforced by reward or punishment (win or lose contract) these may provide motivation and behavioural regulation in the form of sustaining health and safety standards. Conversely the demand for low cost may add pressure on limited resources that can be used for health and safety purposes.

**Medical Intervention**

GPs and Primary Care Trusts may operate as mechanisms providing health and safety advice (empowering workers to change problematic situations, reduce hazards and report symptoms, (Jackson, 2004). Health and safety advice provided in the area of primary care may serve to increase awareness among individual workers and lead to demands to change workplace attitudes (Jackson, 2004). This has been the experience of two occupational advisory services. Qualitative analysis indicates that workers who received advice from health professionals did request health and safety related changes in the workplace which were put into place. However, a number of employees failed to report health and safety concerns of discrimination against them or lack of an available appropriate member of staff. The establishment of occupation health schemes in GP surgeries may contribute in raising awareness of work-related disease amongst clinicians and patients. More importantly such schemes may help health and safety at work by providing constructive advice to patients on how to reduce risk. Although results are promising there needs to be further evaluation of similar schemes to confirm and generalise their effectiveness. One question that may need to be addressed is whether the short-lived nature of employment in SMEs would weaken the ability of such interventions to bring about lasting improvement in the workplace. The issue of fears over victimisation after complaints about health and safety standards also need to be addressed. Psychological factors that may be important in predicting health and safety

are: knowledge (increased awareness of risks and workers rights), social influences by way of support provided by health professionals and emotion. Other issues such as fear need to be addressed as individual workers may still face a lack of organisational support that is not addressed at this level as the focus is on the individual rather than the organisation.

### 2.3.2 (Voluntary) Certification

Associated with customer qualifying requirements, e.g., ISO 9000 quality certification may be one of the most successful means to guarantee good health and safety practice within the SME (Vassie & Cox, 1998). In their study considering business interest in voluntary certification schemes Vassie and Cox (1998) reported that most of SMEs considered implementation of a quality management system to be key business objective. However, response rates to their survey were low and the implications should be considered in assessment of findings. Focus groups findings suggested that compliance with BS5750 (or more latterly, BS EN ISO 9000:2000) would bring health and safety benefits but at a financial cost. It appears that economic cost benefit is not a recognised feature of quality certification Vassie and Cox (1998) report the three primary barriers to implementation of health & safety management systems as i) bureaucracy, ii) resource requirements, and iii) low perceptions of the importance of health & safety to the business. Voluntary certification may be seen as a form of self-regulation however, the environmental context may be a barrier if resources are limited. This type of voluntary activity may

also depend on the perception that the certification is relevant to the company's professional standards.

### 2.3.3 Information Technology

Websites are now often part of health and safety interventions aimed at small business. One advantage of websites is anonymity, for example, not having to give out business contact details in order to obtain advice. Internet-based information was reported to be difficult for the SME to access in HSE contract research report 185/1998 ( Haslam et al., 1998). However, this finding may have changed with the more widespread availability of affordable broadband internet connections. Information Technology (IT) use is a potentially important feature for SMEs. The HSE has for some time provided a large amount of SME support available online. IT has been identified as an effective tool to access health and safety information (EASHW, 2004; Vickers et al., 2003). It can also be suggestive of an approach to management which itself has health and safety implications. Measures of performance relevant to health and safety are more likely to be a feature in those companies which make greater use of information technology. In addition, the size the enterprise is positively correlated to computer use. In one study, the SME was found to be more likely to be motivated by paper-based information, in contrast to larger organisations which favour internet based information (Lancaster et al., 2003). However, there have been combined initiatives to establish contact with small businesses and also provide interactive material

such as health and safety assessments. To illustrate, in the internet version of Electronic COSHH essentials, nearly 89,000 visits were made to the site and 37,565 COSHH assessments completed (Tanczos, 2003). The number of users in the first six months exceeded the number of paper copies over three years. In order to promote the internet site, hyperlinks were set up between the Electronic COSHH essentials and local businesses through the Department of Trade and Industry Small Business scheme.

The SME assessment index (Wright et al., 2005) created by the HSE with involvement from insurers is another web-based tool to assess health and safety. The index aims to facilitate benchmarking and assess the SMEs' health and safety standards... Such internet initiatives still need to be further evaluated, more details are needed, and in particular of the type of users of the tool, and to what extent the information provided is adopted. However, there appears to be more emerging initiatives that use the web both as a provider of information and as an interactive facility to assess performance.

Potentially, internet based information can address the issue of fear of punishment by regulatory bodies, as SMEs can now increase their knowledge, improve their skills and increase a sense of self-efficacy without the need for disclosing their identity. Online packages may also be a mechanism for self-regulation as though online feedback through interactive packages. The internet may also serve to change the image of bodies such as the Health and

Safety Executive which although hold considerable regulatory power under the Health and Safety Act (HSE, 1974) but also supplies increasing amount of information and support to SMEs via its website. The HSE may be therefore viewed as a source of empowerment rather than punishment.

### 2.3.4 Support & Advice Lines

Telephone advice lines have often been part of health and safety initiatives. An evaluation of a new service set up for SMEs in Scotland, 'Safe and Healthy Working' (SAHW) found that a greater percentage advice line users (88% of employers) reported taking action to improve health & safety in the workplace than those who had accessed information via the scheme's website (65%) (Ward & Lancaster, 2004). Improvements reported to be a direct result of advice were made in areas such as policy development, risk assessments, fire safety, chemical hazards and equipment and safety checks. Various reasons were given for not following up advice; these included time constraints, lack of perceived necessity and cost factors. There is evidently still room to increase incentives to improve health and safety, but the response to advice given was found to be largely positive by SMEs followed up in the study (Ward & Lancaster, 2004). However, one drawback of advice lines is that they are resource intensive and may not be able to cope effectively with periods of high demand. Arguably, websites do not suffer from this drawback if they are designed to be interactive. The SME assessment index for instance is set up in such a way that website users can carry out online

assessments and then use the site to access benchmarks and make direct comparisons with the health & safety performance of their own enterprise. The Safe and Healthy Working website is not so fully interactive yet it carries links to other sources of information including an email address set up for further queries. The SAHW had 42,377 visits to the website yet only 272 queries were emailed from the site compared to 2361 calls to the advice line. It was not possible to assess how many of the visits were made by SMEs compared to LES. Nevertheless, the reliance on advice lines by SMEs may indicate that these enterprises are still unclear as to how to distinguish what information is relevant them and need further guidance. Advice lines therefore, still have a significant role in not only the dissemination of information but also guiding the SME to the correct or relevant resources and providing a source of social support for health and safety activity.

### 2.3.5 Training and Support Materials

Leaflets are an example of accessible health & safety promotion (Harvey, Fleming, Cregan, & Latimer, 2000). Leaflets are an established part of health and safety promotion (WHO, 1986). Small and medium-sized enterprises have been stated to want simple, straightforward guidance, preferably printed, indicating what they need to do to meet all of their health and safety needs (McKinney, 2002). A survey of SME participants (Haslam et al., 1998) also reported that information should be tailored to the type of company and contain 'hard hitting' facts to increase concern over the consequences of

neglecting health and safety responsibilities such as prosecution or staff injury. Increasing knowledge and targeting beliefs about consequences appear to be the psychological processes that need to be prioritised.

**Training**

Lack of compliance has often been understood as an opposition to health and safety activity. However, there is also evidence of a genuine lack of ability to recognise risk (Walters, 2001). Small businesses may therefore report that they are effectively carrying out health and safety duties, whilst unaware of key hazards. This may explain why a number of small businesses expressed a preference for a prescriptive approach, where the hazards are pointed out to the SME by the local authority, rather than staff being expected to recognise risks involved in carrying out their business. However, this approach would be time consuming and expensive for the authorities involved. It encourages passivity rather than a proactive approach advocated by European directives (EASHW 2004). Written information or web-based material may be of limited use, if companies have not overcome the initial barrier of a lack of understanding what advice is relevant to their business. A proactive approach will need effective support and training in recognising potential hazards, before SMEs can embark on the monitoring and management of risk. There is a potential for websites to provide a form of training through the use of interactive feedback through the provision of online questionnaires, although the self report nature of such tools may lead to an over-subjective assessment

of the enterprises' health and safety risk. This suggests that increasing knowledge, skills and promoting self regulation are potentially the most relevant psychological processes to health and safety training among SMEs.

### Training in Performance Measurement

Small business employers' lack of belief in the effectiveness of health and safety interventions is a reoccurring theme in the literature. One of the potential mechanisms underlying this widespread attitude is the poor audit, not only of health and safety-related events in the SME but also of performance in general. The small business is less likely to engage in performance measurement or achieve performance measurement targets (Lancaster et al., 2003). Therefore, in addition to encouraging the recording of incidence of accidents and ill-health, training in target setting and evaluation for small businesses may be advisable; this may help to raise awareness of the benefits of health and safety interventions. Baseline measures, such as financial ratios, staff turnover, and customer complaints, quality, customer satisfaction and staff morale, are needed in order to assess outcomes (Garengo et al., 2005). It could be argued, demonstrating improvements in these areas may provide a motivating influence in the uptake of health and safety interventions, rather than simply focusing on more narrow health and safety outcomes, in which the immediate benefits are often difficult to demonstrate. These additional outcomes may be particularly pertinent among SMEs which have not yet experienced accident or injury. Measuring outcomes such as cost,

quality, flexibility, delivery, and innovation, (considered competitive performance priorities), may be one route to addressing issues of health and safety that are historically low in priority for the SME. Performance measurement may be crucial in promoting positive beliefs about the consequences of health and safety behaviour and increasing motivation for action.

**Vocational Training**

This may be an important influence on health and safety in areas where there are large numbers of trainees employed such as in the hairdressing industry. Training colleges may contribute to health and safety compliance because they have the authority to impose punishment by means of withdrawing trainees from the establishment. In one study, visits from representatives from training colleges were found to have a statistically significant impact on improving compliance with risk assessment legislation. Local authority inspections in the same study did not produce a significant influence on levels of compliance compared to those who had no visits (Fairman & Yapp (2005). However, it is possible that the small sample size meant there was not sufficient power to detect a significant difference. The result that intermediaries from vocational colleges may be influential is promising and suggests further investigation on the extent and nature of their contribution. This influence may derive from the importance of professional role identity and the beliefs about the consequences of not maintaining adequate

standards, for example sanctions such as withdrawing paid placements in the SME.

**Enforcement**

Research has been cited (Walters, 2001) which suggests that characteristically, SMEs are adverse to contact with the HSE regulator for fear of subsequent inspection. It can be argued that there is an 'image problem' for the HSE because of the twin role the organisation and its officers have to fulfil. In this respect the HSE inspector represents the arbiter of punishment. There is a paradox in the role of inspectors - on one hand; inspectors need to engage the small business in their educative role which requires empathy with the difficulties facing the small or micro-business. On the other hand, inspectors are required to demonstrate that regulations will be enforced (McKinney, 2002). There is a difficult tension in performing this contradictory role. However, there is evidence that visits from inspectors are associated with positive assessment (by small and micro-businesses, including ethic minority business) of the financial benefits of health and safety improvements (Vickers et al., 2003). This suggests that inspectors can successfully fulfil their educative role, despite the SMEs concern that the inspectors' enforcement powers sit uneasily with their guidance role. Key psychological issues that need to be addressed are fear, perceived role and identity of inspectors and the beliefs about consequences. Although fear messages can reduce negative behaviours (such as risk of AIDS and unsafe sex) fear messages may be counter productive when promoting positive behaviour (Ruiter, Abraham &

Kok, 2001). More emphasis may be need to be applied to the positive consequences of communication with the inspectorate.

### Regulations

Health and safety regulations clearly have a substantive role in the specification and declaration of expectations for effective organisational health and safety performance in the UK and Europe. However, it has been suggested that the systems for assessment and management of health and safety risks have been developed more effectively in the larger enterprise than the SME ( Walters, 1996). Further, the relevance and appropriateness of regulatory frameworks to the SME has been questioned. Again this is a problem of identity for the SME which does not consider the regulations as relevant to either its size, sector or structure

### Guidance

In contrast, substantive efforts have been made by the regulator to provide support, guidance and information via other means (Borley, 1997). For example, the use of non-HSE organisational mentors have proven to be useful as a non-threatening means to interact and support the SME.

## Targeting Interventions

It has been suggested that simultaneous interventions should be targeted at gatekeepers of the SME health and safety resources who are often likely to be owner employers or senior managers, and also the rest of the work force

(Stephens, Hickling, Gaskell, Burton, & Holland, 2004). (Stephens et al (2004) suggest that this creates a 'pincer effect' to exert concurrent internal and external pressures on gatekeepers to increase health and safety activity. For example, internal pressures may derive from demands of the workforce to improve health and safety standards, whereas external demands may take the form of health and safety legislation. The psychological processes relevant here are social influences (of the gatekeepers) and behavioural regulation (in meeting demands of the legislation).

**Resources**

Schemes should be cost effective. Walters (2002) claims that even a small reduction in the ill-health, injuries, and fatalities represents a huge saving in the sector concerned. However, Walters acknowledges that the empirical evidence to the extent of the reduction in the costs of accidents attributable to regional health and safety representatives and trade union initiatives is not clear. This highlights a barrier mentioned earlier, poor measures of performance, staff morale, sickness absence, and time lost through accidents need to be properly assessed. More evidence would arguably strengthen positive beliefs about the consequences of health and safety activity.

**European Interventions to Address Psychosocial Issues in the SME**

Occupational health and safety programmes targeting small businesses have traditionally addressed chemical and physical problems in the workplace. One notable addition to the areas of attention is the problem of work-related

psychosocial stress (EASHW, 2004). Five separate initiatives took place in diverse settings which were either specifically targeted for the purpose of the scheme or where the enterprise itself had identified a problem and sought funding from the scheme in an attempt to provide a solution. In general, there are three key stages in the approach to addressing the psychosocial problems. The first step involved identifying what may constitute a hazard to psychosocial wellbeing in the SMEs' own specific working environment. This was achieved by either distributing questionnaires to workers, or through workshops to facilitate a participatory risk analysis. Secondly, seminars on how to alter stress in the workplace were held. Leaflets and manuals with guidelines summarising the measures used to deal with the problems identified by the participating SMEs were also produced. Lastly, information on how each project was disseminated via the internet. One project noted that participants had agreed that the initiatives had enabled them to explore solutions and act on them rather than merely highlighting problems and mistakes of their enterprise. Another project designed a web-based test which provided recommendations based on the results. In terms of psychological processes these initiatives may therefore increase knowledge, skill and self-efficacy by increasing beliefs about capabilities through exploring and generating in-house solutions.

The structure of the interventions, for example, researching the specific problems that occur in the SME then identifying solutions which may be used

in the particular context, is a tailored approach to tackling psychosocial problems in the workplace. As mentioned the findings are then disseminated to a larger audience via leaflets, manuals and online information. It may be argued that the communication of these examples of good practice, which have been formed in an SME rather than in a large enterprise, may be a powerful tool in promoting health and safety activity and changing the perception that external advice is irrelevant to the small business. Both the problems and the solutions should be relevant to the SME, because they were located within an SME. However there are limitations, for instance, the SMEs participating in the study may have already overcome a number of the barriers highlighted earlier in the report. These may have included a lack of motivation, holding the view that interventions do not necessarily bring about benefits in real terms or a lack of sufficient human resources to allow the release of employees to take part in such schemes. The challenge to engage the more reluctant enterprise may therefore still remain. Therefore problems of resources may hinder motivation and practical attempts to sustain activity.

It is not clear whether these initiatives have been evaluated in terms of effectiveness of reducing the level of psychosocial stress in the workplace. This may be difficult given the possibility that a number of the businesses were unable to identify the extent of the problem within their workplace prior to the intervention.

## 2.4 Summary

The constraints affecting the SME's ability to undertake health and safety activity is clearly apparent in the literature. Much of the literature is concerned with issues of lack of resources, knowledge, and skills. Where there have been initiatives to promote health and safety, barriers such as organisational commitment also appear to be problematic. The literature focuses on the practical constraints and correspondingly practical interventions to address them. However despite the interventions there still appears to be a lack of commitment to health and safety, sustainability is difficult despite the wide range of interventions.

If the constraints and interventions are evaluated in terms of psychological processes a number of processes appear to be relevant in this context. Beliefs about the consequences of health and safety activity are often negative. Companies are highly aware of the costs of the resources needed for health and safety activity but often have no tangible outcome measures of benefits. This may be due to poor measurement or the fact that SMEs are unlikely to experience major events in the life of the company. Fear appears to be an issue, fear of seeking help from the regulator and also fear of the consequences of complaining which may involve loss of employment. Small companies also fear the consequences of trade union involvement to promote health and safety. SMEs appear to doubt their own capabilities in recognising relevant legislation therefore in this respect self efficacy appears to be poor.

Lack of skills and knowledge appear to be a perceived constraint this is especially apparent in the recognition of relevant health and safety legislation. Professional identity may also deter or promote uptake of interventions to increase health and safety activity, with a proportion of SMEs considering health and safety activity to be part of their overall professional code of conduct, whereas others struggle to find relevance in regulations and requirements to their own business. Issues of behavioural regulation and incentives may be important, where interventions have involved feedback and other incentives such as reduced insurance premiums these are often successful. However associations between health and safety activity and positive consequences need to be emphasised as often the link appears tenuous.

The perception that health and safety initiatives may not generate gains in real terms, may have a great impact in weakening the motivation of SMEs to engage in health and safety. Lack of obvious and explicit evidence for the benefits of increased activity may further sustain this view. There is an urgent need to make evident the tangible benefits of health and safety activity which are meaningful to the SME (Griffin et al., 2005)

It would appear that the literature presents a wide range of practical opportunities to support the health and safety needs of the SME. However, it

is also clear that many of these schemes do not realise their full potential. Problems with uptake and sustainability of interventions are a threat to their overall effectiveness. Negative perceptions highlighting the difficulties of engaging with efforts to support health and safety activity are a regular feature, however there has been little documentation of how these have been directly addressed. It is clear that more investigation is needed into the efforts that SMEs already undertake and how these actions are facilitated, in order to improve health & safety.

# 3 CHAPTER THREE : LITERATURE REVIEW OF THEORETICAL FRAMEWORKS

This chapter provides a review of the literature of the theoretical frameworks that have been applied to health and safety interventions among SMEs. Further, key domains highlighted in the health psychology literature (Fishbein et al, 2001; Michie et al 2005) were considered and reviewed to assess their potential application in health and safety interventions among SMEs.

The most striking feature of the SME literature appears to be the relative lack of theoretical underpinning of interventions aimed at generating health and safety improvement. In particular psychological theory has not been extensively used in this area. This section will consider theoretical frameworks which may have potential for use for investigating predictors of health and safety behaviour among SMEs.

## *3.1 Stage of Change Model*

One model which has been applied in the health and safety setting is the Stage of Change or Trans-theoretical Model of Behaviour Change (Prochaska & DiClemente, 1982). The model was originally developed after examining processes of eliciting and maintaining behaviour change in activities such as cigarette smoking. The model is widely featured in health promotion practice in USA, Australia, and the UK. Application of the model has informed service planning, provision, and training agendas at local, regional and

national levels in Europe & North America. More recently the potential of the model for use in industrial health and safety has been investigated (Barrett, Haslam, Lee, & Ellis, 2005; Haslam, 2002). Studies have produced encouraging results in the health and safety context, which indicate support for its use as a framework to inform both health & safety research and intervention design. The model proposes that different processes are salient at each stage of behaviour change, see Table 3.1. The model's authors suggest that at the pre-contemplation and contemplation stages, attitudes and beliefs about behaviour are considered to be more relevant, whilst at the action and maintenance stages actual behaviour is a more important focus. In addition, the costs of carrying out behaviour may be seen to be more of a concern in the early pre-contemplation and contemplation stages. By contrast, more positive aspects such as the benefits of behaviour become a greater focus in the later action or maintenance stages.

**Table 3.1. Stages of change and corresponding psychological or behavioural activity**

| Stage of Change | Psychological or behavioural activity |
|---|---|
| Pre-contemplation | Not considering change, not aware of hazards. |
| Contemplation | Considering change in long-term future (i.e., during next six months). |
| Preparation | Making definite plans to change in short- term future (i.e., during the next one month) |
| Action | Actually engaged in change/carrying out actions. |
| Maintenance | Working to prevent relapse and consolidate gains made. |
| Relapse | Failure to continue with recent modifications or changed behaviour. |

Barrett et al (2005) propose that the model has implications for the design of interventions to promote health and safety, see Table 3.2. For instance, in the pre-contemplation stage, efforts to raise awareness and heighten the profile of health and safety issues could be more effective than the discussion of practical issues. The latter may be more relevant in the later stages when actual efforts are made to place plans into practice such as skills training, but certain barriers are encountered for example, difficulties in releasing staff for training purposes. Interventions may be more appropriate if they focus on examining the risks of not carrying out preventative behaviour for those at the pre-contemplation or contemplation stages, and by concentrating on the benefits of maintaining health and safety activity for those at the later action or maintenance stages.

**Table 3.2. Examples of targeted information according to the individuals' Stage of Change**

| Stage of Change | Purpose of targeted information/intervention | Examples of targeted information/ intervention |
|---|---|---|
| *Pre-contemplation* not considering change, not aware of hazards | Individuals must be persuaded that there is an issue to be addressed. | Presentation of strong messages, possibly in the form of carefully chosen, explicit graphic material. |
| *Contemplation* considering change in long-term future (i.e. during next six months) | Individuals are already considering change. Motivation to change needs to be reinforced. | Provision of educational material and practical information. Individuals supported in learning new skills. |
| *Preparation* making definite plans to change in short-term future (i.e. during next one month) | Strategies to raise awareness of what might be involved in implementing safer behaviour are required. Barriers to change need to be removed (e.g. physical workplace constraints and psychological concerns, such as workplace | |

| | | |
|---|---|---|
| | performance). | |
| *Action* actually engaged in change/carrying out actions | Individuals are already engaged in change. Support is required to achieve and maintain new changes and modified behaviours. | Ongoing advice, skills training and performance feedback. |
| *Maintenance* working to prevent relapse and consolidate gains made | Organisation must be monitored for relapse. | |
| *Relapse* failure to continue with recent modifications or changed behaviour | Relapse can occur from any stage. Progression back through the cycle towards the action and maintenance stages must be supported. The needs of individuals at this stage may differ from the needs of those going through the cycle for the first time, therefore the information and intervention will need to be tailored accordingly. | Practical information, training, ongoing advice and feedback. |

Source: (Barrett et al., 2005)

The advantage of the stages of change model is that is dynamic in the sense that it is not an all or nothing approach. The model acknowledges that there is not necessarily a linear progression from the pre-contemplation through to the maintenance stage. For instance, in certain circumstances regression to an earlier stage is a possibility. The stages of change model can also provide a systematic framework to describe the state of readiness without the use of an overly intrusive interview protocol. The model however, is not without its criticism. Studies investigating the nature of the stages are contradictory or show partial support for the model (Dijksta, Tromp & Conijn, 2003). In particular there is some debate whether intentions to engage in health behaviour are qualitatively different stages as claimed by its authors (Prochaska & DiClemente, 1982) or whether these are part of a continuum (Godin, Lambert, Owen, & Nolin, 2004). There is also a concern that the

model does not explain how individuals can individuals can move from a contemplation to an action stage with no planning at all (West, 2005). The model is also criticised for its emphasis on decision making and planning rather than reward and punishment. The model has been readily adopted by health professionals in the design of intervention strategies to change health behaviour in particular smoking and alcohol use. The model's popularity has been described as disproportionate to its validity (Whitelaw, Baldwin, Bunton & Flynn, 2000; West 2005). The model specifically comes under criticism when it is presented as a theory *explaining* health behaviour change rather than *describing* the *features* of behaviour change. However, much of the criticism has centred around findings on studies investigating the effectiveness of the model in the field of smoking cessation, (Etter & Sutton, 2002), alcohol or drug use (Sutton, 2001) therefore this may not be easily generalised to the health and safety behaviour of SMEs. Hodgins (2005) posits that the process of education and self-staging provides a useful schema 'to organise ambivalent thoughts about and action towards change' furthermore there is still empirical support that stage or no stage those further along the continuum are more likely at follow up to have changed behaviour than those at lower levels (Hodgins, 2005). It may be argued that whilst the model may have drawbacks in explaining the behaviour of individuals in substance use which is often irrational it may be more suitable for assessing rational business intentions to engage in health and safety behaviour. Therefore if this tool is used in conjunction with other domains or as part of an integrative

approach it may be a useful descriptive aid in a context such as the SME, where simplicity and usability is vital. Therefore, if used with caution it may provide part of a useful framework to assess the state of readiness to engage with health and safety. Nevertheless, it may be also be necessary to investigate whether the findings related to Stage of Change are consistent with other markers of health and safety engagement, for example time spent on health and safety activity. The Stage of Change model is one example of the application of frameworks originating in social/health psychology or the public health field, to industrial health and safety. The model is also included in the framework of key domains identified by Michie et al., (2005), comprising the domain of 'nature of the behaviours'. The use of a wider framework would also address the criticisms against using one particular model such as the Stage of Change, and would for example include other important motivating features such as reward and punishment which are the focus of beliefs about consequences of behaviour. Thus a wider framework will be described below.

## *3.2 An integrative approach to determinants of health and safety behaviour using domains from health psychology*

There is now recognition that there is a considerable overlap in the most commonly used behaviour change theories in health psychology. Fishbein, Triandis, Kanfer, Becker & Middlestadt (2001), and Bandura (1998) identified common factors influencing health behaviour change across the models, this activity has been further developed by Michie et al (2005) for the purpose of a

consensus on a theoretical framework to investigate adherence to evidence based guidelines in healthcare . Twelve common domains were identified: 'Knowledge', 'skills', 'social/professional role identity', 'beliefs about capabilities', 'beliefs about consequences', 'motivation and goals', 'memory and attention', 'environmental context and resources', 'social influences', 'emotion', 'behaviour regulation' and 'the nature of the behaviours'.

'Knowledge' may include knowledge about the problem and procedural knowledge about ways to address it (Michie et al., 2005). Knowledge has been shown to have an association with preventative health behaviours such as participating in cancer screening programmes (Alagna & Reddy, 1984; Lermon, Trock, Rimer, Jepson, Brody & Boyce, 1991; O' Brian & Lee, 1990). However, others have found that the link between knowledge and other health behaviours such as condom use and exercise behaviour is weak (Dishman, 1982; Whitely & Schofield, 1986). Other features such as skills may need to be in place before knowledge can be effectively utilised. Lack of knowledge about health and safety requirements has been an identified problem for SMEs (Garengo et al., 2005). However, it is unclear what role increasing knowledge has in improving health & safety activity as this has not been systematically tested.

'Skills' may include task skills, interpersonal skills or coping strategies needed to perform the behaviour (Michie et al., 2005). Interpersonal skills have been

identified in the literature as predictors of positive health behaviour (Lowe & Radius, 1982). Lack of skills in recognising risk, for example, have been highlighted as an important barrier in the health & safety literature (Walters, 2001) therefore it is likely that this will be a relevant construct in determining health and safety behaviour.

'Social/professional role' identity may refer to group or personal identity such as one's professional identity and the role that accompanies it and whether the behaviour is consistent with these (Michie et al., 2005). In the health behaviour literature, the evidence for the effect of social identity is reported as inconsistent, with mixed results for its influence on behaviour such as taking exercise (Norman & Connor, 1996). Nevertheless 'identity' may be of relevance to health and safety behaviour as it has been noted that SMEs have difficulty in engaging in activities that are not seen as relevant to their type of business (Vickers et al., 2003).

'Beliefs about capabilities' or self-efficacy may refer to the control of behaviour, material resources and the social environment (Michie et al., 2005). 'Beliefs about capabilities' or self-efficacy have been found to be predictive of a number of health behaviours including dental flossing, condom use (Richard & van der Pligt, 1991, Schwarzer, 1992) and acknowledgement of the risks of HIV in sexual behaviour ( Abraham, Sheeran, Abrams, & Spears, 1994). Beliefs about control may also be part of this domain (Michie et al.,

2005). Thompson (1986) defined control as behavioural control (e.g. avoidance), cognitive control (e.g., appraisal of coping strategies), decisional control (choice on e.g., allocating resources, informational control (e.g., access to information) and retrospective control (could I have influenced that event?). High levels of control or self–efficacy are expected to be positively related to preventative health behaviours (Bandura, 1977). In a review of the construct, perceived control has been seen as a predictor of behaviour with or without the influence of behavioural intentions (Trafimow et al., 2002). In the health and safety context it might be possible to apply this construct to examining the extent to which SMEs have confidence in their capabilities such as recognising relevant legislation and carrying out key health and safety behaviours (Wright, Marsden, Collier, & Hopkins, 2003) and whether control in decision making in health and safety matters can influence health and safety activity.

'Beliefs about consequences' may refer to punishment or rewards regarding the behaviour (Michie et al., 2005) 'Beliefs' about behaviour also may capture values, and beliefs about salience. Beliefs about consequences is central to a number of health behaviour change models and social cognition theories (Becker & Rosenstock, 1984; Brubaker & Wickersham, 1990; Armitage & Conner, 2000; Fishbein et al., 2001). The evidence suggests that outcome beliefs are predictive of a range of health behaviour intentions including: dental flossing, driving; condom-use; screening participation; exercise and

healthy eating (Schwarzer, 1992). However, these beliefs may also be influenced by other factors, notably fear. Fear of results for example has been shown to inhibit intentions to undergo screening for coronary heart disease (Simpson, Johnson, & McEwan, 1997). 'Beliefs about consequences' may be of particular relevance in the health and safety context. These beliefs may relate to: the value of health and safety interventions (McKinney, 2002); the risks of non-compliance to regulations; economic benefits including lowered insurance premiums as a consequence of improved health and safety performance (Wright et al., 2005).

'Motivation and goals' include intention, type of motivation, and the stages of change (Michie et al., 2005). Intention however is not always related to actual behaviour (Armitage & Conner, 2000). Factors such as self-efficacy and social norms may have considerable influence on intentions. Other studies have demonstrated the predictive effects of intentions on behaviour (van der Velde & van den Pligt, 1991; Armitage & Conner, 2001; Lawton et al., 2006). As mentioned earlier the Stage of Change model, which has described intentions or motivation for behaviour, has also demonstrated evidence for predicting behaviour however there are still concerns for its sole use in intervention design (SIGN, 2007). Furthermore the mechanisms for progression from the intention stages to action stages are unclear (West, 2007). However as previously noted there has been some success in targeting interventions

according to level of motivation in the health & safety setting (Barret et al., 2005).

'Memory and attention', do they remember to carry out the behaviour, does it demand much attention? (Michie et al., 2005). Cues to action that are aimed to increase memory and attention to health behaviours are frequently used in health promotion exercises. 'Cues to action' is a key component of the Health Belief Model (Becker & Rosenstock, 1987) yet in this model other factors are found to be the most important predictors of health behaviour for example, costs and benefits, and severity of disease (Becker & Rosenstock, 1984). Lack of recall for medical advice was an identified barrier to treatment adherence (Ley & Morris, 1984). Written information can improve compliance by aiding recall of advice from health professionals (Ley & Morris, 1984). Attention and memory may be considered as potential constructs in health & safety: attention to health and safety activity has been documented as problematic among SMES (McKinney, 2002) and considered as low priority.

'Environmental resources' may refer to person/environment interaction, are these a constraint or a facilitator? (Michie et al., 2005) In the health behaviour literature, environmental resources are a feature of a number of models namely, Theory of Planned Behaviour (Ajzen & Madden, 1986) where environmental resources may affect beliefs concerning perceived control. Situational barriers are also included in the Health Action Process Model

(Schwarzer, 1992). There is some criticism that environmental resources are only captured in self-reports and for this reason may relate more to perceptual rather than real constraints (Ogden, 2003). This possibility was also highlighted earlier in the health and safety literature where SMEs readily blame a lack of resources for their low levels of health and safety engagement (Griffin et al., 2005; McKinney, 2002).

'Social influences or norms' could refer to social support, management commitment or general ethos of the organisation or beliefs of other individuals (Michie et al., 2005). In the health behaviour literature the role of social influences is difficult to capture because the reports are based on beliefs regarding social influences (Ogden, 2003). However, it may be argued that beliefs are still important areas to address because regardless of the reality it is the perception of that reality that will shape behaviour. Godin (2005) suggests that norms have a moral element that may be important in predicting health behaviour. Social influences or norms may also predict health and safety behaviour, for example it has been seen that the support of senior management within in an organisation may determine whether resources are allocated to health and safety activity (Stephens et al., 2004).

'Emotion' may refer to stress, fear, or affect regarding the behaviour (Michie et al., 2005). In the health behaviour literature fear of results from screening programmes are associated with poor attendance (Simpson et al., 1997;

Maclean, Sinfield, Klein, & Harnden, 1984). These findings have parallels in health & safety behaviour as there is a well-documented fear of the regulator therefore offers of health & safety inspections may not be accepted by SMEs (S. Haslam et al., 1998; Yapp & Fairman, 2006).

'Behavioural regulation' may refer to procedures, such as goal -setting, eliciting feedback that may lead to the target behaviour (Michie et al., 2005). Goal setting and feedback are important part of self-management programmes in healthcare settings and have been shown to be effective in supporting health behaviour change (Lewin, 1992, SIGN, 2007). Behavioural regulation may also have a role in determining health and safety activity, in the form of activities such as risk assessment, audit and feedback.

'The nature of behaviour' may be the type of behaviour proposed and its frequency (Michie et al., 2005). The specifics of the behaviour should be determined (Fishbein et al., 2001) in order to measure the predictive value of the factors in determining behaviour

The domains are based on theories that may be seen to comprise three main areas of behaviour change, which are namely motivational, action and organisational (Michie et al., 2005). The motivational theories include those that seek to explain intention for a target behaviour and include: Theory of Planned Behaviour, Health Belief Model , Social Cognition Theory,

Elaboration Likelihood Model, Stages of Change and attribution theory. Theory Action theories include learning theory, operant theory and self-regulation theory. Organisational theories include effort-reward imbalance, goal theory and social influence.

While Michie et al (2005) claim that the domain list cannot capture all the factors that may be barriers to evidence based practice it can be argued that this list may be of benefit to those who are interested in prioritising interventions and addressing factors that are most likely to influence behaviour. It may be timely and useful, when contemplating models to import to the health and safety arena, to consider adoption of these domains in the investigation determinants of health and safety behaviour. It may be more parsimonious to select the key construct domains identified and apply these to the study of health and safety health behaviour, rather than employ a series of separate health behaviour change models that appear to have a degree of commonality. This view is consistent with the conclusions in a review on the applicability of theoretical models of health behaviour to workplace self- protective behaviour, DeJoy (1996) which called for a more integrative use of the health behaviour models. However, to date, it appears that there is little documented evidence of an integrative use of the models in the study of determinants of health and safety behaviour. Another argument for the use of common domains is that there is now such a large number of theories that relate to behaviour that it is in impractical to apply all but there

may not be a valid reason for choosing one theory over another (Michie et al., 2005).

The domain list was developed with a view to improve behaviour change within the health care setting and increase adherence to evidence guidelines. The authors warn that evidence-based guidelines may lack sufficient specificity in terms of behaviour (Michie et al., 2005). Therefore it is important to clarify the nature of the behaviour. The same caution may apply to 'health and safety behaviour', therefore it is necessary to clarify health and safety behaviour before using the domains for this purpose. Furthermore, it may also be prudent to investigate which specific health and safety behaviours are relevant to the SME, before the application of the domains in this population.

A generic business activity model has been proposed (Herman & Malone, 2003) see Figure 3.1. It has five primary activities, buy, design, make, manage and sell. Each of these activities may be sub-divided according to the appropriate demands of the specific business. The model has been reported to have three main benefits, it is considered i) to be comprehensive, ii) intuitive, and iii) theoretically-based. At the top level detailed in Figure 3.1, the model can be used as a framework to organise data regarding business activities. The generally typical business activities identified were also cross referenced against other 'comprehensive' models of business process and found to incorporate all the key business activities. It may be argued that the

problem of heterogeneity in making comparisons between businesses may be alleviated somewhat through the use of a generic model.

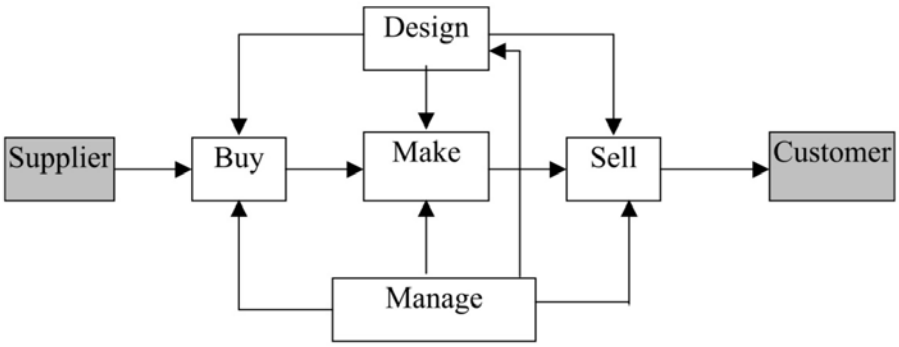


**Figure 3.1. Generic business activity model**

## *3.3 Summary*

The literature suggests that the underlying mechanisms, which could predict whether an SME was likely to engage in health and safety activity have not often been systematically examined. In the main there is a notable lack of psychological theory underpinning either the design or evaluations of the interventions among SMEs reviewed in the health and safety literature. The use of the Stage of Change model has been promising in the health and safety context, despite its mixed results in the health behaviour change literature. Information on the organisational readiness to change is required, and may prove informative and diagnostic in the provision of appropriate supporting

guidance. However other factors need to be investigated as clearly the influences on health and safety are complex and interconnected.

The SME is a hard to reach population, its heterogeneity makes it difficult to obtain a cohesive assessment of what the SME is typically doing in terms of health and safety, and what motivates them to do so. Without a sufficient understanding, seemingly well designed interventions aimed at this population may continue to have problems in uptake and sustainability.

The use of a generic business activity model (Herman & Malone, 2003) has been developed to facilitate the comparison of typical business activities in a heterogeneous population. Arguably the model might be usefully applied to consider the health and safety activity of the SME within all key stages of the business process.

Theories that have been well established in health psychology may be used to shape research into health and safety behaviour. Furthermore the considered overview of behaviour change models which were developed independently, has highlighted key theoretical domain structures (Bandura, 1998; Fishbein, 2001, and Michie et al., 2005). An integrated approach, informed by these reviews, utilising identified theoretical domains, may be useful to examine the influences on health and safety behaviour among SMEs.

The literature review has shown that practical opportunities for health and safety activity have been documented. Nevertheless, there is still a lack of detail concerning the specific health and safety behaviours that are relevant to the SME. In order to improve intervention design the psychosocial influences on health safety activity should be systematically examined. To address these issues, the following research aims have been formulated:

i) Identify & specify health and safety behaviour that is relevant to the SME population.

ii) Assess levels of engagement in health and safety activity among SMEs.

iii) Examine psychosocial influences on health and safety activity by applying key theoretical domains from health behaviour change approaches in health psychology.

iv) Examine possible mediating or moderating factors of influences on health & safety activity.

v) Consider the implications of the research findings for intervention design to increase health and safety involvement, in conjunction

with the practical opportunities previously identified in the literature review.

# 4 CHAPTER FOUR: METHODOLOGY

This chapter describes the methodology used in order to meet the research aims. Thus the chapter details the methods employed across the two studies.

## *4.2 Introduction*

In order to meet the overall aims of the research: identify & specify health and safety behaviour that is relevant to the SME population ; assess levels of engagement in health and safety activity among SMEs ; examine psychosocial influences on health and safety activity by applying key theoretical domains from health behaviour change approaches; examine mediating or moderating factors of influences on health & safety activity; consider the implications of the research findings for intervention design to increase health and safety involvement, in conjunction with the practical opportunities previously identified in the literature review, the investigation was conducted over two separate studies.

The first study involving interviews with SMEs was designed to inform the later development of a questionnaire to assess psychosocial influences on health and safety behaviour, thus key health and safety themes were derived from the interview data. In the second study, the health and safety behaviours identified by SMEs were incorporated into the questionnaire

together with domains identified by Michie et al (2005). The nature of health and safety behaviour was assessed in both studies to allow comparisons of health and safety activity among SMEs using two types of data collection. The use of multiple methods to assess the health and safety activity may serve as a form of triangulation (Marks & Yardley, 2004) and provide a more accurate picture of activity within a population which is recognised as difficult to reach.

To assess the influence of psychosocial factors on health and safety behaviours among SMEs, it was first necessary to establish and clarify the nature of the health and safety behaviours that are carried out by SMEs. Fishbein et al (2001) highlighted the importance of fully specifying the behaviours under investigation. Although the practical constraints and barriers are well documented, the actual behaviours that are carried out by SMEs are not well-defined. To this purpose a mixed method approach was taken to explore and derive current health and safety behaviours conducted by the SME. In addition to recording the frequencies of the behaviours, the awareness and readiness to engage in them was also assessed. SMEs were therefore interviewed in order to elicit the type of health and safety activities and issues that they found relevant to size of their company. The Business Activity Model (Herman & Malone, 2003) and Stage of Change (Prochaska & DiClemente, 1982) frameworks were applied to organise the telephone interviews. This approach was taken to facilitate analysis of heterogeneous

enterprises according to the basic business processes that they employ, and also to assess readiness to engage or sustain health and safety activity. Comparisons of the emerging themes could then be suitably identified from the data.

## *4.3 Method: Phase 1 interview study*

### 4.3.1 Design

To meet the aims of the study a mixed method of data collection was used i) a series of closed format questions to assess levels of engagement in specific health and safety activities, and ii) open ended questions to elicit SME's descriptions of their health and safety behaviours. It was expected that the heterogeneous nature of the SME would produce difficulties in the comparative analysis of the responses relating to various business sectors. Therefore the Business Activity Model (Herman & Malone, 2003) was used in the interview protocol to allow comparisons between the generic business practices. For this purpose, SMEs were asked to identify the health & safety activities they engage in at five key stages of business activity: Buying, Design, Making, Managing and Selling. Questions relating to Stage of Change (Prochaska & DiClemente, 1982) were based on items used in a study assessing health and safety in ergonomic activity (Haslam, 2002).

The interview protocol comprised the following sections: demographics, current health and safety activity, and readiness to engage in health and safety activity (Stages of Change) according to each stage of the generic Business Activity Model, see Appendix A.

### 4.3.2 Participants

Interviews were conducted with the participation of fifty SMEs between 29th November 2005 and 14th February 2006. Three hundred and thirteen SMEs were contacted with a resultant response rate of 16%. Systematic proportional stratified sampling was adopted with respect to geographical location (North West, North East, South West, South East, Wales, Northern Ireland, Scotland, & London), and business sector (agriculture, manufacturing, construction, education, distribution/repair, health & social care, catering, beauty, retail, other). The survey population was drawn from the online contact directory 'www.yell.com'.

The business sample may be considered to represent micro-businesses (48%), small-businesses (36%), and medium-sized enterprises (16%). The sample sector distribution comprised catering (20%), manufacturing 16%, education 12%, distribution and repair (14%), construction (8%), health and social care (8%) retail (6%), hairdressing and beauty (4%) and other (12%).

The median age of the sample businesses commenced trading was six years ago. Forty five percent were older than nine years. The geographical sampling consisted of Scotland (20%), Northern Ireland (18%), South West England 16%, North West England (14%), North East England (12 %) South East England (10%) and Wales (6%).

### 4.3.3 Procedure and Data Collection

The survey population was drawn from the online directory www.yell.com. Each listed geographical area of the United Kingdom was searched according to the main occupational or business sectors. Within the respective occupational sectors every third business in the list was contacted, for example within 'Agriculture' the third, sixth, ninth business was contacted. In order to ascertain whether the business was an SME, the researcher made an introduction then enquired whether the company employed less than 250 staff. If the contact confirmed the company employed less than 250 staff, the researcher asked to speak to the person in the company who was responsible for health and safety in the company. Once the researcher was put through to the appropriate member of staff, the researcher described the study, and with their consent, proceeded with the standard interview protocol (see Appendix A) . If the company employed more than 250 staff the researcher explained they did not meet the study criteria and thanked the company member before ending the call.

A 'cold calling' approach to telephone interviews was employed. After the researcher had contacted the person identified in the business as being responsible for health and safety the researcher asked permission to conduct a short recorded interview (approximately ten minutes). Confidentiality was assured and contact details were provided. The interview was conducted immediately or at a more convenient time if preferred. The researcher concluded the interview by thanking the respondents and providing details of where to obtain further information regarding the project.

### 4.3.4 Equipment & Apparatus

The survey was conducted using a telephone headset, and a 'ReTell' telephone recording connector. The audio was recorded directly to computer hard disk using 'Audio Hijack Pro' (www.rogueamoeba.com) and a PowerMac G5.

### 4.3.5 Methods of Analysis

For reliability purposes the audio data was transcribed and then checked by two researchers. Twenty percent of the total sample was cross-checked for accuracy. A mixed method approach to analysis was used. The data was statistically analysed to assess levels of health and safety activity by demographics. Interview data was also analysed using thematic analysis to identify the specific health and safety behaviours that SMEs were undertaking or maintaining, the perceived facilitators of such behaviour, the rationale for

the behaviour, and how the respondents perceived their behaviour to be effective.

An empirical epistemological approach was adopted in the qualitative analysis in the sense that behaviours observed in the responses were considered as evidence of behaviours salient to the SME (Smith, 2003). An inductive approach was applied to this part of the analysis in order to derive behavioural themes embedded in the data. A further secondary analysis applied two frameworks: the Stage of Change or Trans-theoretical Model of Behaviour Change (Prochaska & DiClemente, 1982) and the generic business activity model (Herman & Malone, 2003) were used to code the SMEs according to stage of readiness to engage in health and safety activity in each stage of the business process. Independent coding of the data took place on a randomised proportion of the interview transcripts to establish inter-rater reliability. Regular comparisons on the classification of the emerging themes took place to achieve analytical rigour. The frequency of coded themes provided the basis for statistical analysis.

## *4.4 Method Phase 2 Questionnaire Study*

### 4.4.1 Design

A cross-sectional quantitative questionnaire design was used to assess the influence of psychosocial factors on health and safety behaviours among

SMEs. To facilitate this, behavioural themes elicited from the telephone interviews, were used to develop the survey tool. These included the six behaviours most frequently reported, i.e., 'risk assessment', 'legislation', 'reputation', 'information', 'training' and 'policy'. Other potential influences identified from the health behaviour change literature (Fishbein, 2001; Michie, Johnston, Abraham, Lawton, Parker, & Walker, 2005) were also investigated and included in the survey. These comprised aspects of knowledge, skills, self-efficacy, self-standards, environmental resources, emotion, memory and attention, social influences, behavioural regulation, and beliefs about consequences of behaviours relating to carrying out health and safety activity. The questionnaire is shown in Appendix C.

### 4.4.2 Participants

Representatives of three hundred and thirteen enterprises completed questionnaires. Twenty one representatives declined to participate, with a resultant response rate of 93%. The sample comprised sole traders (n= 117, 18%), micro businesses with 2 to 9 staff (n= 122, 39%), small businesses with 10 to 49 staff (n=65, 22%), and medium sized enterprises 50 to 250 staff (n=64, 21%). The sectors (n = 313) were: Manufacturing/Agriculture/ Construction (n = 110, 35%), Retail/Services/ Transport & Distribution (n = 105, 34%), Education/Public Admin/Health & Social Care (n = 26, 8%), Leisure & Catering (n = 54, 17%), Other (n = 18, 6%).

### 4.4.3 Procedure

Businesses were recruited at trade shows in England and Scotland, namely the 'Chartered Institute of Personnel and Development', the 'Scottish Trade and Food Fair', 'Scotsturf', the 'Caravan and Outdoor Show', and the 'Scottish Wedding Show' between October 2006 and March 2007. The respective event organisers were written to enquire whether questionnaires could be distributed at their forthcoming shows.

With the permission of the event organisers, exhibitors and visitors were approached and asked whether their business had less than two hundred and fifty staff. Those whose businesses fitted this criterion were invited to take part in the study. Participants were informed that this would involve completing an anonymous questionnaire that would take approximately ten minutes to complete.

A map of each event that detailed all exhibitors' locations was used to record which of those exhibitors had accepted a questionnaire to complete. In order to limit the disruption of possible business transactions, and to take advantage of any lull in the daily activities, it was arranged that the researcher would return to collect the completed questionnaires later in the day. Visitors to the shows on 'trade only' days were also approached, as they were company members indicated by their event badges. Visitors on 'general public' days were not approached.

Information on the cover sheet of the questionnaire also outlined that the study was supported by the Health and Safety Executive and had been granted ethical approval by Heriot-Watt University Ethics Committee. Contact details were additionally provided for further information. Further, Heriot-Watt University funded a prize draw in which participants were offered the opportunity to win an 'iPod Nano' as an additional incentive to participate, contact details were separately recorded from the questionnaire data for this purpose.

Optical mark recognition (OMR) software was used to input the questionnaire data (Principia 'Remark Office' OMR version 6). Routine error checking was performed to ensure accurate data recording.

### 4.4.4 Measures

Measures employed in the questionnaire were designed to derive the attitudes of the SMEs to health & safety, to determine their engagement with health & safety, and explore their organisational structure. These sections of the questionnaire are described in more detail below. Further, general demographic information was obtained, i.e., business age, number of staff and hours per week spent on health & safety activity, sector and respondent's role in the organisation.

**Health and Safety Activity**

A global index of health & safety activity was calculated using a mean score from questions D1 – D6 of the survey, see Appendix C. These items refer to the frequency of health & safety activities undertaken which were identified as relevant in the telephone interviews, i.e., conducting risk assessments, compliance with health & safety legislation, development of health & safety policy, supplier's health & safety, health & safety training, and obtaining health & safety information.

**Attitudes to Health & Safety Behaviours**

Themes from the telephone interviews reported in Section 5.1.4 were used to construct a sixty item scale. The key health and safety behaviours identified by SMEs from the telephone interviews were: risk assessment, compliance with health and safety legislation, maintenance of health and safety information, health and safety policy development, health and safety training, and checking supplier's health and safety. These were integrated with the domains defined in the health psychology and public health literature (Fishbein, 2001; Michie et al., 2005). The domains are: knowledge, skills, self-efficacy, self-standards, environmental resources, emotion, memory and attention, social influences, behavioural regulation, and beliefs about consequences of behaviours. The corresponding structure produced ten domains, with six behaviours in each domain. Half of the items were keyed positively, the remainder were keyed negatively. Respondents were asked to indicate the extent to which they agreed with items, e.g., 'Complying with health and safety legislation is stressful' using a five point scale, 'slightly

disagree', 'disagree', 'neutral', 'agree', and 'strongly agree'. Reliability analysis of the domains yielded Chronbach's Alpha ranging from .7 to .8.

**Frequency of Health and Safety Behaviours**

Participants were asked to respond using a five point scale (see Appendix C) as to how frequently they undertook the six health and safety behaviours established from the telephone interviews, as outlined in Section 5.1.1.

**Organisational Structure**

In this section a five-point scale was used to record responses see Appendix C. Participants were asked to indicate the level at which decisions were made and health and safety encouragement was derived.

**Readiness to Engage in Behaviour**

Respondents' readiness to engage in health and safety activity was determined by using Stage of Change (Prochaska & DiClemente, 1982) as a framework to consider behaviours identified from the telephone interviews, described in Section 5.1.3. An additional stage 'relapse' was included in consideration of findings from the relevant health and safety literature (Haslam, 2002).

### 4.4.5 Statistical Analysis

Statistical analysis was conducted using SPSS version 14.

# 5 CHAPTER FIVE: PHASE ONE RESULTS

This chapter presents the results from the first phase of the research project. Quantitative and qualitative findings are presented relating to health safety engagement and SMEs. The chapter also includes a discussion of the first phase results.

## *5.1 Results*

### 5.1.1 Reported Health & Safety Behaviours

Participants reported responses regarding routine health & safety practices. The following questions were asked to assess difference in the level of health & safety behaviours undertaken within the sample. The frequencies of yes and no responses for reported health and safety behaviours are detailed in Table 5.1. There were significant differences between positive and negative responses in respect of a number of reported behaviours, namely having a health and safety policy, risk assessment, accident book, and first aid book.

**Table 5.1 Reported Health & Safety Behaviours**

| | Reported Response Frequency | | $\chi^2$ | df |
|---|---|---|---|---|
| | Yes | No | | |
| Does the company work to quality standards? | 22 | 28 | NS | 1 |
| Do you have a health & safety policy statement?** | 40 | 10 | 18 | 1 |
| Do you have risk assessments?* | 36 | 14 | 9.7 | 1 |
| Do you have an accident book?** | 40 | 10 | 18 | 1 |
| Do you have a first aid book?* | 34 | 16 | 6.5 | 1 |

n=50, * = $p < 0.01$, ** = $p < 0.001$, NS = not significant.

Training records in health & safety areas are presented in Table 5.2. Significant differences were established for display screen equipment risk, vibration, noise, and stress.

**5.2 Health and safety training records**

| | Reported Response Frequency | | $\chi^2$ | df |
|---|---|---|---|---|
| | Yes | No | | |
| Induction | 22 | 28 | NS | 1 |
| Manual handling | 25 | 25 | NS | 1 |
| First aid | 21 | 29 | NS | 1 |
| DSE (Display screen equipment risk)** | 9 | 40 | 19.6 | 1 |
| COSHH (Control of substances hazardous to health) | 27 | 23 | NS | 1 |
| Vibration** | 5 | 45 | 32 | 1 |
| Noise** | 12 | 38 | 13.5 | 1 |
| PPE (personal protective equipment). | 25 | 25 | NS | 1 |
| Stress** | 10 | 40 | 18 | 1 |

n=50, * = $p < 0.01$, ** = $p < 0.001$, NS = not significant.

### 5.1.2 Reported Engagement with Health & Safety

The respondents reported their average hours per week spent on health & safety matters. This can be seen in Figure 4.1. Thirty eight percent (n=19) reported no health & safety activity in a typical week, 22% (n= 11) reported low (approximately one hour), 12% (n=6) reported medium levels of activity (2 to 4 hours), and 28% (n =14) indicated high levels of health & safety actions (≥ 5 hours) within a typical week.

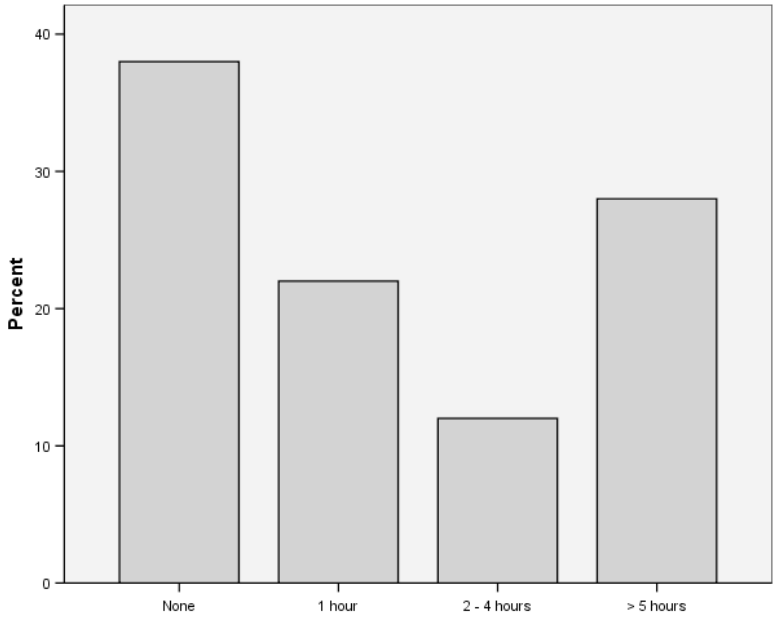


**Figure 5.1 Hours per week on health and safety matters**

The mean number of staff in the organisations spending no time = 7.2, *SD*= 6.97; one hour = 8.7, *SD*= 8.73; two to four hours = 44.3; *SD*= 51.94 ; greater than five hours = 84. *SD*= 83.96. Figure 5.2 shows that there is a difference in the hours spent on health and safety activity according to company size. Anova results indicated that there was a significant main effect for company size ($F = 6.86$, $df = 3, 46$, $p < 0.001$). Games-Howell post hoc testing revealed significant differences between both the 'none' ($p < 0.05$) and '1 hour' ($p < 0.05$) groups with the '> 5 hours' group.

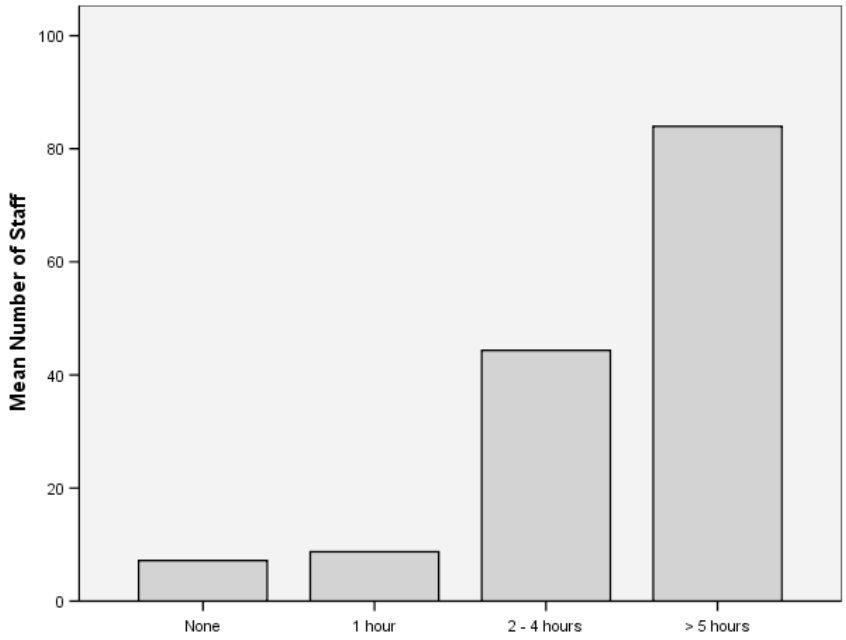


**Figure 5.2 Number of staff and reported hours spent on health and safety**

### 5.1.3 Readiness to Engage in Health & Safety Activity (Stage of Change)

Overall mean frequencies and standard deviations, for the five Stages of Change were pre-contemplation *M* = 2.56, *SD* =1.42; contemplation = *M=1.62*, *SD* =.61; preparation = *M=1.16, SD*= .40; action = 1.54; *SD*=.80 maintenance = 2.76, *SD=1.36*. The additional relapse stage as advocated by ( Haslam, 2002) did not feature in any of the responses.

Respondents' relative readiness to engage with health & safety behaviours is shown in Figure 5.3. It can be seen that there are two clusters in the data, one toward the pre-contemplative stage and another at the maintenance stage. ANOVA revealed a significant effect for Stage of Change (F = 6.23, df = 4, 108, p <0.001). The relapse stage did not feature in any of the responses.

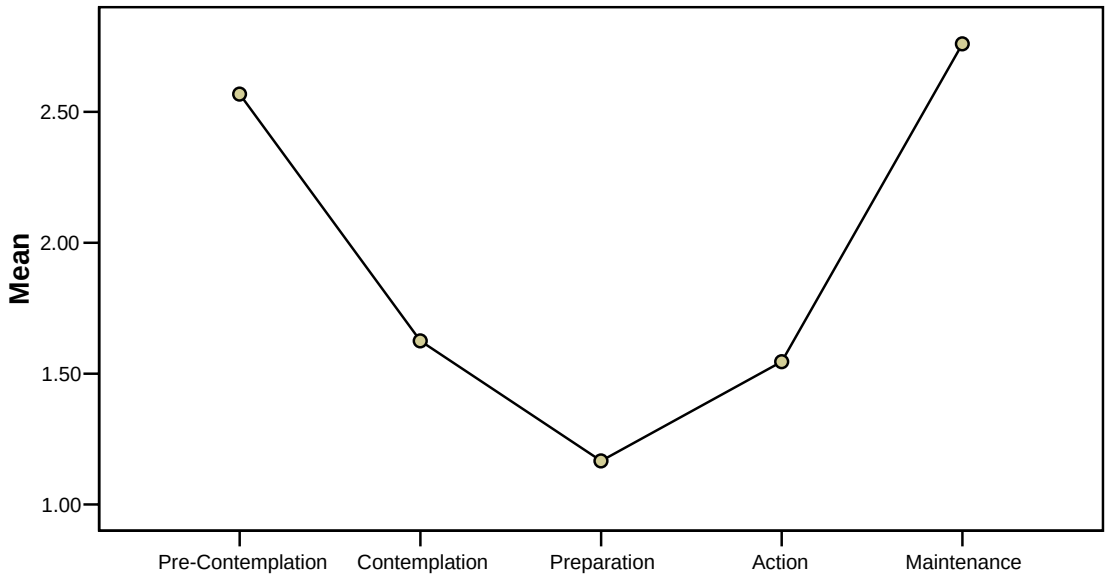


**Figure 5.3 Relative health & safety by stage of change**

It can be seen that there was a substantive proportion of the sample that are immature in their engagement with health & safety. Further, consideration of the data suggests that this is particularly prevalent in the organisational interfaces with the business world, i.e., during the buying and selling phases of business activity see figure 5.4. Conversely, the internal business activities demonstrate a collection of organisations that report they are acting on and maintaining their health & safety activities, i.e., designing, making, and managing their products and services. Results revealed a significant effect for the phase of business activity ($F = 3.13$, $df = 4, 45$, $p < 0.05$).

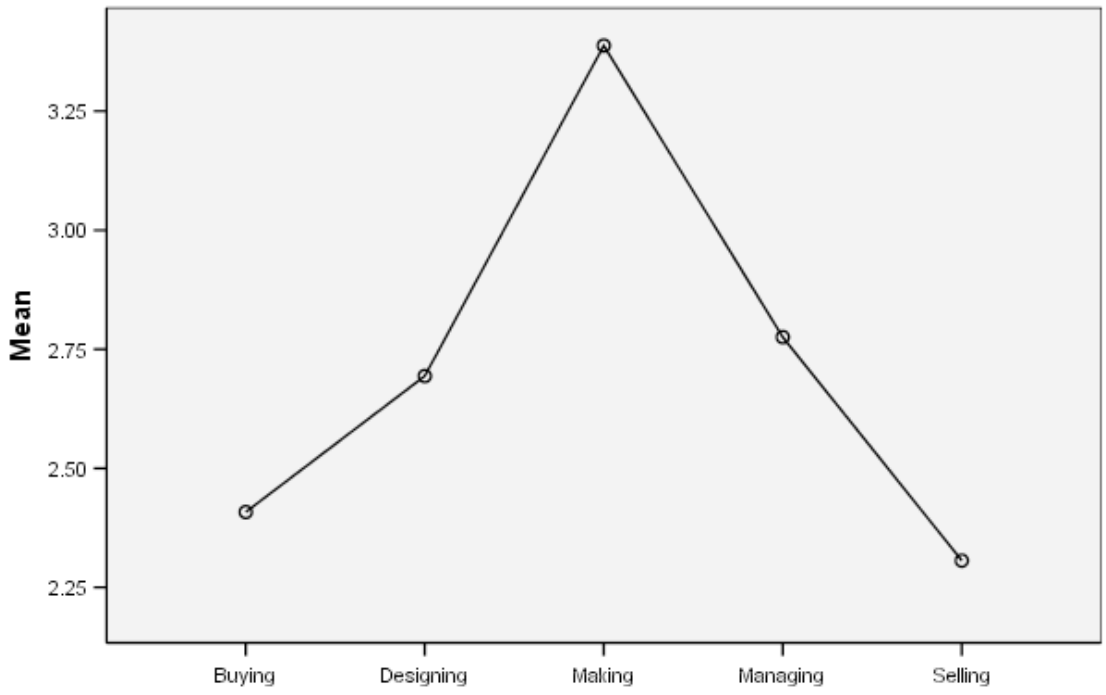


**Figure 5.4 Relative health & safety activity by business process**

Organisations that were poorly engaged with health & safety were significantly more likely to be small businesses (mean 12 staff) when compared with those that were better engaged (mean 104 staff); $t = -2.63$, $df = 8.6$, $p < 0.05$). Further, comparison of the poorly and well engaged groups indicated significant differences on the following reported health & safety behaviours; possession of a policy statement ($t = -2.82$, $df = 21.1$, $p < 0.05$), undertaking risk assessments ($t = -3.44$, $df = 38.5$, $p < 0.01$), and presence of a first aid book ($t = -3.51$, $df = 47$, $p < 0.01$). In all cases, those organisations that were further engaged, were significantly more likely to have responded 'yes' to the items above.

### 5.1.4 Qualitative Findings

SMEs were asked to identify health and safety issues they were aware of and indicate what they were either, planning to carry out, actively engaged in, or maintaining, in terms of health and safety activity. Their responses give an indication of the type health and safety activity that is perceived as relevant to the SME. Further, key behavioural themes were obtained from the transcripts, risk assessment, regulation/legislation and health & safety policy were the three most frequently reported behaviours, see Table 5.3. One notable theme which emerged appears to be a lack of awareness of health and safety activity. A substantial proportion of the SMEs clearly struggled to identify either issues or activities relevant to their business' health and safety.

**Table 5.3 Key themes overall**

| Theme | Frequency |
|---|---|
| Risk assessment | 33 |
| Regulation/Legislation | 29 |
| Health & safety policy | 28 |
| Not aware | 24 |
| Reputation | 17 |
| Information | 16 |
| Health & safety not perceived as relevant | 13 |
| Audit | 13 |
| Insurance | 10 |
| Training | 9 |
| Use of external consultants | 8 |
| Communication | 7 |
| Other | 13 |

### 5.1.5 Motives for Engagement with Health & Safety

The study explored the rationale for SMEs considering, actively engaging in or maintaining the specific health and safety activities they had identified. The frequency of key themes as to why SMEs engaged in the health and safety activity are summarised in Table 5.4. The three drivers most cited by SMEs for motivating health & safety action were: legislation, customer safety/ demand, and staff welfare.

**Table 5.4 Why engage in health and safety activity**

| Theme | Frequency |
|---|---|
| Legislation | 27 |
| Customer safety/Demand | 19 |
| Staff welfare | 16 |
| Insurance | 7 |
| Policy | 7 |
| Positive cost benefits | 6 |
| Moral duty | 6 |
| Training | 5 |
| Company ethos | 4 |
| Reputation | 4 |
| Tendering | 4 |
| Past experience | 3 |
| Common sense | 3 |
| Other | 15 |

The themes respondents identified as enablers of health and safety activity are shown in

**Table** 5.5. The three most frequently cited facilitating factors were: training, knowledge, policy, and company ethos.

**Table 5.5. Key themes what enabled health and safety activity**

| Theme | Frequency |
|---|---|
| Training | 8 |
| Knowledge | 7 |
| Policy | 7 |
| Company Ethos | 7 |
| Information | 6 |
| Regulation/Legislation | 6 |
| HSE visits/Inspection | 5 |
| Audit | 5 |
| Resources | 4 |
| Grant | 3 |
| Other | 18 |

Interviewees were asked how they knew their health and safety activity worked. The themes are summarised in Table 5.6. The three most frequently reported themes were lower recorded accidents, audit and no accidents to date.

**Table 5.6 How do you know it works?**

| Theme | Frequency |
|---|---|
| Lower recorded accidents | 26 |
| Audit | 15 |
| No accidents to date | 12 |
| Risk assessments | 8 |
| Staff Welfare | 6 |
| Policy | 5 |
| Past Experience | 4 |
| Positive Cost Benefits | 4 |
| Communication | 3 |
| Common sense | 3 |
| Don't know if it works | 2 |
| Insurance | 2 |

Themes were identified from the thematic analysis of the telephone data transcripts. Specific clusters of behaviours relevant to health and safety within the SME clearly emerged from this process. The frequency of the behaviours and their relative importance were considered. This analysis provided the basis for retention of the most salient behaviours for the development of the questionnaire in the second stage of the study. The retained themes are explained and supported by illustrative 'in vivo' examples below.

**Risk Assessment/Audit**

Risk assessment was identified as a prominent behavioural theme. As the examples below illustrate, risk assessment was either identified as a behaviour undertaken directly by the SME or external bodies. Risk assessment also emerged as a prerequisite in certification documents required from sub-contractors, suppliers or insurers.

***"That's continuously assessed. Health & safety comes into all our designs and we constantly risk assess…urm, a project through its lifecycle. If a project becomes live the first thing that happens is a risk assessment is done on the site and the risk".***

SMEs identified risk assessments as providing a initial reason for further health and safety activity. The audit process was perceived to be an enabling factor for further health and safety action.

***"The feedback we get from our monthly, safety committee, and monthly audit, of course, accident analysis."***

Respondents indicated that SMEs know whether their health and safety initiatives work or not, through the risk assessments they undertake.

***"We can demonstrate this [whether health & safety works] through risk assessment".***

**Health & Safety Not Considered a Relevant Issue**

A number of SMEs claimed that health and safety issues were not relevant. They described health and safety as not salient to their type of business because they perceived that either the processes or materials they were using were of low risk. In the main, SMEs struggled to recognise the relevance of health and safety issues beyond the internal processes of their company such as making the product. In the buying and selling phase of their business process, SMEs were more likely to claim that health and safety issues were not relevant

***"No, everything we do is more or less software-oriented."***

**Health and Safety Policy**

The development of a health and safety policy emerged as a leading health and safety behaviour. SMEs offered varying examples of how they used the policy. Some companies explained that whilst they had no formal policy this did not mean that they did not undertake regular health and safety activity. The existence of a company health and safety policy was seen as a catalyst for further health and safety initiatives as illustrated by the example

***"It's company policy, and under the health & safety because we'd have to do risk assessments and if our production methods change we'd have to re-assess what's happening"***

SMEs highlighted the existence of a health and safety plan or policy as an enabler of health and safety activity. Furthermore, a health and safety policy was linked with commerciality and a business plan.

***"The business plan that we put together involves - in our commerciality, the business plan would always support it and support elements of health and safety."***

**Legislation**

Legislation emerged as a principal theme related to health and safety activity. SMEs identified legislation as requiring health and safety behaviour such as checks on equipment and processes. The interviewees also highlighted the activity of keeping up to date with the latest health and safety regulations and communicating this information to staff. Several SMEs indicated that they were required to conform to operational standards stipulated by their particular industry such as leisure or construction.

***"We have the certain standards that we have to meet in the leisure industry as well as health & safety. They are quite stringent in their operation procedures as well."***

The most frequent reason for engaging in health and safety activity was to comply with existing regulation or legislation, e.g.,

***"To make sure that we comply with legislation", or "Enforcement by the HSE on the whole of the construction agency but we were actively looking before this was tabled"***

A number of SMEs further qualified their reasons for complying with legislation by expressing a concern for the consequences of non-compliance.

***"We have to do it because we leave ourselves wide open if we didn't".***

**Reputation**

Reputation was a dominant theme in the interface with SMEs and both their suppliers and customers. SMEs were asked whether they were aware of any health and safety measures relevant to their organisation when purchasing goods or services. In the buying stage of their business activity, they appeared to be divided between those who vigorously investigated the quality of the goods supplied through visits and demanding health & safety certification.

***"We are regularly in touch with our suppliers, we know whether they have refrigerated vehicles, their way of stocking up because we do visit them from time to time with new products and so on, so we are aware of the levels they operate on.",***

…and those who relied on the reputation of their supplier to determine whether these goods met health and safety standards.

***"We rely on our suppliers quite a lot and trust that they do the right things."***

Interviewees were also asked whether they were aware of any health and safety measures when selling their product. A small number of SMEs reported that they included information on their health and safety policy and standards in their websites and promotional brochures. These SMEs indicated that they recognised that health and safety activity may be used to promote their company and enhance their business as a serious reputable enterprise.

***"So we have an operational aspect that is also a spot of selling to the members. So obviously the members need to know that we are fully conducive with all the health & safety & fire risks."***

There is evidence therefore, that SMEs understood that health and safety performance may be useful in promoting their business to customers, but the majority have not given this consideration. The fear of loss of repute of the company was also considered a reason to sustain health and safety activity.

***"I wouldn't sell something that is likely to cause difficulty I would lose my reputation."***

**Information**

The theme of information was emerged in two main contexts. One is the action of keeping up to date with current & new legislation. In the present sample, SMEs indicated that they used external bodies to provide them with health and safety information. These included, training organisations related to their industry and business consultants. Banks were also considered as a potential source of information but there was no evidence that SMEs had actually used them for this purpose. In another context SMEs provided health and safety information to their clients or customers. for the safe use of their product by the end user.

***"We were recently supplying a generator and with that we supplied a risk assessment with a methodology on the contamination side, how to refuel it, etc., storage of the chemicals".***

SMEs highlighted both information and knowledge as enabling health and safety activity. A number of interviewees described their knowledge as derived by self-initiated research into health and safety regulations. One SME

mentioned that easily accessible information facilitated such research.

Websites were described as the main source of information.

***"The literature is very clear now, it is not the huge bureaucracy health hygiene & food hygiene and laborious reading that it used to be. You go the local authority and go to the relevant department it is very simple straightforward easy to read document. That facilitates the process it also encourages one to get informed. If there is a lot of bureaucracy one wonders well ...it's a bit over the top. Things are made very straight forward...They are looking to facilitate the process rather than be obstructive."***

**Insurance**

SMEs discussed insurance in terms of a driver for improvements in health and safety. Health and safety activities such as risk assessment and keeping accident records were accepted as a function of insurance policy requirements.

***"Firstly, insurers check your premises, property, do a health risk assessment, health risks in how you operate. Once they ok it, make sure the procedures are…um…no fundamental changes, they study the problem and they come back and this is taken into the account and say this could be changed and say this is an additional risk that wasn't taken into account when you were insured".***

A number of respondents revealed an awareness of an association between improved health and safety and lowered insurance premiums, when asked why they engaged in the health and safety behaviour they had identified,

***"Reducing our premium on insurance by regular inspections."***

**Training**

A range of health and safety training activities were identified by the SME. Training was often mentioned as an outcome of established health and safety commitment that in turn led to further improvements. Training was observed

to be enabled by communication with external bodies such as the HSE and chamber of commerce. The theme of training certification was also expressed in terms of a prerequisite for undertaking new work.

***"Before we can get down South now on site our men will have done a one day course, a CSR [corporate social responsibility assessment] which covers what you mentioned earlier, vibration, noise, manual handling, no height disability....We are more concerned with safety on the ground."***

Interviewees identified previous training as a reason for health and safety activity. Attending health and safety training courses was also seen as a route to further professional qualifications.

***"I've done a NEBOSH course in health & safety they gave us a certificate."***

NEBOSH and in-house training courses appeared to support individuals to meet health and safety responsibilities. Interviewees generally answered this question on a personal basis, apart from two respondents who also recognised the influence of company ethos and communication systems on the engagement of health and safety training.

**Rationale for Behaviour**

In addition to the rationale for health and safety activity that has previously been linked with the behavioural themes identified above, SMEs provided further reasons for engagement with health and safety issues. These are detailed below.

**Customer Safety**

Health and safety activity was reported to be either promoted by a primary concern for customer safety,

***"Obviously we don't want our customers to get burnt"***

… or driven by explicit customer demand,

***"That's what the customer wants to know. The customer drives."***

**Staff Welfare**

There was a seemingly altruistic concern for staff welfare in terms of injury avoidance, staff protection, and staff confidence. However, there was recognition of the reciprocal benefits of improved staff welfare, staff retention and lower rates of absence. An investment in health and safety was therefore identified by the SME as a possible causal factor in improving the productivity of staff

***"To maintain our own workforce, that's why. We purchase specialist disciplines"***

Improved staff welfare was recognised as an outcome measure of successful health and safety activity. Staff welfare was defined here in terms of staff satisfaction, absence rates, staff confidence, and staff turnover. Staff welfare was further linked to production costs, as high staff turnover would give rise to greater expenditure on advertising and staff training. Staff welfare was the only area where psychological concerns such as workplace stress were acknowledged.

*"In our experience especially in catering, nobody lasts that long. Because catering is a very fast establishment. Very stressful, lots of work, late hours and so on. If the employee doesn't feel looked after then they just go. If you have got good people working for you, you should make the effort otherwise people will leave."*

**Positive Cost Benefits**

The positive cost benefits of health and safety activity where recognised, were seen as essential to the profit making of the business.

*"At the end of the day it is what you provide and the cost of it. It is very essential if you are to make any profits, you do need to make rigorous checks and the staff need to know what they are doing, in case you are sick or absent they do it as if you were there."*

Further, health and safety activity was perceived necessary to protect the investment of workforce training.

**Sense of Duty & Ethos**

A number of interviewees interpreted the company's sense of duty to engage in health and safety activity as separate from the legal duty to maintain health and safety activity.

*"Our commitment to the public, there is duty of care."*

Therefore, the duty described may derive from a broader moral sense rather than merely a legal requirement. It is unclear what facilitates development of such an organisational characteristic, Company ethos for health and safety was also highlighted as reason from engaging in health and safety activity.

*"As a diligent business we would expect people to do it anyway."*

SMEs identified company ethos as a factor which facilitated the organising of health and safety activity.

***"Ethos, ideals".***

Furthermore, linking health and safety to company ethos was seen as a means to promote the company as a well established business.

***"To make a statement about the type of company that we are, not just a fly by night."***

**Past Experience**

There was evidence that past experience of health and safety activity in other organisations was on several occasions the main impetus for improving health and safety standards in their new company. Past experience of health & safety in larger companies was offered as a rationale for current health & safety in SMEs.

***"We're trying just to bring everything up to speed…[why?]…urm, because we all came from big companies."***

### 5.1.6 Enablers of Health and Safety Activity

Further to the behavioural themes identified earlier as enablers of health and safety activity the following were also cited as contributors to health and safety involvement.

**Internal Resources**

SMEs identified internal resources and the accessibility of inexpensive technology as factors that enabled health and safety activity.

***"Technology used to be the barrier for small businesses but now you can buy the technology very cheaply and it is very accurate, just what the big companies can do, the small business and entrepreneur can do, cost is not the issue it used to be."***

**Grants**

Some SMEs reported that grants from the Department of the Environment, Food and Rural affairs, Department of Trade and Industry or practical help from a charity, helped them engage in health and safety activity.

### 5.1.7 Perceived Indicators of Effectiveness of Health and Safety Behaviour

SMEs were asked to indicate how they knew the health and safety action they had taken had worked. They provided both direct and indirect examples of the effectiveness of their health and safety activities. In addition to the perceived indicators of the effectiveness of health and safety given in the behavioural themes in section, the following markers of effectiveness were identified.

**Lower Recorded Accidents**

'Lower recorded accidents' was the leading theme that emerged from the interviewees' responses to the question how do you know it works? There was an evident link here with audit or measurement, without which, SMEs could not produce evidence of accident reduction.

***"Because we have reduced injuries…got the statistics to analyse. We analyse the accident report book."***

**Absence of Accidents**

It is not clear whether the lack of accidents reflects a true absence in all cases, or whether accidents have not been reported. One SME noted that the lack of accidents doesn't necessarily mean that steps taken actually work. Others highlighted the number of years they have been in business together with the fact that they have not had a major incident.

***"Because we've run for 14 years and have never had any problems".***

**Communication**

Communication via regular health and safety meetings within the SME provide evidence on whether health and safety initiatives are working. A number of SMEs interviewed also reported reliance on customer and employee feedback to assess health and safety

***"We have monthly safety talks and a monthly audit. Feedback from them would tell us a risk we didn't identify".***

A number of interviewees were unable to articulate the mechanisms by which they assessed the effectiveness of their health and safety activity. However, they claimed that it was self-evident that it was effective. Some SMEs were able to report that they maintain an extensive amount of health and safety activity however, interviewees also conceded that despite such activity they are unsure whether measures taken do work, unless they are able to demonstrate a reduction in incidents.

## *5.2 Discussion of Results*

The telephone interview findings displayed some striking patterns in the state of the SMEs' engagement in health and safety activity in both the quantitative and the qualitative data. There were notable differences in health and safety activity in health and safety within SMEs, with size of the enterprise being shown to be an influential factor. The use of the Business Activity Model generic business framework (Herman & Malone, 2003) allowed further investigation into which areas of the business process were weak in terms of health and safety activity. The Stage of Change model (Prochaska & DiClemente (1982) was used as a descriptive framework to categorise the state of readiness to engage in health and safety activity. The sample appeared to be clustered around either the early or later stages of engagement. The qualitative data provided insight into the type of health and safety behaviour the SME perceived as relevant and the rationale for adopting the behaviours.

The interview sample displayed significant differences in a number of areas of health and safety behaviour, such as frequency of policy statements, conducting risk assessments, and the maintenance of accident records. There were also significant differences reported in training records for display screen equipment risk, vibration and stress. It should be noted however that not all these behaviours may be relevant to the enterprises included in the sample as a range of sectors were represented.

Thirty eight percent of the interview sample reported undertaking no health and safety engagement in a typical week. This disturbing finding warrants further investigation with a larger sample and was therefore is included in the questionnaire survey reported in Section 6.

Overall, the buying and selling phases for businesses were particularly immature in respect of awareness of the need for health and safety activity. The size of the interview sample precluded the use of meaningful statistical analysis to investigate any association with other factors such as size, sector or organisational structure of the company. However, these preliminary findings prompted the follow up of these questions. These associations were investigated further in the questionnaire survey and the results are reported in Section 6.1.

The literature on health behaviour change accentuates the importance of identifying the specific behaviours which are salient to the population under investigation (Fishbein, 2001). Qualitative analysis of the responses was therefore used to identify key behavioural themes highlighted as relevant by the SME. These were established as risk assessment, developing a health and safety policy, complying with legislation, checking the reputation of the suppliers, keeping up to date with health and safety information, and carrying out health and safety training. A selection of these behaviours, namely risk assessment, development of a health and safety policy,

complying with legislation were also offered as reasons for sustaining health and safety activity. Further reasons given for engagement with health and safety issues were customer safety, staff welfare, positive cost benefits, sense of duty, company ethos and past experience of staff. The key behaviours which were also considered to be enablers of health and safety were risk assessment, development of a health and safety policy, complying with legislation and health and safety training. Further enabling factors were identified as internal resources and grants. One key health and safety behaviour, risk assessment was identified as a mechanism for providing evidence that health and safety initiatives were working. Other perceived indicators of health and safety effectiveness were lower recorded accidents, absence of accidents and communication with customers and employees.

The telephone interviews provided valuable data for the prioritisation of participant behaviours. The respondents present a picture of organisations that do not spend a substantial part of their time engaging in health & safety activity. Although it should be stated that there appear to be two groups of organisations, those who can be shown not to be engaged with health & safety practice and those that are actively finding and utilising health & safety support. The evidence of such a dichotomy provides further support for the necessity of investigation on the reasons for poor and good performance in this hard to reach population with a larger sample The questionnaire (see Section 6 below) expands on the themes identified by the telephone

interviews with a sample size that supports multivariate analysis to investigate the nature of the SME's behaviours and their motives with respect to health & safety activity.

# 6 CHAPTER SIX: PHASE 2 (QUESTIONNAIRE SURVEY RESULTS)

This chapter presents the findings from the final study of the research. Results are presented from the responses on the level of health and safety activity among SMEs. The structure of the survey tool is examined. The findings on key predictors of health and safety activity are presented. The results of the study are discussed at the end of the chapter.

## 6.1 Results

Results are presented in three main sections, i) demographic features of the data, ii) factor analysis outcomes, and iii) hierarchical regression findings.

Figure 6.1 shows the amount SMEs spending, either, no time, 1 hour, 2-7 hours, 8 to 37 hours or over 37 hours per week respectively. Observed hours per week allocated to health & safety activity by SMEs was found to be significantly different ($\chi^2 = 96.8$, df = 4, $p < 0.001$) than expected. Fifty nine percent of the sample spent one hour or less on health & safety in a typical week.

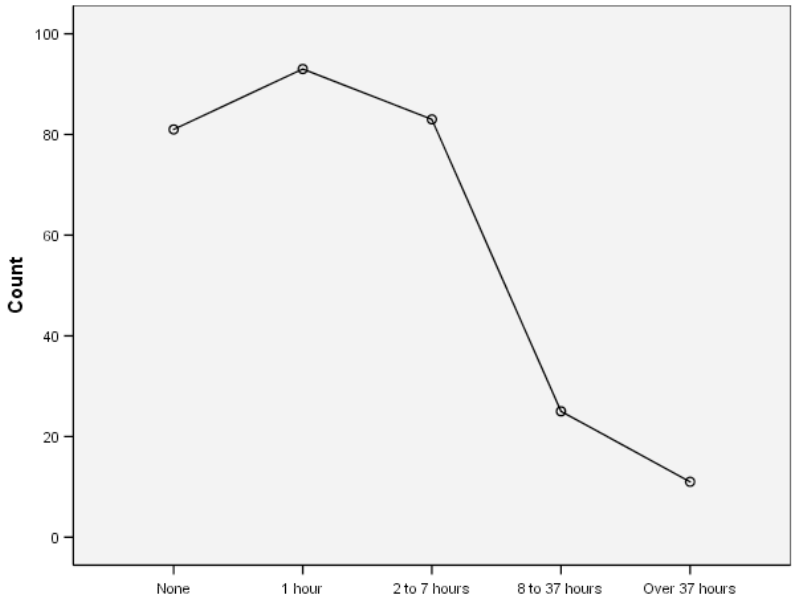


**Figure 6.1 Hours per week organisation spends on health & safety**

Further, time spent on health & safety was significantly different with respect to the relative size of the organisations, see Figure 6.2.

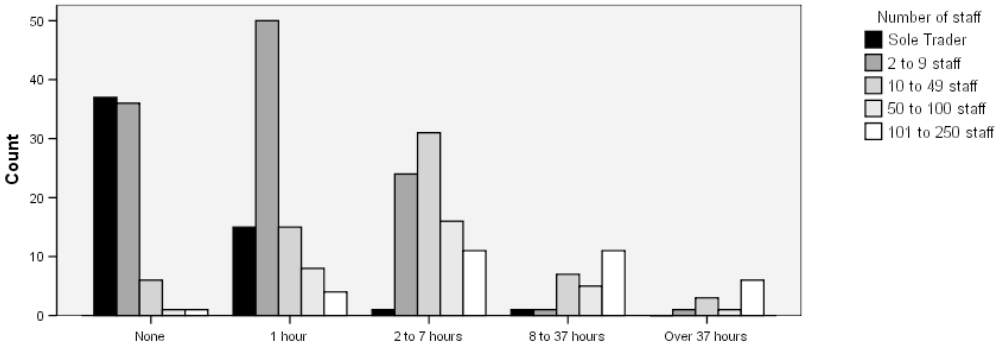


**Figure 6.2. Hours per week by size on health & safety**

Respondents indicating their organisation spent no time on health & safety were significantly more likely to be smaller organisations ($\chi^2 = 85.6$, df = 4, $p < 0.001$). Those reporting spending 'One hour', or no time per week were most likely to be micro-businesses (2 to 9 staff). Organisations allocating approximately one day per week to health & safety, clustered around the

small business (10 to 49 staff). Allocation of from 'eight to thirty-seven' hours per week or 'Over thirty-seven' hours per week were significantly more likely to occur in the larger SMEs in the sample, see Table 6.1.

**Table 6.1 Hours per week on health & safety by organisational size**

| | $\chi^2$ | df | Significance |
|---|---|---|---|
| 0 or 1 hour | 72.7 | 4 | $p < 0.001$ |
| 7 hours | 32.4 | 4 | $p < 0.001$ |
| 8 to 37 hours | 14.4 | 4 | $p < 0.05$ |
| More than 37 hours | 10.4 | 4 | $p < 0.05$ |

Self-report of 'Stage of Change' data was found to be significantly different for all sizes of SME in the sample. 'Pre-contemplative' SMEs were significantly more likely to be sole traders and less likely to be businesses with between fifty and hundred staff. Those reported as being in the contemplative Stage of Change were most likely to be SMEs with more than fifty staff. Organisations in the preparation, action, or maintenance stages were found to be significantly different. For all three of these stages, readiness to engage with health & safety was more likely as the business size increased.

**Table 6.2 Stage of Change by organisational size**

| | $\chi^2$ | df | Significance |
|---|---|---|---|
| Pre-contemplation | 15.2 | 4 | $p < 0.005$ |
| Contemplation | 18.5 | 4 | $p < 0.001$ |
| Preparation | 56.8 | 4 | $p < 0.001$ |
| Action | 22.4 | 4 | $p < 0.001$ |
| Maintenance | 53.7 | 4 | $p < 0.001$ |

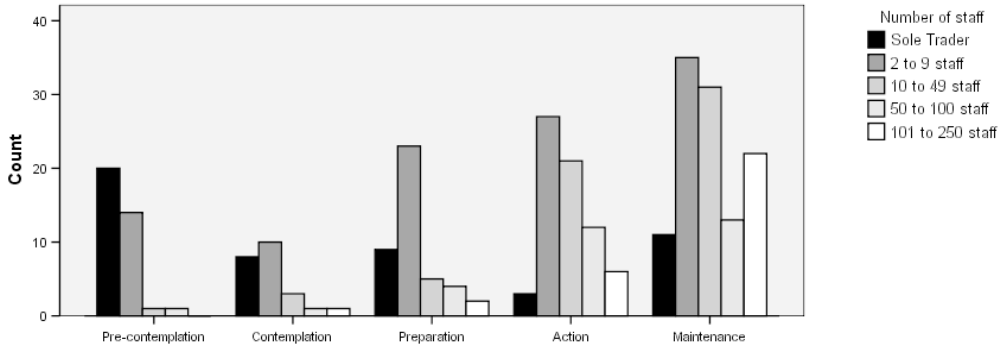


**Figure 6.3. Size by Stage of Change**

Eighty two per cent of respondents that indicated their organisation spends 'no time' on health and safety activity were found to be in the preparation or an earlier Stage of Change. This is in contrast with organisations which reported to spend time on health and safety. These organisations were found to be substantially in preparation or a later Stage of Change, i.e., 'one hour', 92%, 'two to seven hours', 96%, 'eight to thirty seven hours', 100%, and 'over thirty seven hours', 100%, see Figure 6.4. A Kruskall-Wallis analysis revealed a statistically significant difference in hours per week spent on health and safety according to Stage of Change, $\chi^2$ (4) =107.38 p<001. Time spent on health and safety increased with progression through the stages of change, i.e., pre-contemplation (mean rank = 52.1), contemplation (mean rank = 63.3), preparation (mean rank 118.8), action (mean rank 158.6), and maintenance (181.51) stages.

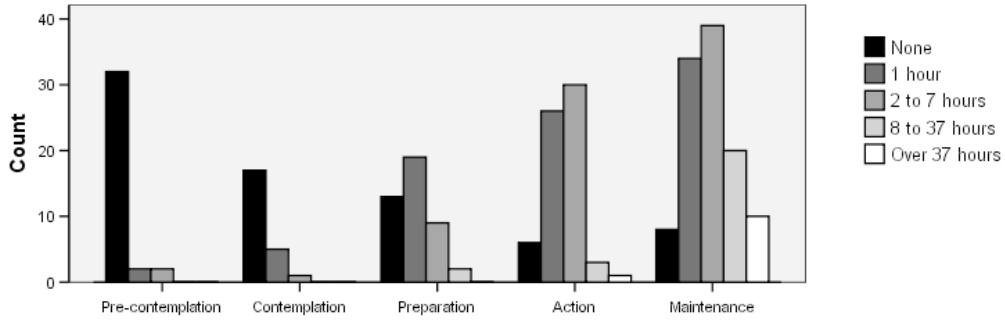

**Figure 6.4 Hours spent per week on health & safety by Stage of Change**

Significant differences were found between the frequencies at which decisions are made by 'Top', 'Middle', and 'Junior' level staff, see Figure 6.5 and Table 6.3.

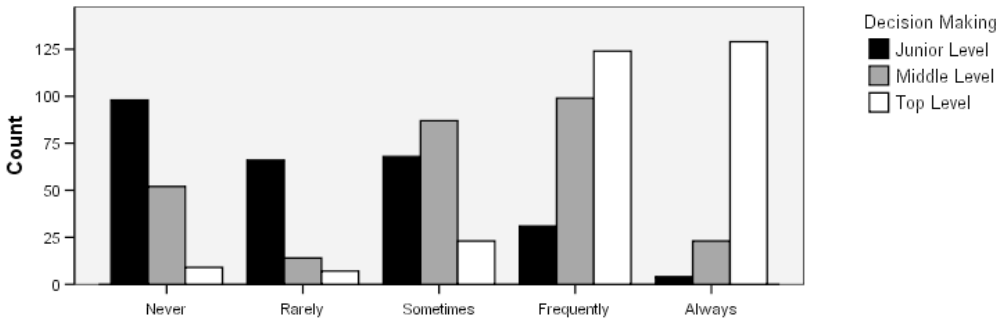


**Figure 6.5. Organisational decision making**

Consideration of 'encouragement of health & safety activity' by different levels of management in SMEs, indicated that both 'Top-level' and 'Middle-level' staff were found to be significantly different in their support of health & safety activity. These management levels were reported to more frequently encourage health & safety practice within their businesses. No significant differences were found for 'Junior-level' staff, see Figure 6.6 and Table 6.3.

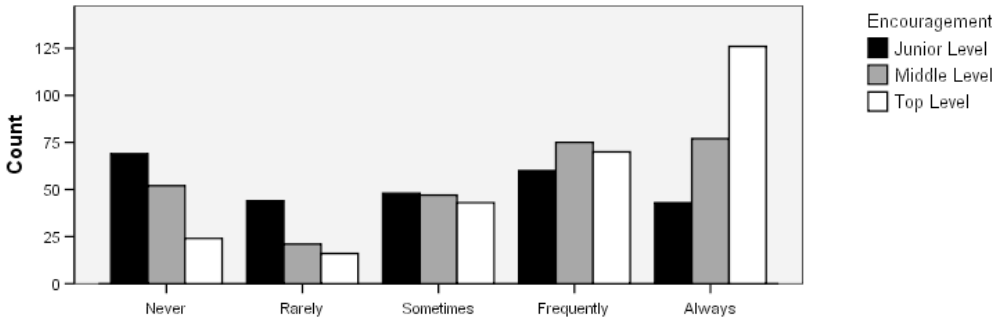


**Figure 6.6 Organisational health & safety encouragement.**

**Table 6.3 Decision making and encouragement and encouragement for health & safety**

| | $\chi^2$ | df | Significance |
|---|---|---|---|
| Decision making: | | | |
| Top level | 267.5 | 4 | $p < 0.001$ |
| Middle level | 103.2 | 4 | $p < 0.001$ |
| Junior level | 99.3 | 4 | $p < 0.001$ |
| Encouragement: | | | |
| Top level | 141.4 | 4 | $p < 0.001$ |
| Middle level | 38.8 | 4 | $p < 0.001$ |
| Junior level | 9.7 | 4 | NS |

Figure 6.7 illustrates business' health & safety activity by organisational size, means and standard deviations (in parentheses) were: sole trader, 2.34 (1.25); 2 to 9 staff, 3.01 (1.02); 10 to 49 staff, 3.86 (.90); 50 to 100 staff, 3.85 (.66) and 101 to 250 staff, 4.00 (8.3). A significant main effect was found for business size ($F = 25.6$, $df = 4, 287$, $p < 0.001$). Post-hoc testing revealed three groups that were significantly different from each other on health and safety activity. These were sole trader ($p < 0.05$), micro business ($p < 0.05$), and businesses with more than ten staff ($p < 0.001$). Dunnett's was used for the post-hoc tests as homogeneity of variance not achieved ($F = 6.2$, $df = 4, 287$, $p < 0.001$).

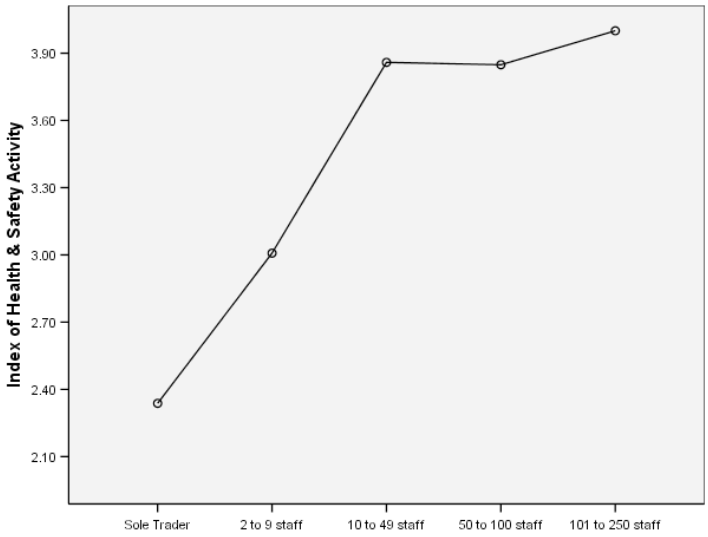


**Figure 6.7. Size by health & safety activity**

## FACTOR ANALYSIS

Prior to Principal Components Analysis the scale items were checked for multi-collinearity and singularity, the correlation matrix indicated that there were no correlations with R > 0.9. The Kaiser-Meyer-Olkin value was 0.97, exceeding the recommended value of 0.6 (Kaiser, 1970) the Barlett's test of Sphericity (Barlett, 1954) was significant (p <.0001), thus supporting factorability of the correlation matrix.

An initial principal components analysis yielded eleven components with eigenvalues greater than one. Examination of the screeplot see Figure 6.8 indicated a break after the fifth component.

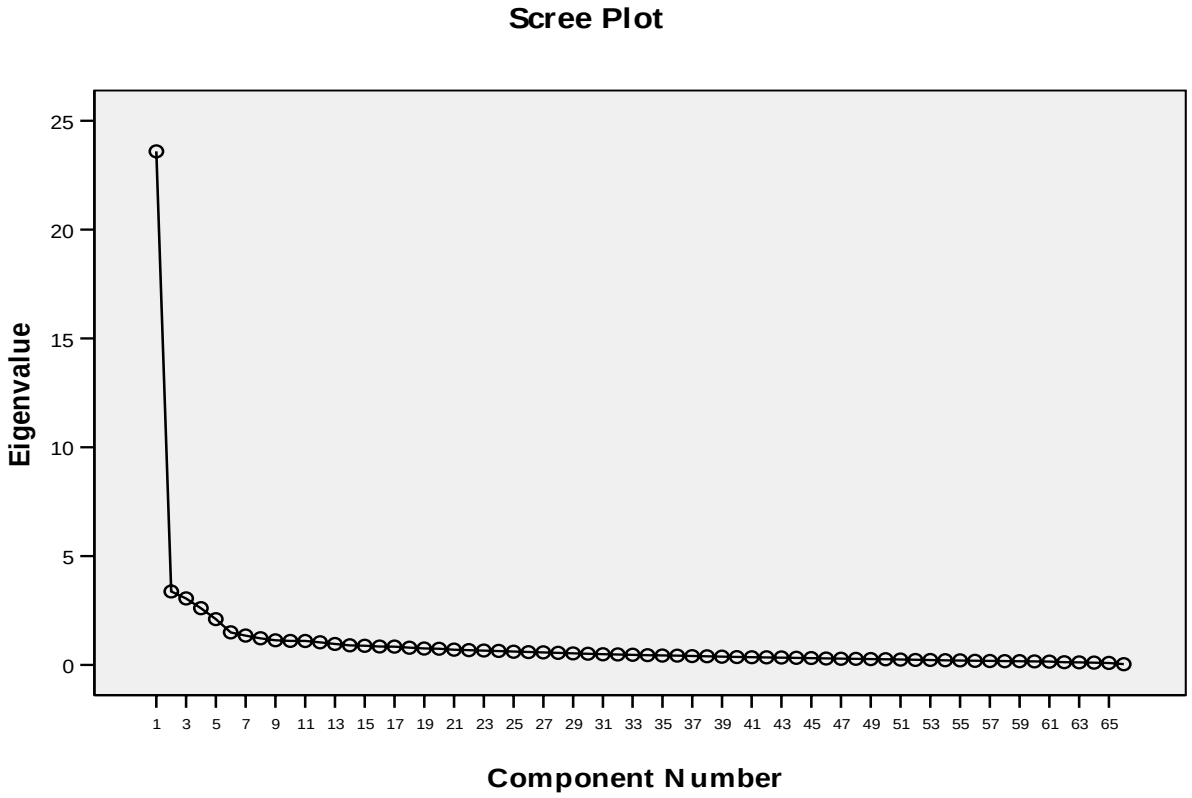


**Figure 6.8 Scree plot of eigenvalues**

Some correlation of factors was identified from the Varimax rotated solution, and therefore an Oblimin rotation was conducted (Tabachnick & Fidell 2001). This yielded five meaningful factors, presented in The five factor solution accounted for 52% of the total variance, with Component One explaining 35%, Component Two 5%, Component Three 5%, Component Four 4%, and Component Five 3%. The factors may be considered to broadly load on the following domains presented in Table 6.4.

Factor 1. Negative beliefs about resources

Factor 2. Relationships with suppliers

Factor 3. Emotional aspects of behaviour

Factor 4. Positive beliefs about resources

Factor 5. Beliefs about consequences.

## Table 6.4 Oblimin factor solution with Kaiser Normalisation

| | Factor 1 | Factor 2 | Factor 3 | Factor 4 | Factor 5 |
|---|---|---|---|---|---|
| We are not capable of writing a health and safety policy | .782 | | | | |
| We do not understand what a health and safety policy is | .717 | | | | |
| We do not have the resources to carry out risk assessments | .713 | | | | |
| We do not have the finance to carry out health and safety training | .616 | | | | |
| We are not sure how to carry out health and safety training | .612 | | | | |
| We do not have the organisational structure to comply with health and safety regulations | .608 | | | | |
| Carrying out health and safety training is a problem for us | .588 | | | | |
| Keeping up to date with health and safety information is not relevant to a company our size | .575 | | | | |
| We lack the skills to check on our suppliers' health and safety standards | .563 | | | | |
| The nature of our industry does not demand that we carry out health and safety training | .560 | | | | |
| We rarely communicate with external bodies to comply with health and safety legislation | .557 | | | | |
| We often overlook health and safety training | .539 | | | | |
| We rarely read the trade literature to keep up to date with health and safety information | .474 | | | | |
| We have the ability to comply with legislation | .460 | | | | |
| Our customers do not think it is important that we keep up to date on health and safety information | .446 | | | | |
| We do not make action plans for conducting risk assessments | .416 | | | | |
| It is part of our professional practice to have a health and safety policy | .364 | | | | |
| Our company is well equipped to write a health and safety policy | .344 | | | | |
| We always remember to check our suppliers' health and safety standards | | .747 | | | |
| Checking on our suppliers' health and safety standards will prevent accidents | | .724 | | | |
| We would be sorry if we had not checked our suppliers' health and safety standards | | .710 | | | |
| We have the time to check our suppliers' health and safety standards | | .704 | | | |
| It is important to our customers that we check on our supplier's health and safety standards | | .670 | | | |
| We maintain close contact with our suppliers to keep informed on the health and safety quality of their goods | | .654 | | | |
| We know how to check on our suppliers' health and safety standards | | .566 | | | |
| We often forget to check our suppliers' health and safety standards | | .564 | | | |
| It is a problem for us to check our suppliers' health and safety standards | | .556 | | | |
| Health and safety training is a priority for our professional standards | | .428 | | | |
| Our staff think that it is vital that we meet health and safety regulations | | | | | |
| Complying with health and safety legislation is stressful | | | .817 | | |
| It is frustrating to keep up with health and safety information | | | .667 | | |
| Health and safety regulations are confusing | | | .652 | | |
| Risk assessments are difficult to carry out | | | .640 | | |
| It is not tiring to carry out health and safety training | | | .565 | | |
| Writing a health and safety policy would be mentally exhausting | | | .494 | | |
| We cannot cope with keeping up to date with health and safety information | | | .483 | | |
| Risk assessments are interesting | | | .337 | | |
| We pay attention to keeping to date with health and safety information | | | | .774 | |
| We always remember to carry out risk assessments | | | | .726 | |
| We have the resources to update ourselves on health and safety information | | | | .682 | |
| We have company support for a health and safety policy | | | | .676 | |
| We invite feedback from our staff on health and safety training | | | | .676 | |
| We have the skills to provide health and safety training | | | | .666 | |
| Our management would want us to carry out risk assessments | | | | .637 | |
| Complying with health and safety information is an important part of our image | | | | .604 | |
| We hold meetings with staff on health and safety policy issues | | | | .600 | |
| We know where to look for up to date health and safety information | | | | .597 | |
| We know what a risk assessment is | | | | .565 | |
| We can overcome the difficulties and meet health and safety regulations | | | | .546 | |
| We are good at finding relevant health and safety information | | | | .399 | |
| Carrying out a risk assessment is commonsense | | | | .364 | |
| We do not focus on our health and safety policy | | | | .346 | |
| It is not important for our staff that we have a health and safety policy | | | | | .487 |
| Risk assessment is not relevant to our type of business | | | | | .457 |
| Our own reputation does not depend on the health and safety standards of our suppliers | | | | | .452 |
| Failing to meet health and safety legislation will result in injuries | | | | | .446 |
| Carrying out health and safety training will lower our accident rates | | | | | .433 |
| We have to have health and safety certification to win the work | | | | | .398 |
| Keeping up to date with health and safety information will not increase our profits | | | | | .383 |
| Carrying out risk assessments will have no effect on our insurance premiums | | | | | .368 |

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

### 6.1.1 Predictions Regarding Health & Safety Activity

The data was subjected to multivariate analysis. Multiple regression was performed to determine the relative predictive significance of the variables.

These were:

- attitudes (Negative beliefs about resources, Relationships with suppliers, Emotional aspects of behaviour, Positive beliefs about resources, Beliefs about consequences).
- organisational structure (encouragement and decision making within the business)
- demographic features with respect to outcome measures

Hierarchical regression was used to examine which variables were the most important predictors of good health and safety behaviours. The dependent variable was 'health and safety activity' which was calculated by summing the scores on frequency of risk assessment, compliance with health and safety activities, compliance with health and safety legislation, development of health and safety policy, checking suppliers' health and safety, carrying out health and safety training and obtaining health & safety information to create a global health and safety activity index.

The nature of the attitude variables was analysed to consider possible mediating effects of the demographic and organisational characteristics. The regression outcomes are shown in Table 6.5 (standardised weightings). Three models were considered, Model 1 introduced the five factors derived from the factor analysis. Next, internal organisational characteristics were added. For Model 3, demographic features were taken into account. As additional variables were introduced, the new model was significantly more able to account for health & safety activity, see Table 6.5.

**Table 6.5 Beta weights, adjusted $R^2$ and significance levels in three-step hierarchical regression**

| Variable | Model 1† | Model 2†† | Model 3††† |
|---|---|---|---|
| Factor 1 Negative beliefs about resources | .288*** | .274*** | .255*** |
| Factor 2 Relationships with suppliers | .283*** | .253*** | .243*** |
| Factor 3 Emotional aspects of behaviour | -.006 | -.011 | .010 |
| Factor 4 Positive beliefs about resources | .491*** | .454*** | .412*** |
| Factor 5 Beliefs about consequences | .077* | .068 | .063 |
| Decisions are made at the top level staff | | .042 | .055 |
| Decisions are made by middle level staff | | -.120* | -.119* |
| Decisions are made by junior staff | | .125** | .109* |
| Health and safety activity is encouraged by top level staff | | .083 | .088 |
| Health and safety activity is encouraged by middle level staff | | .051 | .033 |
| Health and safety activity is encouraged by junior staff | | -.014 | -.013 |
| Age of business | | | .035 |
| Number of staff | | | .071 |
| Estimated hours per week organisation spends on health & safety | | | .056 |
| Sector | | | -.062 |
| Adjusted $R^2$ | .756*** | .768* | .775* |

*p < .05, ** p < .01, *** p < .001.
†Model 1 (F = 113.8, df = 5, 177, p < 0.001), ††Model 2 (F = 2.5, df = 6, 171, p < 0.05), †††Model 3 (F = 2.5, df = 4, 167, p < 0.05)

In all models, both negative and positive beliefs about resources (factor one and factor four respectively), and SME relationships with suppliers, were found to be significant independent effects. In Model 1, beliefs about

consequences of health & safety activity (Factor 5) was also found to be a significant predictor. The introduction of decision making and health & safety encouragement variables reduced the predictive contribution of Factor 5 to a non- significant level in Model 2. Further, decision making by both middle and junior-level staff were found to have significant predictive value. In the third model, factors one, two, & four, and decision-making at middle and junior levels remained significant predictors despite controlling for the effects of demographic variables.

## 6.2 Discussion of Questionnaire Survey Results

The questionnaire survey revealed findings consistent with results from the telephone interviews, see Section 5.1. Significant differences were identified in SME health & safety relating to the time allocated, size of the business, Stage of Change, and organisational structure. Further, analysis of the survey instrument, revealed an underlying structure with five factors relating to attitudes to health & safety behaviour. The attitude variables, together with controls for demographic and organisational characteristics, were regressed against health & safety activity. Three attitude, and two organisational factors were identified as independent predictors of health & safety activity.

A substantial proportion of the SME sample, were identified to spend little or no time in a typical week on health & safety activity, see Figure 6.1. In the questionnaire survey, 59% of respondents reported spending one hour or less on health & safety activity, for the telephone interviews undertaken earlier in

the project, the figure was 60%. This suggests that UK SMEs are spending a disturbingly low amount of time on health & safety. The finding, which seems to reflect practice (given two separate data collection methods and comparable statistics from both the telephone interviews and the questionnaire survey), raises the question of whether time allocated to health & safety is indicative of the effectiveness of health & safety standards within the business.

To investigate health & safety activity, the effects of business size were examined. It was hypothesised that the small (more than nine staff, but less than fifty) and micro-business/sole trader (< 10 staff) would spend least time on health & safety within the sample, as a result of their limited manpower resources. Indeed, findings show that the smaller businesses in the SME sample were spending significantly less time on health & safety than larger businesses. In particular, the micro-businesses were likely to spend significantly less time on health & safety activity when compared with the other sized SMEs. Further consideration of the data indicated that organisations spending approximately one day per week on health & safety matters were most likely to be 'small' enterprises. Those reporting more than thirty seven hours per week were significant more likely to be the largest of the SMEs in the sample (101 to 250 staff). It would appear that as businesses grow, their circumstances are more favourably inclined to allocate time to health & safety matters. It should be noted, however, that the legislative

position, with regard to health & safety certification, is less stringent for organisations with less than five staff. These businesses have no statutory requirement to produce health & safety documentation. The evidence suggests that an infrastructure develops in terms of the resource available to an organisation as it grows, which would support health & safety activity. This finding does not inform as to the nature of the time invested in health & safety, also larger businesses and certain sectors may have greater risks to consider. It is notable, however, that neither size nor sector was predictive of health and safety activity when beliefs were taken into account (see discussion of the regression analyses).

The Stage of Change model (Prochaska & DiClemente 1982) was incorporated in the design of the telephone interviews to elicit data on the motivational state of the SME regarding health & safety activity. The interview data revealed two main clusters in the sample, one predominantly in the 'pre-contemplative' phase, and the other in the 'maintenance' phase. The questionnaire survey also employed Stage of Change. Readiness to engage with health & safety significantly increased with business size. Sole-traders were significantly more likely to report that they were unaware of the need to carry out specific health & safety behaviours. Businesses were significantly more likely to be in the more mature, 'preparation', 'action' or 'maintenance' phases as the size of the organisation increased. Findings provide further support ( Haslam, 2002) for the application of Stage of Change as a

framework to meaningfully consider health & safety activity. For example, significantly more time was allocated to health & safety for organisations in the more advanced stages of change. Thus, the Stage of Change framework provides a tool to identify characteristics which appear to either promote or inhibit health & safety activity. The framework was sensitive to differences in both organisational size and time allocated to health & safety. This suggests it may have potential as a diagnostic screening assessment tool for health & safety interventions.

Hierarchical characteristics of the SME were of interest in the design of the study. The literature (Shampoux & Brun, 2003; Stephens et al., 2004) suggests that senior management support is positively associated with health & safety practice. Further, difficulty in health and safety engagement of junior staff was also identified as a constraint to good overall health & safety activity. Therefore, both decision-making and encouragement at key levels within the SME were investigated in this study. Significant differences were established in the sample population for both organisational decision-making and encouragement with respect to junior, middle, and senior level staff. (Shampoux & Brun, 2003) identified that organisations with collective management with decision making largely distributed amongst all staff perform better than more traditional hierarchical organisational designs. In the present study the data suggest that more traditional hierarchical enterprises dominate. It was hypothesised that senior management support

would be a predictor of health & safety practice and this effect is discussed below.

Organisational features have been documented as important factors affecting the health & safety of SMEs (Eakin & MacEachen, 1998; Shampoux & Brun, 2003). The importance of the design of the organisation was further reinforced by findings from the telephone interviews, reported in Section 4 of this report. Therefore, the questionnaire survey was planned to elicit two hierarchical characteristics of the organisational structure, i) support for health & safety and ii), decision making. Questionnaire items were developed to establish the type of the organisation, e.g., those that have a traditionally hierarchical management or matrix-type structures, and the degree of support for health & safety at the different levels of the business. Results present a fairly traditional view of British businesses. For example, frequency of decision making was found to significantly decrease for junior staff, appear to be broadly normally distributed for middle level staff and increase for senior staff. If the sample contained alternative organisational structures, this was not apparent in the findings. Middle and senior level staff in the sample reported significantly more frequent encouragement of health & safety activity than for the junior level staff who were not significant with regard to how often they reported health & safety encouragement. This could be interpreted as the junior level staff not recognising the strategic benefit of

encouragement of health & safety behaviour, and therefore engaged in such activity less frequently.

Findings have been reported considering organisational size, time allocated to health and safety, Stage of Change, decision making and encouragement on health and safety activity. The index of reported behaviours is a system to quantify health and safety activity. Figure 6.7 indicates the significantly different health and safety activity by SMEs in the sample. Post-hoc testing differentiates three groups, the sole trader, the micro enterprise and those SMEs with between 10 and 250 staff. It is suggested that this provides clear evidence of special challenges for the sole trader/micro-business in providing adequate health & safety protection for their organisation.

The construct validity of the attitude scale was investigated. Overall, principal component analysis indicated that the scale was broadly consistent with the theoretical domains in the literature, and the behaviours identified in the telephone interview data. However, findings suggest the theoretical domains could be further rationalised. For example, specific resources may be collapsed further into a larger 'health and safety relevant resource' variable, and health and safety behaviours may be described in terms of a general 'health and safety activity' variable. Five factors emerged from the principal component analysis.

The first factor comprised items relating to negative beliefs about resources to carry out health and safety activities. 'Resources' in this factor incorporated aspects relating to behaviour change such, knowledge, skills, social identity (self-standards), beliefs about capability (self-efficacy), attitude, motivation and goals (intentions), memory/attention, environmental context (constraints), and social influences (norms) highlighted in health behaviour change and public health literature (Bandura 1998, Fishbein et al., 2001; Michie et al., 2005). In this first factor, health and safety activity comprises risk assessment, presence of a health and safety policy, compliance with health and safety legislation, updating health and safety information, and conducting health and safety training.

The second factor was notable for its emphasis on health and safety behaviour relating to suppliers. This is consistent with the earlier finding from the telephone interview data that checking the health and safety standards of suppliers was considered by SMEs to be an independent exercise from more typical health and safety behaviours such as risk assessments or development of policy. This factor may be seen to relate to the 'social influence' domain highlighted by Bandura (1998), Fishbein (2001), and Michie et al (2005) ,see Chapter Three.

The third factor comprised items regarding the emotional aspects of health and safety behaviour such as frustration of keeping up with health and safety information or stress of complying with legislation. Emotion is an identified key domain in the health behaviour change literature (Bandura, 1998; Fishbein, 2001; Michie et al., 2005).

Factor four related to positive beliefs about the same type of resources relevant to health and safety activity as Factor one. The presence of two factors for beliefs about resources suggests that rather than on a continuum, beliefs about resources are dichotomised for SMEs. This factor encompassed the domains 'beliefs about capabilities', skills' and 'behavioural regulation' described by Michie et al (2005).

Factor five represented beliefs about the consequences of health and safety behaviour for the SME, such as, the lowering of accident rates as a result of carrying out health and safety training. ' Beliefs about consequences' is a key health behaviour change domain according to Bandura (1998), Fishbein (2001), and Michie et al (2005).

It can be seen that the factors derived from the principal component analysis provided statistical support for the use of factors that relate to general

resources and health and safety activity beliefs about suppliers, emotional aspects of health and safety and beliefs about consequences, in the subsequent multivariate analysis. Therefore, these factors were used to assess their importance in determining the extent of health and safety activity within the SME.

Hierarchical regression was chosen to examine the relative importance of predictors of SME health & safety activity. The main focus for this research was the psychosocial factors influencing SME behaviour. Therefore, a theoretical rationale for the hierarchical entry of variables for the regression was used. It was hypothesised that attitudes would have a primary influence on health & safety behaviours. Further, that these contributions would remain after controlling for the effects of other health & safety associations. For example, beliefs about resources would dominate the underlying influences of structural variables, such as size of the organisation, or encouragement of health & safety by management. Therefore, variables were introduced into the regression in three stages, i) factors derived from the principal components analysis, ii) hierarchical organisational variables, and iii) demographic variables. Findings supported this rationale, in that organisation size, which has been established in the literature as a substantial contributor to good health & safety practice, was not a significant predictor of health & safety behaviour when the importance of the identified attitude factors was taken in to account.

In the regression model which considered the principal component analysis factors, beliefs about consequences of behaviour were predictive of health and safety activity. These included health and safety activity, lowering accident rates, and insurance premiums were associated with more frequent health and safety activity. Therefore there is evidence in this sample that SMEs recognise the link with positive benefits and undertaking health and safety activity. This finding is consistent with those of Fishbein (2001), Michie et al (2005) , Bandura (1998) who identified beliefs about consequences as a key predictive domain for health behaviours. The findings also support the theories in health psychology where outcome beliefs are held to be predictors of health behaviour (Becker & Rosenstock, 1984; Brubaker & Wickersham, 1990; Armitage & Conner, 2000; Fishbein et al., 2001). The health & safety literature suggests that this association needs to be made more explicit in order to increase health and safety activity (Wright et al., 2003). The effect found in the present study although significant, was not strong. Thus, it appears that there is a need for intervention to reinforce beliefs regarding the positive outcomes of engagement in health & safety activity. For example, improved health & safety activity has been associated with cost benefits like reduced insurance premiums (Wright et al., 2005). Findings from the telephone interviews further highlighted this association.

Although 'beliefs about consequences' of health and safety activity was found to be a predictor of activity, after adjusting for the effects of other factors such as decision making in the enterprise this small effect was no longer significant. This is consistent with the health & safety literature (Stephens et al., 2004) that suggests incentives which focus on the consequences of health and safety behaviour may not be sufficient drivers when there are other pressing constraints such resources or lack of control over allocation of resources for health and safety activity. Although this construct has been shown to be a significant predictor of health behaviour outcomes (Becker & Rosenstock, 1984; Brubaker & Wiskensham 1990; Armitage & Conner, 2000; Fishbein et al., 2001) the effects of outcome beliefs may be mediated by others factors such as self efficacy (beliefs about capabilities) (Bandura, 1998) and perceived control (Azjen, 1988, Trafimow et al., 2002). The presence of factors relating to capabilities and resources in the model may have attenuated the influence of beliefs about consequences found in the current questionnaire survey study, thus the present findings are consistent with those found in the health behaviour change literature (Armitage & Conner, 2000: Trafimow et al., 2002).

Negative and positive beliefs about resources were found to be predictive of health and safety behaviour. Beliefs about resources concerned a wide range of personal and environmental resources in relation to health and safety behaviour namely: knowledge, skills, social identity (self-standards), beliefs

about capability (self-efficacy), attitude, motivation and goals (intentions), memory/attention, environmental context (constraints), and social influences (norms), the predictive importance of beliefs about these resources are consistent with those in the health behaviour change literature (Bandura, 1998; Fishbein et al., 2001; Michie et al., 2005). Beliefs about resources remained significant after controlling for the influence of business size on health and safety activity. This finding is important as company size has been found to have a considerable influence on health and safety activity in the literature ( Walters, 2001), yet to date, explanations as to the mechanisms underlying this effect have been not been conclusive. The findings in the present study suggest that the importance of the size of company in determining health and safety activity is outweighed by beliefs about resources. It may be argued that a lack of confidence in the capability of the company in meeting health and safety requirements will be more important a predictor than whether a company is micro, small or medium. This has implications for intervention, enhancing confidence, skills and knowledge, and linking professional standards to health and safety standards can potentially increase health and safety activity for SMEs regardless of company size. Improving skills and beliefs about capabilities have been an important part of effective health psychology interventions in healthcare settings (Lewin et al., 1992; Jolly, 2007), it may be argued that there is potential for these components in the health & safety context.

Both negative and positive beliefs about resources predicted a positive engagement in health and safety activity. These findings are contradictory in that one would expect that more negative beliefs about resources would be associated with *less* health and safety activity. Yet this finding may reflect a pragmatic assessment of the SME's situation regarding the extent of resources that are readily available to support health and safety activity. It is possible that despite the belief that a company does not have sufficient resources, the SMEs still struggles on in order to fulfil its health and safety obligations. It could be suggested that this finding highlights the fact that SMEs in this sample are finding it problematic to identify and allocate sufficient resources to health and safety activity in order to meet regulatory requirements. This interpretation would be consistent with the health and safety literature (Griffin et al., 2005; Vickers et al., 2003). Alternatively, the respondents' perceptions of their resources available for health and safety may not be an accurate reflection of the situation as the estimation of resources is based on self-report. Ogden (2003) highlighted that self-reports may lead to such inaccuracies. (Griffin et al., 2005; McKinney, 2002) point out that businesses often claim to lack resources for health & safety activity but this may be a perceptive rather than a material problem.

Nevertheless, in the hierarchical regression, 'positive beliefs about resources' was the most important predictor of positive health and safety behaviours. Positive beliefs about resources such as skills for keeping up with health and

safety information, training and good communication structure for health and safety within the company, were associated with positive health and safety activity. This is consistent with the health psychology literature where sills and beliefs about capabilities are associated with preventative health behaviours (Bandura, 1977, Trafimow et al., 2002) and are identified key domain constructs in predicting health behaviour change (Bandura, 1998; Fishbein et al., 2001; Michie et al., 2005). The findings also support the health and safety literature: lack of good communication skills among management has been acknowledged as a barrier to health and safety among SMEs, (Eakin & MacEachen, 1998; Griffin et al., 2005; Vickers et al., 2003), and it was therefore encouraging to see the association with good communication and health and safety activity in this sample. These findings also suggest support for communication skills as an area of focus for future intervention.

Attitudes concerning relationships with suppliers were predictive of health and safety activity. The literature suggests that the SME's customer is in a position to exert influence on the SME (Redmann et al., 1995 as cited in L. Vassie & Cox, 1998; Vassie et al., 2000). However, according to the present study the SME as a customer may also be in a position to demand good health and safety standards by actively checking on the quality of their suppliers. SMEs that recognise the importance of establishing a good health and safety relationship with their suppliers are also associated with good levels of overall health and safety activity. Relationships with suppliers can be seen to

be a type of social influence, a well-documented predictor domain of health behaviour (Bandura, 1998; Fishbein et al., 2001; Michie et al., 2005). Therefore the present findings in health and safety support those found in the health psychology literature.

The hierarchical regressions identified junior staff encouragement as a contributing factor in the model with greatest predictive power compared to other organisational features. This finding was surprising in that the literature (Stephens et al., 2004) suggests that senior management support for health & safety is a major factor in determining health and safety engagement However, findings from this study found that support from lower rather than higher levels was a significant predictor. Organisations with more frequent decision making by junior level staff were found to significantly contribute to the model (3) highlighting the positive influence of an organisational structure which supports decision making at junior levels. One further interesting finding was that decision making by middle level staff was found to correlate negatively with positive health & safety behaviours. Thus, it would appear that businesses, within which, the decision making capacity of the middle level staff is restricted were found to be engaged with more positive health & safety. Decision-making is a construct that is related to self-efficacy and control (Bandura, 1977) in the domains identified by Michie et al (2005). It is possible that decision-making at lower levels enhanced the

feelings of control needed to promote health & safety behaviour in the business.

Emotion has been recognised as a key domain in health behaviour change (Michie et al 2005) and emerged as a factor in the principal components analysis of the attitudes to health and safety scale in this study. It is notable that this factor relating to emotional aspects of health and safety such as stress was not linked with frequency of health and safety activity in the regression analysis. This is not consistent with the literature where emotions have been seen to predict driving and smoking behaviour (Lawton et al., 2007). The inconsistency may be explained by the difference in terms used to define emotion, Lawton et al., (2007) used descriptors such as unhappy, whereas the terms used in the present study were related to frustration, boredom and stressfulness. Another interpretation of this lack of association may be that health and safety action is considered as a necessary task that has to be carried out whatever emotions one might expect to experience. For example, whether a task is boring or interesting does not deter or motivate one from the task if the task itself is obligatory. This suggests that it would be futile to present health and safety activity as a more interesting or less stressful undertaking as it would be unlikely to increase engagement. The findings may also indicate that the new culture of health and safety requiring a proactive approach is not an everyday reality for the SME. Small or medium-sized enterprises may still be carrying out health and safety behaviours out of

compliance to legislation rather than according to beliefs about the value of health and safety activity.

The telephone interviews and literature review highlighted a fear of the regulator and the consequences of non-compliance (Haslam James, & Bennet, 1998; Yapp & Fairman, 2006). Fear of test results is also a predictive factor of health screening attendance in the health psychology literature (Simpson et al., 1997; Maclean et al., 1984). It is possible that in the current questionnaire study this specific fear was accounted for by the 'beliefs about consequences' factor, for example the item 'failing to meet health and safety legislation will result in injuries' may relate to a fear of the consequence of not meeting legislation requirements. However, the attitude scale may also need to include specific items relating to inspection fears and fear of non-compliance in order to determine and clarify this effect.

The survey has supported the telephone interview finding that SMEs, in general, assign relatively little time to health & safety activity. Further, as organisational size increases, health & safety was found to improve. The analysis identified factors, which were predictive of health & safety increases and that, these were independent of organisational characteristics, e.g., size or decision-making.

# 7 CHAPTER SEVEN: DISCUSSION

In this chapter the overall findings from all phases of the research project are discussed. Implications for future research and good practice are included.

This thesis sought to identify psychosocial behaviours and activities undertaken by SMEs in the UK and to determine and compare the effects of psychosocial influences on health and safety activity. It surveyed the published literature in the area, identified salient issues for the SMEs, and developed a scale to statistically determine which contribution of identified predictive factors may improve health & safety outcomes for this hard to reach yet widespread population

One of the most conspicuous findings from this research was the general lack of time allocated to health & safety by SMEs. The two different types of data collection methods, telephone interviews and questionnaires, produced very similar data, i.e., organisations spending an hour or less on health and safety activity, 60% for the telephone interviews, and 59% for the questionnaires. Furthermore, one in four SMEs reported spending no time on health and safety activity in a typical week (26% from the questionnaire responses). In the questionnaire survey larger organisations were found to spend significantly more time on health and activity. This trend has been well documented in the literature ( Walters, 2001).

The issue of the need for interventions to target multiple issues concurrently was highlighted earlier in the literature review. The current research has identified areas that need attention and through the comparison of psychosocial predictors of health and safety has provided an indication of what combination of factors may be a priority for intervention.

Hierarchical regressions conducted on the survey data identified key predictors of health and safety activity. These were beliefs regarding resources (both positive and negative), relationships with suppliers, and decision making by both middle and junior staff and in one model; beliefs about consequences.

Regression analysis in the questionnaire study substantiated preliminary findings from the telephone interview study: the telephone interviews sought from participants their responses as to what enabled their engagement with health & safety activity. Enabling factors identified by the interviewed sample included the availability of internal resources such as knowledge or training, and/or provision of financial support and grants. The importance of resources to the SME was further emphasised in the statistical findings on the beliefs regarding resources (both positive and negative) which emerged as significant predictors of engagement in health & safety. The factor concerning positive beliefs about resources included beliefs about knowledge, skills and

capabilities. The evidence for knowledge alone as a predictor of health behaviours is inconsistent in the health psychology literature. Lowe & Radius (1982) emphasised the importance of a combination of skills and knowledge in determining positive health behaviours, the present findings on health & safety behaviour support this emphasis.

Beliefs about resources remained significant after controlling for demographic and organisational characteristics. The most predictive factor identified in the regressions was 'positive beliefs about resources'. Beliefs about personal and environmental resources are also key predictors identified in the health behaviour change literature (Bandura, 1998; Fishbein et al., 2001; Trafimow et al., 2002). It may be suggested therefore that interventions that boost both skills and confidence in the resources available may be most likely to increase health and safety activity.

Negative beliefs about resources were related to increased health and safety activity. This finding was interesting as it would appear to represent two features on the one hand these organisations feel they do not have sufficient resources, e.g., time, information or skill, to undertake the health & safety activity they would prefer to. While on the other hand, they may also be better informed of the activities they need to undertake than they are aware. Consequently, it may be possible to support this group of organisations by linking their beliefs to the effectiveness of their activities. For example it may

be useful for SMEs to have some forum to share discuss their health and safety endeavours and obtain feedback (Stave, Torner & Eklof, 2007). Often SMEs were found to be carrying out activities without the confidence that their actions were effective because there was little opportunity for comparisons within the company, which may have been operating for a relatively short time period. Action should be taken to provide feedback to support staff in recognising the extent of their health & safety improvements, for example health and safety workplace contact officers may be used to identify and praise good practice within the SME and provide guidance on maintaining effective activity. It is hoped that this will improve confidence in the actions undertaken by SMEs in their participation in health & safety, which may in turn promote positive further action (Bandura, 1998). The link between health and safety activity is varied but specific positive benefits identified by SMEs as a result of their engagement with health and safety activity. E.g., staff retention, increased productivity, reduced costs, need to be highlighted to promote confidence in further activity.

Supplier and client relationships were identified both in the literature (Yapp & Fairman, 2006) and during the telephone interviews as factors influencing the SMEs health & safety activity. For example, the 'no certification, no contract' tendering relationships were reported to be effective 'drivers' of health & safety for both client and customer. 'Relationships with suppliers' was a significant predictor of health and safety behaviour in the questionnaire

study. It could be argued that this factor represents a specific social influence which is salient to the SME. The influence of social norms is well recognised in the health behaviour change literature (Bandura, 1977., Fishbein et al., 2001) , social influence is a key theoretical construct domain (Michie et al, 2005). The influence of the customer and supplier may be used to promote health and safety activity, by highlighting the demands and making health and safety standards a prerequisite for entering business dealings.

In the telephone interviews a number of SMEs were able to articulate the consequences of health and safety activity or neglecting such activity. In the questionnaire survey beliefs about consequences was also found to be a predictor. This is consistent with the behaviour change literature, which emphasises the role of beliefs about the consequences of behaviour in predicting health behaviour change (Bandura, 1998; Armitage & Conner, 2000; Fishbein et al., 2001) and identifies beliefs about consequences as a key contruct domain (Michie et al, 2005). However, the association between beliefs about consequences became tenuous when other organisational factors, namely staff levels of decision - making and encouragement were taken into consideration. This may be interpreted that consequences of behaviour become less of a focus when there is little encouragement or sense of responsibility for health and safety activity at the appropriate level. Junior level decision-making predicted frequency of health and safety activity. Decision-making or control is an important concept associated with the

likelihood of health behaviours with or without the influence of behavioural intentions (Bandura, 1977, Trafimow et al., 2002). There is, therefore clearly room for further intervention to simultaneously reinforce beliefs about consequences, and to empower junior level staff to become more involved in the decision making process in order to improve health and safety activity.

The generic business activity model (Herman & Malone, 2003) provided a common framework with which to examine the wide variety of heterogeneous organisations within the sample. This proved to be useful as the model identified five areas of basic business practice, i.e., buying, designing, making, managing and selling. There were qualitative differences established between the various business processes and consideration of this data implied that these associated with external interfaces with the organisation. Furthermore, the model facilitated the eliciting of behaviours specific to each process, for example, checking of health and safety standards of suppliers. This was identified as a discrete health and safety behaviour in the thematic analysis of the telephone interviews and the subsequent factor analysis of the questionnaire data.

Stage of Change (Prochaska & DiClemente, 1982) has been employed in a wide variety of health-related behavioural settings with mixed success outcomes. Application in a health & safety context has been limited ( Haslam,

2002), although it has shown some value. Throughout this project the model has been useful in discriminating SME readiness to engage in health and safety activity. In both the telephone interviews and the questionnaire, with respect to health and safety activity, two distinct groups were identified i) Those businesses clearly not engaged and ii) those demonstrating good and sustained engagement. Survey data indicates significantly more time allocated to health and safety by organisations in the more advanced stages of change. The distinction implies interventions may be meaningfully targeted to organisations according to their Stage of Change. Findings appear to further support the application of this model in a health and safety context. However, caution may be exercised in reliance on the model and its sole use as an intervention tool. The results indicate that there are other concerns that are important in determining actual engagement in health and safety activity. These include both individual and organisational factors. For example, it may be more imperative to address concerns about consequences, resources and levels of decision-making within the SME when developing and targeting interventions to improve health and safety activity. This finding would be consistent with recent guideline recommendations on the use of the Stage of Change Model in cardiac rehabilitation that suggests that the model should only be used in conjunction with other intervention methods such as motivational interviewing (SIGN 2007).

The theoretical domains from the health behaviour change and public health literature (Bandura, 1998; Fishbein 2001, and Michie et al 2005) provided a useful framework to rationalise the many potential psychosocial factors which may influence health and safety within SMEs. The factor analysis also served to organise these variables into a manageable number for further analysis. There were both parallels and differences in the importance of the domains in predicting health and safety behaviour compared with the health behaviour change literature, for example beliefs about resources were key predictors in this study however emotion did not play an important role in predicting health and safety behaviour in this study.

The data collection methods adopted were found to be effective in eliciting responses from the population, which has been shown in the literature to be extremely problematic (Stephens et al., 2004; L. Vassie & Cox, 1998; Vassie et al., 2000). The 'cold calling' approach adopted for the telephone interviews took advantage of potential available time periods. The response rate was 16%. Ten to fifteen percent has been reported as more typical for this population. In the questionnaire survey, targeting of the population via trade shows was found to be very productive, with an established response rate of 93%. It was anticipated that attendees and exhibitors would be prepared to give time completing the questionnaire as they had allocated time away from direct income generation and everyday business pressures for attendance at

the events. Further, careful selection of events facilitated a broad sampling of the various SME sectors..

It has been shown that health and safety activity is being carried out within SMEs, despite real apprehension over resources to meet legislation. Both the telephone interview and questionnaire data suggest that beliefs about the consequences of health & safety are motivators of SME activity. For example, improvement of customer safety, better staff welfare, or reduction of insurance premiums was motivating factors for the businesses. Qualitative findings revealed that good health and safety practice was taken advantage of by some SMEs for marketing purposes via websites and promotional brochures. Such initiatives (in the external interface of business activities) may be developed to provide better awareness of how health and safety practice can be utilised to promote the SME. However, it appears for a substantial number of SMEs the awareness of this link between improved health and safety and these positive consequences is still tenuous, and therefore, requires reinforcement. It may be argued, then, that more needs to be done in raising awareness of the association between improved health and safety and the specific and salient positive benefits identified by SMEs in this study. Dissemination and reinforcement of SME-derived positive experience-outcome links would be a constructive step forward.

The key predictive factors therefore suggest a number of areas of intervention. There are indications in the literature that simultaneous or complementary interventions may be necessary (Stephens et al., 2004; Tait & Walker, 2000b). The presence of multiple predictive factors would support this assertion. However, there appears to be a priority in addressing concerns about resources. The anxiety over internal resources is strong, this was the overarching factor in the questionnaire study. Beliefs about the consequences of behaviour are also found to be a predictor, but interventions may be not be effective without also addressing decision-making factors within the enterprise. The low level of SME investment in health & safety found in the study points to a need for effective intervention strategies. It is hoped that by building on our understanding of the organisation's state of readiness to engage, business processes, and other psychosocial predictors; we may more efficiently focus efforts to improve SME health & safety.

**Limitations**

In the design of this project a prevailing classification of SMEs size was adopted. The literature ( Walters, 2001) repeatedly presents SMEs in terms of the sole trader, the micro-business (< nine staff), the small business (10 – 49 staff) and the medium-sized enterprise ( 50 to 250 staff). While this has been demonstrated as an informative categorisation for the consideration of the population's characteristics, it was limited in one respect by the legislative frameworks applying to small businesses in the UK. Specifically, findings

were limited by the survey tools, which partitioned respondents into the respective SME types identified above. However, in the UK, the lack of a requirement for formal health & safety documentation for organisations with less than five staff, presented methodological limitations in the investigation of this particularly interesting sole trader/micro-business cohort.

Health and safety is not a popular topic among SMEs and the fear of the regulator has been well documented. There is a possibility that because the research was supported by the Health and Safety Executive this may have increased the likelihood of refusal to take part or socially desirable responding. However, assurances were given that the HSE had no access to data that could be used to identify individual companies. It is hoped that this may have helped to reduce the response bias.

It is also possible that the SMEs who took part in the research may represent a particular group who are willing and able to take part in research therefore biasing the findings towards the businesses that are better engaged with health and safety activity. Yet the results indicate that a significant proportion of the SMEs were poorly engaged. During the research process it became apparent that SMEs were under considerable pressure to meet business demands however respondents appeared willing to communicate both their difficulties and successes in respect of health and safety activity.

The telephone interviews may have been liable to socially desirable responding due to the name of the company being known to the researcher. However, the number of responses that articulated difficulties and lack of engagement suggest otherwise. It may however be the case that the actual level of engagement with health and safety activity is even poorer than recorded in the studies. It could be argued that this suggests that the need for improvement is even greater than documented.

The literature on the use of psychological models to improve health and safety performance is sparse. However, although the there has been little research using psychological models to improve health and safety engagement in small and medium sized enterprises it may be argued that this research has shown that health psychology can contribute to an understanding of the predictors of health and safety activity among SMEs. The use of multivariate analysis has facilitated the comparison of the predictive value of psychological factors and features associated with SMEs. The findings have suggested areas of focus for future intervention and indeed highlight areas, which may be interdependent. For example, raising awareness of the consequences of health and safety behaviour may be best part of a multi pronged intervention approach that also aims to increase feelings of control or self-efficacy, for example increasing decisional control among employees.

## IMPLICATIONS FOR GOOD PRACTICE AND FUTURE RESEARCH

The findings from this project have afforded insight into how beliefs about health and safety can predict frequency health and safety activity.

- Future research can build on the progress made in penetrating a hard to reach population. It is recommended that further research should involve comparison studies between the views of individuals within SMEs and company ethos to compare their effect on health and safety practice. It may than be possible to extricate the beliefs of the individual concerning health and safety from the individual beliefs about the SMEs commitment to health and safety.

- Future research should continue the use of domains from health psychology to investigate issues in health and safety among SMEs. Key concepts from health psychology have been found to be predictive of health and safety activity in this population.

- Michie et al (2005) suggest that the domains from psychology highlighted in their paper may be readily understandable by non-psychologists and therefore of use in the development of strategies to improve implementation of evidence based practice. Similarly, in the questionnaire study, the domains have been shown to have predictive value in health and safety practice therefore they are arguably fit for

purpose in this context.

- Steps should be taken to highlight the positive benefits of health and safety activity with a greater emphasis on positive intermediate outcomes such savings in training due to reduced staff turnover, reduced insurance premiums resulting from better health and safety performance records.

- Positive beliefs about resources such as knowledge, capability, skills with regards to health and safety activity need to be reinforced in order to promote further health and safety activity. This may be done in a number of ways, via in house feedback during staff meetings, or feedback from external sources such as insurers, trade union representatives or the Health and Safety Executive.

- A more participatory approach to health and safety activity should be encouraged as the evidence suggests that those SMEs who involve all levels of staff in decisions are more likely to engage in health and safety activity.

- SMEs could produce a cascade of health and safety activity through their demands to see evidence of good health and safety practice from their suppliers. For example, in the tendering process they may demand to see appropriate risk assessment documentation. SMEs that have

stronger links with their suppliers regarding health and safety issues have been associated with greater frequency of general health and safety activity.

## Conclusion

The main findings reveal a low level of health & safety activity from SMEs in the UK. Beliefs about health and safety activity appear more important than size of company suggesting a role for psychological intervention. Key domains identified in the health psychology and public health literature (Fishbein et al., 2001, Michie et al., 2005 , Bandura 1998), have now been seen to be important predictors in the health and safety context. Beliefs regarding resources (both positive and negative) along with feelings about relationships with suppliers were all found to significantly predict health & safety activity. It is suggested that positive resource beliefs may reflect organisations' beliefs about health & safety activity they are effectively undertaking, negative resource beliefs may represent anxiety or fear that health & safety action is not sufficient or up to the required standard. Relationships with suppliers provide several direct means to positively influence the SME's health & safety by imposing improvements of businesses feeding into the SMEs productivity. These factors remained predictive regardless of the organisation's size, encouragement of health & safety, or level at which decision-making was undertaken within the business, contrary to findings from the literature review. On the basis of the present findings in the studies, it is likely that

effective interventions will have one aim to improve health and safety engagement but the objectives should be multiple. Beliefs in consequences of health and safety behaviour need to be addressed. Yet it is clear that there is some contingency involved in the influences on improved health and safety, for example awareness-raising of the positive consequences of health and safety activity may be a more productive exercise when carried out with moves to boost junior level health and safety involvement. Thus, although, there is a low level of health & safety engagement by many SMEs, by careful identification of their characteristics and beliefs, they may be provided with practical solutions to encourage and support their efforts to develop a healthy and safe workplace.

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# Appendices

## Appendix A - Telephone Interview Script

**General Introductions**

We are undertaking research to identify the good things that SMEs are doing to maintain and improve health and safety. The work is supported by the health and safety executive but we will not discuss findings with them in any way that could identify your organisation, unless you specifically indicate that you would wish us to do so. Any contribute you may make would be anonymous and confidential.

1. Who is responsible for health and safety?
2. Can we speak to them? (Repeat, if different person)

**Background**

3. What is the nature of the business?
4. Agriculture
5. Transport
6. Manufacturing
7. Public Admin/Defence
8. Construction
9. Education
10. Distribution/Repair
11. Health/Social Care
12. Catering
13. Other
14. What year was the business established?
15. How many employees does the enterprise have?
16. Does the company work to any quality standards?
17. Do you have a health & safety policy statement?
18. Do you have risk assessments?
19. Do you have an accident book?
20. Do you have a first aid book?
21. Do you have health & safety training records for any of the following:
22. Induction
23. Manual Handling
24. First Aid
25. DSE (Display screen equipment risk)
26. COSHH (Control of substances hazardous to health)
27. Vibration
28. Noise
29. PPE (personal protective equipment).
30. Stress?
31. How many hours per week do you estimate your organisation spends on health and safety matters?

**Buying Goods and Services**

**Identifying whether goods and services you purchase will not compromise health and safety**

32. a) Are you aware of any health & safety measures relevant to your organisation's purchasing of goods or services? (**e.g., whether your suppliers actively support health & safety of their & your customers)**
33. b) Are you planning any health & safety changes in the purchasing of goods & services, in the next six months?
34. c) Do you have any definite plans to make health & safety changes in the purchasing of goods & services, in the next one month?
35. d) Are you currently acting on health & safety plans in the purchasing of goods & services?
36. e) Are you doing anything to maintain the health & safety improvements you may have made in the purchasing of goods & services?
37. f) Why did you do this and what enabled you to do it?
38. g) How do you know it works?

39. e) Have you given up any health and safety efforts you have made to date?

**Design**

**Research & development of your Product/Services**

40. a) Are you aware of any health & safety measures relevant to your organisation's when researching or developing your product/services? **(e.g., using new materials or processes)**
41. b) Are you planning any health & safety changes in the research or development of your product/services, within the next six months?
42. c) Do you have any definite plans to make health & safety changes in the research or development of your product/services, within the next month?
43. d) Are you currently acting on health & safety plans regarding the product/services research and development you do?
44. e) Are you doing anything to maintain health & safety performance during your research or development of your product/services?
45. f) Why did you do this and what enabled you to do it?
46. g) How do you know it works?
47. e) Have you given up any health and safety efforts you have made to date?

**Making**

48. a) Are you aware of any health & safety measures relevant to your organisation's delivery of your product/ service? (**e.g., regarding tools/equipment or the processes you employ)**
49. b) Are you planning any health & safety changes in the delivery of your product/ service within the next six months?
50. c) Do you have any definite plans to make health & safety changes in the delivery of your product/ service in the next one month?
51. d) Are you currently acting on health & safety plans regarding delivering your product/ service?
52. e) What are you doing to maintain health & safety performance with respect to delivering your product/ service
53. f) Why did you do this and what enabled you to do it?
54. g) How do you know it works?
55. e) Have you given up any health and safety efforts you have made to date?

**Management**

**Strategy**

56. a) Are you aware of any health & safety measures relevant to your organisation's within the business **(e.g., plans, policies, or measures?)** or in the interaction with other bodies (**such as banks, insurers, or businesses?)**
57. b) Are you planning any health & safety changes in management strategies, in the next six months?
58. c) Do you have any definite plans to make health & safety changes in management strategies, in the next one month?
59. d) Are you currently acting on health & safety plans regarding your organisational management strategy?
60. e) What are you doing to maintain health & safety performance with respect to strategic management?
61. f) Why did you do this and what enabled you to do it?
62. g) How do you know it works?
63. h) Have you given up any health and safety efforts you have made to date?

**Concluding Questions**

64. Are there any novel initiatives you have come up with or carried out?
65. Would you be prepared to participate in a postal questionnaire to investigating these issues in further detail?
66. Would you be prepared to have your organisation used as a case study example of good practice?

## Appendix B. Illustrative Examples of Qualitative Feedback

**Pre-contemplation**

***Buying***
*"No, I'm not aware of anything".*
*"Not necessarily suppliers, I know our customers are very health & safety conscious. I do know we have to have a certain amount of health & safety I don't know what that is as yet".*

***Design***
*"Not that I know of, not part of my brief".*
*"Never gave it much thought, to be honest".*

***Make***
*"I'm not, no, but I work in a different area so…"*

***Manage***
*"Talking to the staff on a friendly basis".*
*"As far I know there aren't any, nothing has been done this end".*
*"Not that I am aware".*

***Selling***
*"There isn't anything on our invoicing. Best before dates. Not planning".*
*"Um, yes, I'm trying to think where it would be relevant to us. We run eight-a-side football leagues on grass, we engage fully qualified referees. Not directly. Very good point actually [health & safety measures relevant to your organisation when selling]. I think we ought to. Thank you very much. It has prompted me to think about it".*

**Contemplation**

***Buying***
*"Yeah specially with the handling need to off load, straps I'm strict on that side of it myself. You've caught me in between things I will do it in the New Year. Until I delegate I will do it, fork lift truck work. Working on my own I can relax. But in the situation I have to employ others, I will need to do it".*

***Design***
*'Yes we would have to consider that".*

***Make***
*"I know we're responsible when we're on site"*
*"All we can offer is for ourselves everything is done as closely to H&S guidelines as possible."*

***Manage***

*"We intend to have a fully operational health & safety policy by the end of this six month period. For the directors and a training plan, so that's what we're aiming for to include it into our quality plan".*
*"Well this quotation I've had from this broker they are coming out to look at everything".*

***Selling***
*"Not really, not as such. When we get into detail with our customers, we tell them about our risk assessments".*

**Preparation**

***Buying***
*"We are aware depending what the product is of what our suppliers provide as best we can. We are in a major consultation phase with a consultant...we're building those procedures and policies up".*

***Design***
*"Buildings, vehicles, fire, manual handling, not to any official clarification".*
*"There is certain amount of what fire proofing requirements the product has. That's probably about it. We have to have a fire rating on any products we sell. The client would ask has the product got a so and so fire rating we would investigate that.*

***Make***
*"I would design to stack safer ear things for noise, screens for welding".*

***Manage***
*"I'm aware of them all inspection for forklifts I'm just not official".*

**Action**

***Buying***
*"All our contractors are written to, to find out what their health & safety policies are & if they come on the premises they have to produce a health & safety document and a guide to any risk assessments that they have done or will have to do"*

***Design***
*"Tints, strand test, skin test, patch skin testing"*
*"We definitely took into consideration when we had the building work done. Ramp, toilet facilities. Trying to adapt our building for accessibility not just for health & safety those go hand in hand"*

***Make***
*"We have done risk assessments on all the machines in the factory - a lathe you must be aware that it rotates - must be aware-must wear protective clothing"*
*"Stone carving we provided PPE for that in conjunction with the tutor".*

***Manage***

*"Only the general risk assessment that we do. Our auditors make us aware".*
*"'I've actually got health & safety policies drawn up, I've kept a copy and they have kept a copy".*
*"Just what the ministry have told me I need refrigerator for the dog foods. I had to get the fire service down to teach us what is what. I have this from the start".*

***Selling***
*"Obviously although it's not law. The nut allergy is a difficult one. We try and sort of say that we can't guarantee that anything may not be affected by nuts or anyway".*
*"Selling candles - did not let the customers touch them. Wheel chair access & ramp - let prospective customers know about this".*

**Maintenance**

***Buying***
*"Purchasing department would certainly look for low noise, low vibration machinery. Our sub-contractors all have to have a health and safety policy in place and know the site rules"*
*"Ongoing small investigation, any flammable substances are required to have COSHH sheets with them. No specific changes but constant monitoring of things".*

***Design***
*"It's a prerequisite of anything that we design really we would use external bodies to do assessments certainly electrical equipment pressure regulations are covered typically externally. But the majority of our products are small hand held where the risks if you used as prescribed in the instructions are minimal or very low"*

***Make***
*"A number of processes pressure regulations as far as compressors are concerned & covered by LOLA loading tools into injection modelling machines regularly assessed by external bodies"*
*"yep, totally aware. We were recently supplying a generator and with that we supplied a risk assessment with a methodology on the contamination side, how to refuel it, etc. storage of the chemicals".*

***Manage***
*"I do actually have regular meetings with our insurance people and we've just secured a 30k saving because our records improved, dramatically. Vehicle pedestrian segregation we've got our own carrier company. We have policies on drink and drugs, …all sorts of policies that overall have improved our record for the insurance people".*
*"We have…urm…but in the case of contractors we have policies and protocols for that, and obviously…urm…in dealing with contracts we produce our statement…urm and follow those and usually check out the record of the contractor"*

***Selling***
*"If you put colour in someone's hair, and they have a reaction. So we do a quick skin test".*

*"What we put into the quotations or carrying of hazardous goods. Like gas heaters, we can't go underneath tunnels with those, but we don't advertise that kind of thing"*

## Appendix C – Questionnaire

# Health & Safety in Small to Medium-Sized Enterprises

## General Instructions

Please complete all sections, there are questions on both sides of the sheets. There are no right or wrong answers. However, when you answer these questions try to think about your own organisation rather than work in general. All information will be held confidentially and the questionnaire is anonymous.

**Section A**

1 What is the nature of your business?

Please state .....

2 What is your role in the organisation?

Please state .....

**Section B**

**Please indicate how much you agree or disagree with each statement by filling in the entire circle like this ●, not like this ○, or ○ this.**

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | We **know** what a risk assessment is | ○ | ○ | ○ | ○ | ○ |
| 2 | Carrying out a risk assessment **is** commonsense | ○ | ○ | ○ | ○ | ○ |
| 3 | Carrying out risk assessments will **have no** effect on our insurance premiums | ○ | ○ | ○ | ○ | ○ |
| 4 | We **pay attention** to keeping up to date with health and safety information | ○ | ○ | ○ | ○ | ○ |
| 5 | Our management **would** want us to carry out risk assessments | ○ | ○ | ○ | ○ | ○ |
| 6 | We **invite** feedback from our staff on health and safety training | ○ | ○ | ○ | ○ | ○ |
| 7 | We **have** the skills to provide health and safety training | ○ | ○ | ○ | ○ | ○ |
| 8 | Our own reputation **does not** depend on the health and safety standards of our suppliers | ○ | ○ | ○ | ○ | ○ |
| 9 | We **have** the resources to update ourselves on health and safety information | ○ | ○ | ○ | ○ | ○ |
| 10 | Risk assessments **are** interesting | ○ | ○ | ○ | ○ | ○ |
| 11 | We **know** where to look for up to date health and safety information | ○ | ○ | ○ | ○ | ○ |
| 12 | Risk assessments **are** difficult to carry out | ○ | ○ | ○ | ○ | ○ |
| 13 | Complying with health and safety legislation **is** an important part of our company image | ○ | ○ | ○ | ○ | ○ |
| 14 | We **can** overcome the difficulties and meet health and safety regulations | ○ | ○ | ○ | ○ | ○ |
| 15 | We **always** remember to carry out risk assessments | ○ | ○ | ○ | ○ | ○ |
| 16 | We **have** company support for a health and safety policy | ○ | ○ | ○ | ○ | ○ |
| 17 | Complying with health and safety legislation **is** stressful | ○ | ○ | ○ | ○ | ○ |
| 18 | We **hold** meetings with staff on health and safety policy issues | ○ | ○ | ○ | ○ | ○ |
| 19 | Failing to meet health and safety legislation **will** result in injuries | ○ | ○ | ○ | ○ | ○ |
| 20 | It **is not** important for our staff that we have a health and safety policy | ○ | ○ | ○ | ○ | ○ |
| 21 | Risk assessment **is not** relevant to our type of business | ○ | ○ | ○ | ○ | ○ |
| 22 | We **cannot** cope with keeping up to date with health and safety information | ○ | ○ | ○ | ○ | ○ |

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 23 | We **have** to have health and safety certification to win the work | ○ | ○ | ○ | ○ | ○ |
| 24 | We **do not** focus on our health and safety policy | ○ | ○ | ○ | ○ | ○ |

| | | Strongly disagree | Disagree | Neutral | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 25 | We **do not** have the organisational structure to comply with health and safety regulations | ○ | ○ | ○ | ○ | ○ |
| 26 | It **is** important to our customers that we check our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |
| 27 | Writing a health and safety policy **would** be mentally exhausting | ○ | ○ | ○ | ○ | ○ |
| 28 | We **do not** understand what a health and safety policy is | ○ | ○ | ○ | ○ | ○ |
| 29 | We **are not** capable of writing a health and safety policy | ○ | ○ | ○ | ○ | ○ |
| 30 | We **rarely** read the trade literature to keep up to date with health and safety information | ○ | ○ | ○ | ○ | ○ |
| 31 | We **know** how to check on our suppliers' health & safety standards | ○ | ○ | ○ | ○ | ○ |
| 32 | We **have** the ability to comply with legislation | ○ | ○ | ○ | ○ | ○ |
| 33 | Health and safety training **is** a priority for our professional standards | ○ | ○ | ○ | ○ | ○ |
| 34 | Carrying out health and safety training **is** a problem for us | ○ | ○ | ○ | ○ | ○ |
| 35 | We **have** the time to check our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |
| 36 | Our customers **do not** think it is important that we keep up to date on health and safety information | ○ | ○ | ○ | ○ | ○ |
| 37 | Checking our suppliers' health and safety standards **will** prevent accidents | ○ | ○ | ○ | ○ | ○ |
| 38 | We **often** overlook health and safety training | ○ | ○ | ○ | ○ | ○ |
| 39 | We **would** be sorry if we had **not** checked our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |
| 40 | We **rarely** communicate with external bodies to comply with health and safety legislation | ○ | ○ | ○ | ○ | ○ |
| 41 | Our company **is** well equipped to write a health and safety policy | ○ | ○ | ○ | ○ | ○ |
| 42 | We **maintain** close contact with our suppliers to keep informed on the health & safety quality of their goods | ○ | ○ | ○ | ○ | ○ |
| 43 | Health and safety regulations **are** confusing | ○ | ○ | ○ | ○ | ○ |
| 44 | We **lack** the skills to check our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |
| 45 | Keeping up to date with health and safety information **is not** relevant to a company our size | ○ | ○ | ○ | ○ | ○ |
| 46 | Keeping up to date with health and safety information **will not** increase our profits | ○ | ○ | ○ | ○ | ○ |
| 47 | We **do not** have the finance to carry out health and safety training | ○ | ○ | ○ | ○ | ○ |
| 48 | Our staff think **it is** vital that we meet health and safety regulations | ○ | ○ | ○ | ○ | ○ |
| 49 | It **is not** tiring to carry out health and safety training | ○ | ○ | ○ | ○ | ○ |
| 50 | We **are not** sure how to carry out health and safety training | ○ | ○ | ○ | ○ | ○ |
| 51 | We **are** good at finding relevant health and safety information | ○ | ○ | ○ | ○ | ○ |
| 52 | It **is** part of our professional practice to have a health and safety policy | ○ | ○ | ○ | ○ | ○ |
| 53 | We **always** remember to check our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |

| | | | | | | |
|---|---|---|---|---|---|---|
| 54 | Carrying out health and safety training **will** lower our accident rates | ○ | ○ | ○ | ○ | ○ |
| 55 | It **is** frustrating to keep up to date with health and safety information | ○ | ○ | ○ | ○ | ○ |
| 56 | It **is** a problem for us to check our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |
| 57 | We **often** forget to check our suppliers' health and safety standards | ○ | ○ | ○ | ○ | ○ |
| 58 | We **do not** have the resources to carry out risk assessments | ○ | ○ | ○ | ○ | ○ |
| 59 | The nature of our industry **does not** demand that we carry out health and safety training | ○ | ○ | ○ | ○ | ○ |
| 60 | We **do not** make action plans for conducting risk assessments | ○ | ○ | ○ | ○ | ○ |
| | | **Strongly disagree** | **Disagree** | **Neutral** | **Agree** | **Strongly agree** |

## Section C

**Please indicate how often staff carry out each of the behaviours below by filling in one of the circles**

| | | **Never** | **Rarely** | **Sometimes** | **Frequently** | **Always** |
|---|---|---|---|---|---|---|
| 1 | Decisions are made at the top level staff | ○ | ○ | ○ | ○ | ○ |
| 2 | Decisions are made by middle level staff | ○ | ○ | ○ | ○ | ○ |
| 3 | Decisions are made by junior staff | ○ | ○ | ○ | ○ | ○ |
| 4 | Health & safety activity is encouraged by top level staff | ○ | ○ | ○ | ○ | ○ |
| 5 | Health & safety activity is encouraged by middle level staff | ○ | ○ | ○ | ○ | ○ |
| 6 | Health & safety activity is encouraged by junior staff | ○ | ○ | ○ | ○ | ○ |

## Section D

**Please indicate how often staff carry out each of the behaviours below by filling in one of the circles**

| | | **Never** | **Rarely** | **Sometimes** | **Frequently** | **Always** |
|---|---|---|---|---|---|---|
| 1 | We carry out risk assessments | ○ | ○ | ○ | ○ | ○ |
| 2 | We comply with health and safety legislation | ○ | ○ | ○ | ○ | ○ |
| 3 | We develop our health and safety policy | ○ | ○ | ○ | ○ | ○ |
| 4 | We conduct health and safety training | ○ | ○ | ○ | ○ | ○ |
| 5 | We update our health and safety information | ○ | ○ | ○ | ○ | ○ |
| 6 | We check on the health and safety standards of our suppliers | ○ | ○ | ○ | ○ | ○ |
| 7 | Health & safety is part of my role in the business | ○ | ○ | ○ | ○ | ○ |

| | | **Under 3 years** | **3 to 9** | **10 to 49** | **50 to 100** | **Over 100 years** |
|---|---|---|---|---|---|---|
| 7 | How many years ago was the business established? | ○ | ○ | ○ | ○ | ○ |

| | | **Sole trader** | **2 to 9** | **10 to 49** | **50 to 100** | **101 to 250 staff** |
|---|---|---|---|---|---|---|
| 8 | How many employees does the enterprise have? | ○ | ○ | ○ | ○ | ○ |

| | | **None** | **1** | **2 to 7** | **8 to 37** | **Over 37 hours** |
|---|---|---|---|---|---|---|
| 9 | How many hours per week do you estimate your organisation spends on health and safety matters? | ○ | ○ | ○ | ○ | ○ |

## Section E

**Please fill in the circles that apply to you, You may fill more than one circle.**

1 We **are not** aware that we have to act on:

| Risk Assessments | Health & safety Legislation | Health & safety policy | Our supplier's health & safety | Health & safety Training | Obtaining health & safety information |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

2 We **are** planning in the next six months to act on:

| Risk Assessments | Health & safety Legislation | Health & safety policy | Our supplier's health & safety | Health & safety Training | Obtaining health & safety information |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

3 We **are** planning in the next one month to act on:

| Risk Assessments | Health & safety Legislation | Health & safety policy | Our supplier's health & safety | Health & safety Training | Obtaining health & safety information |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

4 We **currently** act on:

| Risk Assessments | Health & safety Legislation | Health & safety policy | Our supplier's health & safety | Health & safety Training | Obtaining health & safety information |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

5 We **are** maintaining our activity on:

| Risk Assessments | Health & safety Legislation | Health & safety policy | Our supplier's health & safety | Health & safety Training | Obtaining health & safety information |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

6 We **have** given up our activity on:

| Risk Assessments | Health & safety Legislation | Health & safety policy | Our supplier's health & safety | Health & safety Training | Obtaining health & safety information |
|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ |

Thank you for your time and contribution to this study. It is hoped this project will provide constructive ways to help small to medium sized enterprises improve their health & safety. If you require further information, or would like copies of project publications, please contact Carolyn Deighan (by email: c.s.deighan@hw.ac.uk, telephone: 0131 451 8008, or leave a business card with the person who gave you the questionnaire).