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# 'The Safe Learner': Exploring the Concept

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Final Report

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## The Institute for Employment Studies

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# Executive Summary

## Overview and aims of the project

A significant part of the Learning and Skills Council (LSC) health and safety remit is to promote a reduction in accidents to learners, many of whom are employed in Council funded programmes within small businesses. The driving force behind this remit is not only to reduce the human suffering caused by accidents, but also because the LSC is interested in providing the best learning environment possible for learners and continuously improving the quality of its funded training programmes.

The LSC commissioned a project in March 2002, carried out by the Institute for Employment Studies (IES), to examine the 'Safe Learner' concept. The aim of the project was primarily to inform policy and improve practice in health and safety on Council funded programmes. The aims of the project were achieved through the development and dissemination of the 'Safe Learner' concept and the findings are presented in this report. In particular, the project aimed to identify what characterises a safe learner and how supervisors could encourage safe behaviours amongst learners. Recommendations and practical interventions to inform policy and improve practice in health and safety on Council funded programmes were an outcome of this research.

## Methodology

The methodology used by IES is best illustrated as a series of stages. Stage 1 involved a literature review designed to ensure that the LSC and the later stages of the project could draw upon the most up to date research in this area. In stage 2, researchers carried out focus groups and interviews with providers and learners to collect evidence of antecedents and behaviour that led to learner accidents. The eleven individuals that took part in the focus group represented the HSE, DfES, LSC, the Association of Colleges and a number of Training Providers. The specific *aims* of the focus group were:

- To explore the validity of the 'Safe Learner' model.
- To elicit options for intervention within the 'Safe Learner' model.

Within this, the objectives were:

- To discuss the various components of model and agree relative importance.
- To discuss the various barriers and opportunities for intervention.

For the interviews, one per cent of organisations were randomly selected from the LSC database. They were chosen to broadly represent a range of sectors and regions in England. A selection of training providers in the same region as the organisations were also selected. In total, 20 interviews were carried out in 11 organisations and training providers, utilising critical incident technique and Repertory Grid to facilitate the collection of data.

Stage 3 reviewed the findings from stages 1 and 2 and developed a workshop for providers, which aimed to present the research findings in an accessible way and consult providers on how to take the messages of the research to supervisors. The final stage of the synthesised all of the information from the previous stages of the research and is presented in this final report. A summary of the findings from each of the stages are presented here.

## Evidence from theory

There is broad agreement in the academic and policy literature on the important factors and pathways contributing to unsafe behaviour within the workplace. At the individual level of analysis, these consist of hazard perception, risk assessment, attitude to risk, and consequent behaviour. There is less agreement however on which factors are more powerful than others in influencing safe behaviour, or indeed how they interact with each other.

The literature review provided little research evidence specifically relating to the safety of 'learners' as a group in their own right. There exists plentiful information in both academic and policy related documents on factors relating to safe practices and safe behaviours for *all* workers. In policy documents regarding initiatives such as Modern Apprenticeships, there was detailed information relating to health and safety, but it related to general guidance on preventing accidents at work, rather than any particular model relating to the 'learner' context. One recent report exists which specifically examines supervision of learners on work-based learning programmes, and as part of this it identifies behaviour at work and supervision style as key elements in promoting health and safety. It did not however, provide any further analysis of what these behaviours are, how they may impact the behaviour of the learner, or how supervisors might best be influenced to encourage safe learner behaviour. As will be evident later, the research carried out by the Institute for

Employment studies and reported here, takes these findings one stage further by identifying what these behaviours are and how they might be influenced.

There are elements in the findings from our literature review that can be isolated which we suggest will be more relevant to the context of a learner. For example, the literature we reviewed emphasises a large role for management and supervisors in ensuring safe behaviour occurs or unsafe behaviour is prevented. Secondly, we found evidence of the impact of experience and age, knowledge, sense of control, and previous events and consequences which may be more relevant to a learner than to other employees. Finally, the organisational safety climate and co-worker commitment to safety are areas which may have a particular influence over a learner within an organisation.

A theoretical model was put forward based on the evidence we examined from the academic and policy literature, which identified particular issues for learners in terms of encouraging safe behaviour at work. It focussed on the role of the supervisor and the context in which learners find themselves and suggested ways in which these other factors might interact to affect the pathway between hazard perception and safe learner behaviour. This model demonstrates that it is not just individual learner carelessness and unsafe behaviour that contributes to accidents, but that supervisors and others can have an influence.

## Evidence from practice

A review of the findings from the focus group and interviews suggests that there is a 'triangulation' of the data. That is, the issues raised by participants in the focus group were also identified by the interviewees as important. On a general level, the factors contributing to safe learner behaviour included the learner and the supervisor, with the context being split into two levels, the organisation and societal. This 'framework of influence' represents the requirement, particularly voiced by the focus group participants, of the learner to be viewed at the centre of the process.

On the basis of our findings from stage 2, a more interactive analysis was developed, including a revised model of the safe learner concept. This model is more reflective of the *situation* that learners, supervisors and organisations find themselves in when attempting to implement safe behaviour. It identifies the key influences and more importantly the key barriers and roadblocks to safe behaviour.

To provide a better interpretation of the meaning of the findings, we used the transfer of training literature (Baldwin & Ford, 1988; Tracy *et al.* 1995) as a base through which to understand some of the key challenges affecting the success of many initiatives

focused on producing safe behaviour in learners. One of the major issues to emerge from the findings is the accepted difficulties with putting policies and training into practice, and the various barriers identified with this process. The reason for using the training transfer model is because the key issues which have arisen as barriers and roadblocks to safe learner behaviour reflect the key aspects that are reported as important to the transfer of training.

For example, the impact of any training or learning carried out by providers on actual safe behaviour at work (the outcomes) is mediated or moderated by a number of key influences. The findings have identified these moderators as *learner characteristics*, *organisational climate,* and *supervisory support and behaviour*, and it is argued that these provide the 'weakest link' to transfer. An organisation or a training provider may have designed the best health and safety program available in terms of quality and content, but the learner's ability, motivation and beliefs about their own personal capabilities will influence the learning process. With organisational characteristics, the crucial challenge here is whether the organisational context facilitates or inhibits transfer of the learning activity. Previous research has identified *supervisory support* and *organisational climate and culture* as key variables that influence the transfer process. For example, transfer can be enhanced by rewards and recognition, or could be discouraged by ridicule from peers.

In summary, our research findings and the literature review suggests that by creating an appropriate organisational climate, and attending to issues of learner characteristics, transfer of safe learner behaviour is more likely.

## Disseminating the findings: provider workshops

In order to explore how these findings might best have a practical outlet, two workshops were run with providers and representatives from organisations, one in London and one in the Midlands. A total number of 26 participants took part, including representatives from the LSC. The workshop was designed by IES based on the findings of the previous stages and in consultation with the LSC.

The outputs from the workshop suggested that there are a number of levels and ways in which the barriers to transfer can be overcome. Much of the output centred on the way in which supervisors can help and also be supported in their role in facilitating the transfer of safe behaviours.

In taking any messages forward to supervisors, it was agreed that that the mechanisms have to be relatively informal. Participants noted that if the process in any way 'smacks of formality, supervisors will run a mile'. Providers were seen as key in communicating the safety message to supervisors. Workshops for

providers could be planned to focus on methods of communicating the safety messages to supervisors and learners. There was strong agreement that there was a need to encourage supervisors to meet together in small groups, where information is presented in their own language and context. The messages that are delivered should be short in length, to the point, on site, and interactive.

## Conclusions, recommendations and practical interventions

In translating the findings to practical applications and recommendations to the LSC, we suggest that any interventions focus on the transfer issue (the weakest link in Figure 3) and areas of influence which can have an impact on this. In particular, the focus should be on delivering this message to supervisors, who have been identified as key facilitators in encouraging safe learner behaviour. One of the reasons for prioritising the role of the supervisor and focusing interventions around the impact they might have, has been as a result of what we know from research which suggests that the use of procedures, rules and regulations to restrict individual behaviour to action that is considered safe and productive, may often be limited. Instead, it is suggested that a focus on social and self-controls would be more appropriate. Social relationships on the shop floor were the primary determinants of the propensity to safety compliance behaviour in other research. The supervisor, as the nearest person to the learner in the transfer process, has the best chance of influencing behaviour and so the priority for intervention must lie with influencing this group, along with developing a general supportive organisational climate. Finally, it has been noted that supervisors can play a significant role in translating higher management policy making into predictable situation specific action related to health and safety behaviour.

The interventions that have been suggested as a result of the research are designed therefore, to overcome barriers to transfer and help to 'roll out' the research message to all key stakeholders, in particular supervisors. The interventions, broadly fall into six categories. These are:

1. information dissemination and policy documentation
2. support networks
3. interactive sessions with providers
4. development and skills training
5. raising the supervisor profile
6. wider issues.

While the feedback from the research was to avoid using workshops for supervisors, there appeared to be positive feedback for the use of workshops to providers. The workshops that were piloted in London and Telford enabled the findings of the safe learner model to be discussed with providers and LSC staff. Future workshops with providers could be designed to have a networking element and to introduce how the messages are going to be targeted at organisations and supervisors. This would give providers an understanding of the rationale behind the interventions that the LSC are carrying out (*ie* illustrate the research findings) and would also serve as a place to launch any of the above interventions. This approach would ensure that providers are using similar systems, disseminating the same message and sharing best practice.

# 1. Introduction

## 1.1 Introduction and background

The first attempts to reduce accidents at work were orientated towards the control of technical aspects and physical hazards from an engineering point of view. However, researchers and practitioners are now more fully aware of the influence of the 'human factor' in relation to work-related accidents. Several researchers consider that approximately 90 per cent of accidents are caused by unsafe actions of workers (Duhon, Knouse, Robert and Walling 1989; Heinrich, Peterson and Roos 1980; Porter and Corlett 1989). The question still remains: Why do workers behave in an unsafe way? Is it due to a lack of attention, lack of training, co-workers attitude, their own attitude, supervisors attitudes and behaviours, or wider organisational issues? Of particular interest for the context of this report, are the statistics from the Labour Force Survey 1999/2000 reported by the Health and Safety Commission. It reported that men aged 16 to 24 have a substantially higher risk of work related injuries that older male workers and that the rate of injury to workers in the first six months with a new employer is twice that for workers who have been in the job for a year.

Variables such as age and length of post are key issues for learners on Learning and Skills Council (LSC) programmes and this type of evidence suggests that they may be more vulnerable than other groups of workers. As such, the LSC has an interest in seeing a reduction in accidents to learners who are mostly employed in small businesses. The driving force behind this is not only to reduce the human suffering caused by accidents, but also because the LSC is interested in providing the best learning environment possible for learners and continuously improving the quality of its funded training programmes.

This document reports the results of the safe learner project which was commissioned as a result of such initiatives and concern. The project has been carried out by the Institute for Employment Studies using a team of researchers (see Appendix for details of the team). The remainder of this introduction provides further detail on the aims, approach and structure of the research that was carried out between March and November 2002.

## 1.2 Aims of the research

The LSC commissioned a project on the 'Safe Learner' to be carried out by the Institute for Employment Studies (IES). The aim of this project was primarily to inform policy and improve practice in health and safety on Council funded programmes. The aims of the project were achieved through the development and dissemination of the 'Safe Learner' concept and model. In particular, by identifying what characterises a safe learner and how supervisors could encourage safe behaviours amongst learners. Recommendations and practical interventions to inform policy and improve practice in health and safety on Council funded programmes were an outcome of this research.

## 1.3 Methodology

The project proposal produced by the LSC identified approaches to understanding safe learner behaviour, by drawing on HSE publications and the behavioural safety approach. The approach taken by IES was to build on this work, and this is best illustrated as a series of stages. In addition to utilising the LSC proposed research outline, we also included other suggestions for research, as our experience in this area led us to believe this would contribute to a better understanding of a safe learner. This in turn helped us to a better informed and designed programme for dissemination. A summary of the aims and objectives of each stage is presented in the Appendix and detailed further in the following sections.

### 1.3.1 Stage 1 – Developing a theoretical model of a 'Safe Learner'

The literature review was designed to ensure that we were working with the most up to date research in the area of worker behaviour in relation to accidents at work. It focused on the behavioural approach to safety as outlined in the LSC proposal, but also explored the contribution of cognitive psychology in understanding perception of risk in the workplace. This is seen as particularly important for supervisors and how they assess risks to learners.

Data collection involved an examination of the LSC database of accident records to provide information on the population size (both providers and learners), the number of health and safety accidents that occur annually and in which regions they occur most frequently. We were given a one per cent random sample from the individualised learner record database (ILR) from which we drew the sampling for the interviews detailed in Stage 2.

The literature review fed into the development of a theoretical model of the 'Safe Learner', to include the impact of both the learner and the supervisor on behaviours. In developing this

model with our internal experts, we took part in discussions with an external academic expert in this field to help validate and refine the model.

### 1.3.2 Stage 2 – Field work

This stage involved focus groups and interviews with providers and learners to collect data and evidence of antecedents and behaviours that lead to learner accidents. Stage 1 provided information to base a judgement on the sample for this stage and any other identified stakeholders to be involved in this process. The focus groups and interview schedules were developed with reference to the theoretical model and the aims and objectives of the project. As suggested in the LSC proposal, Critical Incident Technique (Flanagan 1954) was used to elicit the data from the learners, but in addition we used the Repertory Grid Technique (Kelly 1955) with providers and supervisors. This information once analysed was fed back into the theoretical model to validate it.

### 1.3.3 Stage 3 - Dissemination of the 'Safe Learner' concept

Stage 3 involved drawing on the findings from Stage 1 and Stage 2 to develop a workshop for providers to present the research findings and consult them on how to take the messages of the research to supervisors. The outcomes of this were to help to ensure that the central aspects of safe learner behaviour were incorporated into any future programme and to suggest interventions that would facilitate the transfer of health and safety learning. These workshops built on the expertise of the research team in training design and transfer, and training of risk perception.

The final part of this stage was the implementation of two workshops, one in London and one in the Midlands.

### 1.3.4 Stage 4 – Reporting

This stage synthesised all of the information from the previous stages of the research into a final report which addresses the project aim: 'To inform policy and improve practice in health and safety on Council funded programmes through the development and dissemination of the "Safe Learner" concept and model'. Specifically, this report will aim to inform the Councils approach to promoting Health and Safety locally and nationally. The report highlights factors which might influence a reduction in accidents to learners on Council programmes by providing practical advice and guidance on useful supervisory behaviour and by promoting an appreciating of risk amongst learners.

## 1.4 Structure of report

The report structure follows the stages outlined above, with the findings from Stages 1, 2 and 3 being presented as separate chapters. The last chapter compiles the recommendations and practical interventions, before drawing together the main conclusions.

# 2. Stage 1: Evidence from Theory

## 2.1 Overview

The aim of this chapter is to feedback the results of Stage 1 of the 'Safe Learner' project. Specifically, we describe a theoretical model of the factors contributing to safe learner behaviour, which indicates the central role of the supervisor and contextual factors to safe behaviour. This is in line with the evidence from the LSC's database which highlighted organisational factors such as poor supervision as the main underlying causes of accidents, and identified the need to fully understand the role they play in safe learner behaviour.

The findings in this chapter are based upon desk research drawn from both academic and government agency sources. The model should be viewed as a preliminary model, to be used as a basis for consultation with stakeholders such as the LSC, the DfES, and a sample of providers and learners in Stage 2 of the project. Further development and validation of this 'Safe Learner' concept was carried out through such consultation and collection of data and evidence as reported in the following chapters.

This chapter is organised into three further sections. First a section which explains the sources from which we carried out the desk research. Second, we outline in some detail the emerging model of a 'Safe Learner', and the final section draws together conclusions, and proposes some further issues to consider in the following stages.

## 2.2 Strategy for the literature review

One of the key objectives that the LSC set for this project, was the development of a theoretical model based on the current literature in this area. The focus of the literature review was to examine the information that existed primarily in the academic literature, but also to ensure that the information and documentation available from agencies such as the HSE is included.

IES undertook the following strategy for reviewing the literature. A comprehensive web-based search was carried out of academic sources using the Web of Science, Social Sciences Citation Index

and BIDS PsycINFO & International Bibliography of Social Sciences. A search of the HSE, DfES and LSC documentation and Websites, and examination of IES involvement in area of health and safety was also carried out. In conjunction with our associate expert advisor, Dr Kevin Daniels, we drew up a list of key journals to be searched at the University of Sussex library. These journals that were searched manually included Ergonomics, Journal of Applied Psychology, Accident Analysis and Prevention, Annual Review of Psychology, International Review of Industrial and Organisational Psychology, Journal of Occupational and Organisational Psychology, Risk Analysis, and Work and Stress.

## 2.3 The 'Safe Learner' model

In this chapter, we outline the evidence for aspects relating to the learner, the supervisor and the context which contribute to safe learner behaviour. However, it should be recognised that most of the literature supports the idea of accidents as a sequence of events. While we may be clear about some of the variables involved in accidents, the literature is less clear on how they interact to cause particular accidents and events. More importantly, the combination of conditions that lead to an accident rarely recur in the same form, therefore the workforce quickly learn that violation of individual rules in isolation generally carry no penalties. In fact, unfortunately, employees will often discover that such violations often lead to an easier and more efficient way of working (Reason *et al.* 1998). Therefore, we are not suggesting that this model represents all the conditions, but rather serves as an anchor point for the issues of concern for the LSC. It is important to remember that we plan to validate the model presented here to ensure that all factors have been considered.

## 2.4 Factors affecting safe learner behaviours

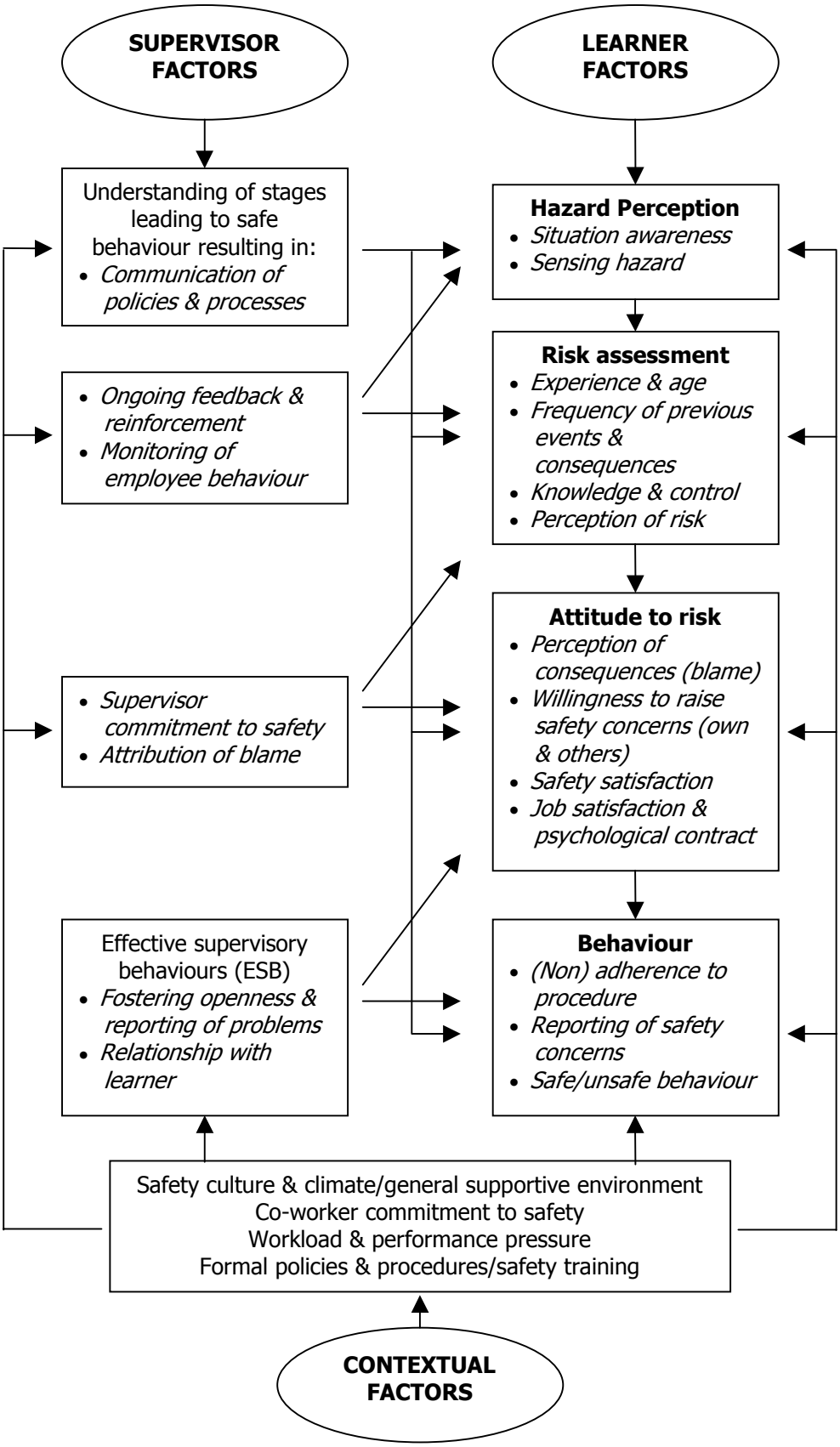
There are three areas of analysis for the model: the 'Learner', the 'Supervisor' and the 'Context'. This level of analysis fits in with the aims and objectives set by the LSC in trying to understand the antecedents and behaviours that lead to accidents in learners, and also to address the potential role of the supervisor and the wider context in safe learner behaviour. Context here is seen not only as the specific organisational one in which the learner finds themselves, but also relates to the context provided by programme providers and government organisations responsible for this (*eg* LSC, DfES, HSE and colleges).

Following our examination of the literature, we have organised our findings in relation to the 'Learner' according to the traditional pathway between hazard and accident. This involves the key areas of Hazard Perception, Risk Assessment, Attitude to

Risk and resulting Behaviour. We have then identified from the literature, supervisor and contextual factors, and the suggested ways in which they might impact on various stages of this pathway. This overview is illustrated in the model in Figure 1 and explained further below.

The model builds on work by Mearns and Flin (1995; 1996) who put forward a working model which considered the possible cognitive and social factors which contribute to risk perception and accident involvement. We have added further research evidence to the model with a particular focus on the supervisor role and the learner.

**Figure 1: Safe learner model – Stage 1**




*Source: IES, 2002*

## 2.5 The role of the learner

### 2.5.1 Hazard perception

Hazard perception has been identified by researchers as the extent to which workers have an awareness of the situation and are able to sense hazards in their working environment. Once they have perceived a hazard, a process of categorisation takes place which impacts on the inference of risk perception. This is seen as an important stage in being able to assess the risks, in that if you are not aware of any hazards, it is difficult to carry out an assessment of whether the hazard has potential to cause harm (Mearns and Flin 1995; 1996). Given this central role of the awareness of the situation and hazard, interventions have often been focused on communication of hazards in the workplace. The LSC's own documentation 'Be Safe: a guide to health and safety in training' is one such example of communication of hazards. This type of material and policy documentation provides guidance for organisations in how they can best make workers aware of hazards. In the case of learners, their situation awareness may be less well developed than other groups, as often it may be their first experience of working, or if they have worked before, it is likely that they are experiencing a new environment. Learners new to organisations are less likely to sense hazards or be aware of dangerous situations and so may be more at risk than other groups. Learners may be less likely to see these hazards and communication via documentation's and induction programmes by both the organisation and LSC initiatives, is likely to improve individual recognition of hazards in the workplace. However learners have to internalise the information in order to change their behaviour.

### 2.5.2 Risk assessment

Risk assessment has been the subject of a large amount of research and in how it might affect individual behaviour. At an organisational level, guidance exists to help organisations develop risk assessment policies and procedures and also to carry out such risk assessment (HSE 1996; 1998). Reviews of good practice of assessing workplace risks are also available to inform organisational interventions (HSL 2000; Trainor and Keely 1999). At the individual level, the focus of this report, Alexander, Cox and Cheyne (1995) found that personal appreciation of risk was one of the key factors which underpinned employee attitude to safety, while Rundmo (1995) found that levels of perceived risk significantly predicted involvement in accidents and near accidents. Interestingly, although one of the major areas of research, Flin *et al.* (1996) concluded that misperception of risk was not the major contributory factor to accidents / near misses on offshore platforms and that organisational factors such as perceived production pressure, poor communication regarding

safety-related issues and workers' attitudes to safety exerted a greater effect. Some of these contextual factors will be returned to later but here we consider some of the factors which may contribute to risk perception and assessment of risk.

Many studies focusing on the individual rather than the organisation's response, have been carried out in relation to perception of risk by workers. We view this part of the model as particularly key to the learner in that it presents certain dangers for them as a group which may not be as relevant for other workers. First, experience and age are reported to be central factors in assessment of risk, and considering the demographics of learners on LSC programmes, this is of particular interest. Hansen (1989) found that age and a measure of distractibility have been shown to have an indirect effect on accident involvement in line with findings reported earlier by the Labour Force Survey (1999/2000). Barling (2002), reports that studies of young workers and relationship to occupational safety has been neglected so far, but that it is likely to become more important in the future. He also notes the paucity of psychological research investigating predictors of work injuries among young adolescents. Barling goes on to report findings from the US of evidence that non-fatal workplace accidents and injuries across a life span show that adolescence is the age group with the highest risk. Finally, Lee, Macdonald and Coote (1993) found that employees become more cautious in their risk taking with age which again has implications for young learners.

A further area to consider is the research evidence that frequency of previous events and consequences (in relationship to accidents) is important in assessment of risk. Mearns and Flin (1995; 1996; 2001) identify this in their working model. If it does play a contribution to assessment of risk, then it would be important to learners who may have had limited previous events or consequences, or may have been involved (knowingly or unknowingly) in unsafe behaviour, where the consequences were not detrimental to them. In the absence of other information, these experiences are likely to shape their future perceptions of risks in the workplace. In this case, continuous feedback on the importance of safe behaviour is required in order to maintain a perception of risk which is appropriate to the situation (this feedback process will be returned to in the discussion of the role of the supervisor).

Knowledge and control (or perception of control) of the work context is reported as a factor in the assessment of risk and consequent behaviour. Again, this is a key area, as by definition learners are in the process of gathering knowledge and skills about their work environment and so may have less information to work with than others. Ferguson, McNally and Both (1984) found that educational level is a significant predictor of accident involvement. In a Swedish study, Sjoberg and Drottz-Sjoberg

(1991) investigated risk perception, knowledge and attitudes to safety in two Swedish nuclear power plants. They found that those who had the least knowledge about radiation and its risks perceived the greatest risk suggesting that learners with little knowledge of the work environment may overestimate the risks to them. This is consistent with findings that individuals tend to over-estimate rare risks and underestimate frequent risks (*eg* slips, trips *etc.*). Learners are particularly vulnerable to this given their likely low exposure to the work environment and context. In addition, when trying to learn new tasks or skills, it is possible that learners do not embed knowledge on safety sufficiently, so that if they are confronted with a conflicting task situation, they will revert to automatic behaviours and information processing which is unlikely to include safety behaviours.

In relation to control, Lee, Macdonald and Coote (1993) found that a factor in accidents was the extent to which risks at the plant were perceived to be under personal control. This is reflected in work by Rundmo (1992), who points to the fact that 'degree of control' is important in the risk perception process. Finally, Mearns and Flin (1995) also indicate that mastery and control over the work situation is an important factor in assessment of risk. A lack of knowledge and an incorrect perception of control over the risks involved in a work situation could be particularly important for learners.

### 2.5.3 Attitude to risk

This component of the pathway to safe behaviour involves individuals attitudes towards safety. Lawton and Parker (1998) reviewed a number of studies in which employees attitudes to risk and safety were found to correlate with accidents. Rundmo (1994) also found associations between accident frequency and safety attitudes. In defining safety culture, Harvey *et al.* (2002) suggest that it should be viewed as involving perceptions and attitudes to safety as well as the behaviour of individuals within an organisation.

Alexander, Cox and Cheyne (1995) identified six factors which underpinned employee attitudes to safety. These were overt management commitment, personal need to safety, personal appreciation of risk, attributions of blame, conflict and control and supportive environment. Many of these contextual and supervisory factors will be discussed in the following sections. As they point out, attitude to risk can be affected by perception of consequences, in particular in relation to attribution of blame.

Outcomes of individual's attitudes to risk and safety are likely to include individual learners willingness to raise safety concerns, safety satisfaction, job satisfaction and the psychological contract. These are all likely to be affected by individual's attitude as well as supervisor factors discussed below.

### 2.5.4 Behaviour

Safe learner behaviour involves a number of factors including the culmination of the hazard behaviour pathway describe above and the impact of contextual and supervisory factors described below. The emphasis of the research on actual behaviour has focused on adherence (or non-adherence) to procedures, reporting of safety concerns and resulting safe/unsafe behaviour. Studies by Hofmann and Stetzer (1996) and Lawton (1998) both demonstrated that unsafe behaviour, *ie* violating procedures, was the best predictor of accident involvement. Mearns *et al.* (2001) also found that unsafe behaviour is the best predictor of accidents/near misses as measured by self-report data and that unsafe behaviour is in turn driven by perceptions of pressure for production. Workers' compliance with safety rules was examined by Simard and Marchand (1997) who looked at the micro and macro organisational factors that influence employees' willingness to comply with safety rules. They found that social relationships on the shop floor were the primary determinants of the propensity to safety compliance behaviour. Brody (1988) also found that complying with some protective safety rules was positively influenced by the level of perceived risk.

More recently, Reason *et al.* (1998) have critically reviewed the use of procedures, rules and regulations to restrict individual behaviour to safe and productive action and argue that they are limited in that often the tightening up of safety rules encourages more violations. Reason *et al.* (1998) conclude by arguing for the extended use of social and self-controls to compensate for the inevitable limitations of prescriptive procedures in guiding safe behaviour. This is particularly relevant to learners in organisations in that they may have limits to their exposure to procedures, or time to absorb them, and that social and self-controls may have a stronger influence. Given this recommendation, we will now look to two areas where external influence is likely to occur in the case of the learner. First, the supervisor and second the context in which the learner finds themselves.

## 2.6 The role of the supervisor

Having outlined the factors important to the learner in contributing towards safe behaviour, we can now begin to look at the relationship between the supervisor and the learner and how supervisory factors might impact on the hazard to behaviour pathway of the learner.

Supervisor factors which contribute to safe learner behaviour start with considering the supervisor as an individual, and an assumption that they have the knowledge and understanding of the stages leading to safe behaviour, *ie* hazard perception, risk assessment, attitude to risk and behaviour. This is important, for without this understanding it will be difficult for them to

communicate effectively the policies and processes relating to safety within the organisation. For the model, we have assumed that this understanding exists, although in practice we recognise that understanding may be superficial or patchy.

Communication of policies and processes is a central part of the supervisors role, and particularly important where learners are concerned. Wright (1986), Flin *et al.* (1996) and Cullen (1990) carried out separate examinations of offshore workers, and they all observed that poor communication regarding safety issues was a major contributing factor to accidents. Management style and communication was a key factor to organisational safety culture in research carried out by Harvey *et al.* (2002).

The model illustrates the emphasis on line managers and supervisors to ensure that the organisational safety policies and procedures are communicated to the learner as they have been shown to have an impact on all stages on the hazard-behaviour pathway. Information from safety leaflets such as 'Be Safe'(LSC) may help to communicate policies, but often only where the supervisor understands the issues and values the importance and portrays this effectively to the learner.

A related supervisory factor is the role of ongoing feedback and reinforcement by the supervisor to the learner and its relationship to hazard perception and risk assessment. Research by Zohar (2002) involved a leadership-based intervention model designed to modify supervisory monitoring and rewarding of team members safety performance. Line supervisors were provided with weekly feedback based on interviews with employees which identified the priority of safety over competing goals such as speed or schedules. Safety oriented interaction increased significantly compared to control groups. A further practical example of the role of the supervisor in feedback and communicating risk assessment information is given in the Health and Safety Laboratory report on Good Practice by SMEs in Assessing Workplace Risks. Here they describe 'Tool Box Talks' which are a system of informal work team meetings, lead by a supervisor to provide information and discuss feedback on safety issues (HSL 2000).

Monitoring of employee behaviour is a key role for supervisors. Komaki (1998) suggests that whereas conventional behaviour modification interventions depend on external observers and other appointed officials to provide feedback and deliver incentives, effective supervisors obtain the same information and deliver incentives as part of their daily routine. Furthermore, safety becomes the responsibility of the line supervisor rather than safety personnel who cannot monitor the work as well. As can be seen in Figure 1, this monitoring of behaviour and feedback is suggested to be related to the learners assessment of risk and hazard perception.

Supervisor commitment to safety has been repeatedly found to have an influence on the assessment of risk and attitude to risk and is likely to form a central part to any model of safe learner behaviour. Hofmann and Morgeson (1999) highlight 'that management commitment to safety is known to be related to safe behaviour' and is manifest through such things as safety training and attendance at safety committees. Alexander *et al.* (1995) and Rundmo (1994) also point to overt management commitment as a key factor which underpins employee attitude to safety and accident frequency.

Supervisors explanation for the causes of accidents or near misses is also likely to have an impact on learners attitude to risk, in particular on learners perception of consequences and willingness to raise safety concerns. Supervisors attribution of the causes of accidents either when formally reporting through LSC mechanisms or through informal processes will shape learners views of the consequences. It is interesting to note that in the LSC statistics on primary causes of accidents, the top two causes are attributed to 'employee judgement/error' and 'loss of concentration', and are also in the top three in the DfES QPID report on the supervision of learners (DfES, 2002). Without further investigation it is difficult to know if these are underlying causes, but the LSC have identified organisational factors such as supervisors as contributory factors. Attribution of blame can affect the reporting process and reinforce learners views on 'who gets blamed for what'.

The final area for consideration are factors which relate to effective supervisory behaviour. Zohar's (2002) work in this area suggests that supervisors who are effective in day to day activities are more likely to be effective in providing safety related issues. That is, effective supervisors continually provide antecedents (training and goal setting) and consequences (feedback and incentives) as part of their daily routine and improvements in these basics skills is likely to have an impact on safe learner behaviour.

Relationships with learners is also identified as a key area for supervisors. Hofmann and Morgeson (1999) found that employees who had high quality relationships with their supervisors are more likely to raise safety concerns. They suggest that organisations should encourage the development of effective exchange relationships between supervisors and employees. Similarly, Simard and Marchand (1997) found that social relationship variables (*eg* supervisors experience and approach to safety management) on the shop floor are the best predictors of safety compliant behaviour.

Finally, Zohar (2000) highlighted the important role of the supervisor in executing policies and procedures by turning them into predictable, situation specific action directives. This research

suggests that supervisors must develop corresponding practices for each policy or procedure developed by senior management. However, as procedures can not cover every situation, it implies a certain level of supervisory discretion in policy implementation. Their conclusion is that interventions should be focused on supervisory roles, rather than on senior management.

The final area for examination is the role of contextual factors in influencing safe learner behaviour and it is to this that we now turn.

## 2.7 The role of the context

Safety culture and climate has by far been the biggest contributor to the research and policy literature in this area. There are numerous studies which have attempted to identify which safety climate/culture factors contribute towards safe behaviour, and there is some consistency in results. Organisational climate has included different variables such as training, management organisation, management attitudes towards safety, and safety officer or committee status. Studies that have analysed aspects of climate and its relationship with accidents, show that safety climate is related among others to workers' safety behaviours and to the occurrence of accidents. Definitions of safety culture has been described as all forms of learned behaviour which 'add up to a shared commitment to think safely, to behave safely and to believe and trust in the safety measures put in place by the organisation' (Lee 1993). Organisational context may determine the salience of an organisation's safety culture and the likelihood of affecting behaviour. Importantly, Harvey *et al.* (2002) found that the concept of safety culture varies according to whether the employee belongs to the shop floor or management. That is, there is a possibility of a conceptual difference between employee groups. This makes it particularly problematic for management interventions based on a model of culture change.

Co-worker commitment to safety is viewed as a key element in creating a positive safety climate and culture (Dwyer and Raftery 1991). This is of central importance to learners who may be particularly vulnerable to peer pressure and wanting to 'fit in' to the organisation where they have been placed. Learning from co-workers what the 'norms' and informal practices are in relation to safety behaviour has been found to have an impact on attitude to risk. Tomas *et al.* (1999) examined the role of co-workers safety response and found that it was a key indicator in predicting accidents and safe behaviour. 'Socialisation' may also be important here as a contextual factors for learners. This refers to the learning process involved when moving to a new job or organisation and involves adapting to the organisation, learning to function in the workgroup, and learning to do the job. All of these factors can have issues related to safety within them.

Workload and performance pressure are consistently cited as factors impacting on assessment of risk (Leplat and Rassmussen (1984). Cullen (1990) reported evidence of a culture that emphasised the importance of production over and above safety as a major finding in the Piper Alpha disaster, whilst Flin *et al.* (1996) found that organisational factors such as perceived production pressure exerted a greater effect as a contributory factor to accidents / near misses than misperception of risk. Mearns *et al.* (2001) concluded that while unsafe behaviour is the best predictor of accidents/near misses, unsafe behaviour was driven by a perception of pressure for production. This emphasis on production or workload could be key to a learner who may be slower than other workers, given that they are likely to be novices at tasks and may not have knowledge of the task. In this case, knowledge may not yet be embedded and learners may revert to automatic information processing which may result in them forgetting safety policies and procedures.

A final area important in the impact of contextual factors, is how formal policies and procedures, including safety training impacts on both the learner and the supervisor. Wright (1986) and Cullen (1990) both reported that a lack of formalised procedures were part of the contributing factors of accidents to offshore workers. Leplat and Rassmussen (1984) found that frequent deviations in work processes and procedures negatively affected employee compliance with safety rules. Guidance by the HSE (1992) has identified the role that organisations can play in developing policies and procedures, however as highlighted in the HSL report on SMEs (HSL 2000), policies are only of use if individuals, in particular, managers are aware of them and act on them. Zohar (2000) reported on the role that supervisors can have in translating higher management policy making into predictable situation specific action directives. Finally as discussed earlier, Reason *et al.* (1998) suggests that the use of procedures, rules and regulations to restrict individual behaviour to action considered safe and productive, may often be limited and a focus on social and self-controls would be more appropriate.

## 2.8 Summary of findings

There is broad agreement in the academic and policy literature on the important factors and pathways contributing to unsafe behaviour within the workplace. At the individual level of analysis, these consist of hazard perception, risk assessment, attitude to risk, and consequent behaviour. There is less agreement however on which factors are more powerful than others in influencing safe behaviour, or indeed how they interact with each other. However, on the whole, there is fairly consistent evidence of our understanding of what factors are involved. The role of the present project is to highlight those factors important to the learner and the supervisor involved in LSC programmes, through

a thorough examination of the literature and development of a theoretical model.

In general, the literature review provided little research evidence specifically relating to the safety of 'learners' or 'trainees', as a group in their own right. There exists plentiful information in both academic and policy related documents on factors relating to safe practices and safe behaviours for *all* workers. In policy documents regarding initiatives such as Modern Apprenticeships, there was detailed information relating to health and safety, but it related to general guidance on preventing accidents at work, rather than any particular model relating to the 'learner' context. As the LSC is aware, one recent report exists which specifically examines supervision of learners on work-based learning programmes, and as part of this it identifies behaviour at work and supervision style as key elements in promoting health and safety (DfES QPID study report 100). However, it was not the objective of the DfES report to provide further analysis of what these behaviours are, or how they may impact the behaviour of the learner.

Although the reference to 'learners' in particular is not common when examining safe behaviours at work, there are elements in the findings that can be isolated which we suggest will be more relevant to the context of a learner. For example, the literature emphasises a large role for management and supervisors in ensuring safe behaviour occurs or unsafe behaviour is prevented. Secondly, there is evidence of the impact of experience and age, knowledge, sense of control, and previous events and consequences which may be more relevant to a learner than to other employees. Finally, the organisational safety climate and co-worker commitment to safety are areas which may have a particular influence over a learner within an organisation.

Figure 1 presents a theoretical model, based on evidence from the academic and policy literature, which has identified particular issues for learners in terms of encouraging safe behaviour at work. It has focussed on the role of the supervisor and the context in which they find themselves and suggested ways in which these other factors might interact to affect the pathway between hazard perception and safe learner behaviour. By developing this model we are heightening awareness to the factors that contribute towards un-safe learner behaviour.

How does this model help in influencing learners and supervisors to take ownership, understand risk and behave safely? We believe that it demonstrates that it is not just individual learner carelessness and unsafe behaviour that contributes to accidents, but that supervisors and others can have an influence. Importantly the model illustrates at what point this influence can occur. Stage 2 of the project involves validating this model through gathering data from interviews with learners, supervisors

and providers about specific accidents or near misses. Results from Stage 2 will serve to build our understanding of the model and the interactions between learners, supervisors and context. It is to this part of the research that we now turn.

# 3. Stage 2: Evidence from Practice

## 3.1 Introduction

This chapter outlines the findings from Stage 2 of the 'Safe Learner' research project. Stage 1 of the research presented a 'Safe Learner' model based on evidence from the academic and policy literature and identified particular issues for learners in terms of encouraging safe behaviour at work (Figure 1).

The model focussed on the learner, the role of the supervisor, the context in which they find themselves and suggested ways in which other factors might interact to affect the pathway between hazard perception and safe learner behaviour. As such it provided a *working model* and a basis from which the data could be collected in Stage 2.

The second stage of the research reported here, involves the exploration of this model through gathering data from learners, supervisors and providers about safe learner behaviour. Analysis of findings from Stage 2 aims to build our understanding of the model and the interactions between learners, supervisors and context. These findings will inform and amend the 'Safe Learner' model before the final stage outlines the ways in which to disseminate the findings.

The following sections outline the aims of Stage 2, the methodology, the research findings from the focus group and interviews, the amended 'Safe Learner' model and future recommendations and implications for policy and practice. Throughout the chapter learners, trainees and apprentices are used interchangeably to refer to the same group of people undergoing training on Learning and Skills Council funded programmes.

## 3.2 Stage 2: aims and methodology

The aims of Stage 2 of the project were:

- To collect data and evidence of antecedents and behaviours that lead to safe / unsafe behaviour.
- To propose what learners regard as positive consequences i.e. what motivates behaviour.

- To develop further understanding of the theoretical model developed in Stage 1 and to amend according to the findings.
- To suggest and recommend implications for policy and practice.

The research methods used in Stage 2 included a focus group of key policy makers and stakeholders involved in work based learning programmes and related health and safety issues, and a series of interviews with supervisors, learners and training providers. Each method is described below in more detail alongside the key findings and issues raised by the analysis.

## 3.3 Research findings: focus group

### 3.3.1 Participants

The eleven individuals that took part in the focus group represented the HSE, DfES, LSC, the Association of Colleges and a number of Training Providers. Participants were briefed prior to the focus group on the aims of the project and the findings from the literature in Stage 1. They were all asked specifically to consider the working model developed in Stage 1 as this was to form the basis of discussion in the focus group. The specific *aims* of the focus group were:

- To explore the validity of the 'Safe Learner' model.
- To elicit options for intervention within the 'Safe Learner' model.

Within this, the objectives were:

- To discuss the various components of model and agree relative importance.
- To discuss the various barriers and opportunities for intervention.

These objectives were achieved through a variety of focused discussions and facilitated question and answer sessions. The facilitator for the day was Dr Máire Kerrin, Senior Research Fellow, from the Institute for Employment Studies.

The participants were asked to consider individually and then as a group, the three factors of the 'Safe Learner' model (see Figure 1) which included learner factors, supervisor factors and contextual factors. The key findings from this focus group are considered below.

### 3.3.2 Focus group findings

The responses and key issues raised are detailed below. These provide a summary of the relevant points made by the participants who supported the points made with examples of related evidence from their own experiences.

**Learner factors:**

*Individual differences*

It was recognised that all learners have different backgrounds, motivations, abilities, values, and educational levels which will impact on learning and behaviour. In particular, it was suggested that there is often an assumption that learners have attained the basic level of education required to understand information provided to them, in terms of reading and writing. However, often this difference or lack of skills is not accounted for in the training and learning element of health and safety at work. The environment and organisation's that trainees learn within are also very different and offer a variety of learning experiences where it is difficult to level out the quality of the experience. The characteristics of the learner and the environment were therefore seen as an important aspect of what learners bring to the situation.

*Impact of social pressure on behaviour*

Peer group pressure was identified as a major impact on young learners behaviour at work. In particular, it often only takes one group, or one influential individual, to decide not to make an effort in terms of committing to health and safety principles and this in turn leads others to diminish their own personal responsibility. The concern over being singled out, either by co-workers or supervisors, when wearing protective equipment for example, is often enough to deter the learner from wearing it in the future. Copycat behaviour of peer group, co-workers and supervisors was therefore identified as a major influence. Although often discussed as a negative aspect of work group dynamics, social pressure at work, such as peer pressure, can have positive outcomes if harnessed appropriately and can provide the pressures to behave safely. It requires the need to establish norms and values of the group that are linked to safe behaviour and not isolated from the rest of the organisational culture. This issue was raised in the literature review in the work of Reason *et al.* (1998), which concluded by arguing for the extended use of social and self-controls to compensate for the inevitable limitations of prescriptive procedures in guiding safe behaviour. This is particularly relevant to learners in organisations in that they may have limited exposure to procedures, or time to absorb them, and the authors suggest that social and self-controls may have a stronger influence.

*Hazard perception*

While all factors in the model were viewed as relevant by the focus group participants, this aspect was considered as key to the learner, because if they do not perceive something as risky, they will see it as unimportant and irrelevant. To perceive a hazard they must be risk aware, without which there is a danger that they develop an 'optimistic bias' caused by lack of experience or overconfidence. While learners are taught in health and safety training courses how to perceive hazards, there was some concern regarding the content of the training. That is, are learners being taught up to date and correct information regarding how hazards are perceived, and are they internalising this information which leads to changes behaviour? Further questions rising from this centre around how this knowledge translates.

*Risk assessment*

Once a risk assessment is carried out, learners need to know that they can do something with their knowledge. The group felt that it was important that learners have the confidence to be able to raise issues and that supervisors support them in this. Trust, and the type of relationship between the learner and supervisor was seen as crucial here. Learners may know a task is dangerous, but may lack the trust or the confidence to tell anyone. Learners who are uncomfortable doing a task, but unable to tell anyone for fear of being seen to 'be stupid' and complaining, were common examples given. There were some useful illustrations of the problems of moving between theory to practice, where learners may know how to carry out a risk assessment, but do not do so for contextual or supervisory reasons.

*Social background and cultural influences*

Participants felt that more understanding was needed regarding learners' social backgrounds, as these are known to have a major influence on what the learner brings to the work/learning situation. In particular, on the transfer of learning to the work environment and the value assigned to safe behaviour. These include attitudes, cultural and religious beliefs and how they might impact on safe behaviour.

*Building a changing attitude towards safety*

Some discussion was focused around the need to build an appreciation of safety at a much earlier age so that by the time learners reach the work environment, working safely (and risk assessment and awareness) is part of working life. It was recognised that there had been some moves towards perceiving safety as part of the job and 'the way we work around here' and this was being advocated by some organisations and policy bodies.

The participants considered the parallels in making this shift in safety awareness, to the 'Quality' initiatives in manufacturing in the 1980's. This movement shifted responsibility for quality away from quality departments to individual operators, supervisors and managers, so that quality became part of the job and the responsibility of each individuals. There was a sound business argument put forward in the quality movement (in using the Japanese car industry as an example of productivity and quality), and an individual argument in that if quality was built in from the beginning, there would be less need for re-work. Some initiatives were also provided for individuals to increase the quality of the work they produced and they were provided with recognition for good examples of improvement in awards and links to company improvement. Providing a clear rationale and benefit to workers for quality work was the key to this transition. That is, in explaining that immediate gains (*eg* fast working where quality mistakes are more likely to happen) are outweighed by the potential for long term loss, (*eg* loss of orders from customers not happy with quality). The extent to which this framework could be taken and translated to the safety at work area was evident to participants, as much of the work in quality revolved around changing attitudes, knowledge and perception of quality, organisational culture and ultimately changed behaviour on the job.

## Supervisor factors:

*Supervisor skills and competencies*

Participants commented that it was often implied that supervisors already have the required communication skills needed to interact with a learner. It was felt that these skills needed to be made more explicit. This was particularly crucial given the different type of communication skills needed with learners as opposed to experienced workers. Accurate assessment of learners' abilities, differing levels of supervision required for different learners and providing appropriate feedback were also viewed as important. A review of the processes involved in evaluating supervisors skills was suggested and a need for an audit to provide some indication of the shortfall in practice. Providing a role model for learners (and others in the workplace), in terms of how they themselves behave was also regarded as central.

Appreciating that each learner has a different risk level and supervision requirement was also pointed to as important. Building rapport and understanding a young persons fears on the job, (*ie* viewing the world from their point of view) was seen to help in developing relationships. In general, most of the skills required from a supervisor to ensure safe behaviour involves good supervisory behaviours such as understanding, informing, instructing, monitoring, coaching, mentoring, disciplining and rewarding safe behaviour. Finally, not realising their own

limitations in these areas was also discussed as a barrier to self-development and improvement in supervisors.

In the same way as learners, personal values of supervisors, their own experiences, background, culture and quality of training will all have an impact on how these skills are developed and implemented.

*Knowledge of hazard perception and risk awareness*

This is as important to the supervisor as it is to the learner. Again, it was identified that there is often the assumption that supervisors are aware of the chain of events that leads to accident, but the examples given suggest that it is not always the case. Questions were raised concerning whether supervisors are being provided with the appropriate training. What evidence or evaluation of the impact of this training is there, in particular in terms of knowledge obtained and the influence on behaviour? Where a supervisor does not recognise risk, or act accordingly, this is where participants felt that there are major problems with the 'sitting with Nellie' approach to training. This approach assumes supervisors have those skills and will pass them on to the learner. Where the opposite is happening, the training method is contributing to the persistence of poor safety behaviours.

*Taking responsibility for the safe behaviour of learners*

The high incidence of accidents reported as being attributed to the learner (*eg* lack of concentration *etc.*) was perceived by the group as a tendency by supervisors to favour external attributions of unsafe behaviour. That is, the cause is viewed as external to the supervisor, often involving the learner, and this leads to supervisors failing to acknowledge their own role or the wider contextual influences.

Taking responsibility to ensure the appropriate time is given to a task so that it is carried out safely, and having the ability and influence to 'stop work' in the face of danger, were also viewed as important. Poor understanding of responsibilities towards learners, and what is expected of a supervisor in terms of teaching and maintaining safe behaviour were also areas which were identified as needing improvement.

*Importance of supervisor factors*

Most of the important aspects are indicated in some way in the sections above. However, overall the experience and evidence from the focus group participants indicated that commitment to safety and the ability to communicate effectively with the learner were both key. Communication as an active two-way engagement to achieve common understanding was particularly selected as important. The need for communication skills to be emphasised as

opposed to 'safety training' was discussed, in that good supervisory behaviours and skills in general would contribute to safe behaviour. How supervisors act on the job was felt to have the largest influence on learner behaviour, again supporting the research by Reason *et al.* (1988), that social controls by those closest to the individual at work is becoming of increasing importance in influencing behaviour.

Knowledge and understanding of safety issues are still seen as the core skills, in that they provide a base through which supervisors are able to communicate to learners. Ongoing feedback and reinforcement of good behaviour as well as monitoring of employees to see if the message has been absorbed, were also viewed as key factors.

### Contextual factors:

In terms of organisational aspects, culture and senior management commitment (that is visible) was perceived by the group as crucial. It was emphasised that there is a need to take into account the fact that culture looks different from where you are in the organisation and that a learners view of safety culture may differ from that of a supervisor. Ensuring that both share the same safe behaviour 'cognitive' map is a central task in developing an appropriate culture. The size of the company and their financial situation were also recognised as being likely to have an impact on the type and quality of the learning experience. The difficulties of avoiding short term gains in production with long term losses were also identified as having an influence on safe behaviour.

There was a view that organisations should do more to recognise the importance of the huge commitment of supervisor time and energy in supporting learners. In particular, identifying good practice and recognising it publicly. Organisational or industry awards based around this 'good practice' may help to raise the profile of the work that supervisors are doing. In general, the view was that supervisors value and worth to the organisation and the development of the learner was not sufficiently recognised. It was also suggested that the business argument behind safe learner behaviour had not been put forward aggressively enough to employers, relying instead on focusing on adhering to policies and legislation.

Visible actions to support safe behaviour were seen as vital to show that safety rules are not overridden to meet production targets. There was concern over the emphasis in most organisations of getting the job done to time, regardless of consequences. Again, there are parallels here with the quality initiatives in that the only convincing argument that organisations accepted for changing their approach towards quality, and away from the pressure of production, was to see the evidence that poor quality products lost business.

A final general comment was made on the need to move away from terms such as 'Health and Safety' which appeared to most people to signify a department or a person that deals with this area. This move would support the notion of seeing safe behaviour as part of what you do rather than belonging elsewhere.

## 3.4 Research findings: interviews

### 3.4.1 Participants

Organisations were randomly selected from the LSC database. They were chosen to broadly represent a range of sectors and regions in England. A selection of training providers in the same region as the organisations were also selected. Participants were sent letters by the LSC to explain the research and that IES would be in touch with them with further details. At each organisation, interviews were carried out with a supervisor and one or more learners. Interviews with the training provider involved those individuals closely associated with training or placing learners in organisations.

In total, 20 interviews were carried out in 11 organisations and training providers. For reasons of confidentiality, no names are reported here and findings from the interviews have been collated with the key points summarised. It is the evidence and views of learners, supervisors and trainers that we are concerned with, rather than with issues specific to each organisation.

### 3.4.2 Research methods

The methods used to collect data was a one-to-one in-depth interview. The first part of the interview used the 'critical incident' technique (Flanagan, 1954) to elicit examples or incidents of safe or unsafe learner behaviour. The important aspect to this technique is in probing participants' responses, to provide a clearer understanding of what led to an incident and what the outcome was. The aim of this approach was to generate explanations for unsafe or safe behaviour in an attempt to build a better understanding of what contributes to safe learner behaviour. Where participants had not been involved in an accident, the interview questions concentrated on eliciting views of what they thought, from their experience, contributed to safe and unsafe behaviour.

In addition to this, supervisors and training providers were also asked to explore reasons for safe behaviour using a method called the Repertory Grid technique (Kelly, 1955). Briefly, this explores how supervisors construct differences between individuals in terms of how they behave and the outcome of safe learner behaviour. Following the critical incident and repertory grid

technique, participants were asked more general questions regarding the role of the supervisor and what they believed to be the key skills required for a supervisor in supporting safe learner behaviour. The interview discussion guide and further information of the techniques used are explained in more detail in the Appendix.

### 3.4.3 Key findings

Analysis of the interview data (including the constructs developed using the Repertory Grid) involved the team of researchers reading the details of the interview and coding the information according to themes and issues raised. After this first phase, the data was then reviewed again by the team and organised into themes viewed as the most important by participants. This was in relation to the learner, the supervisor and the wider context (including organisation and wider society). The issues that came out of the interviews identified those influences which were seen as key to safe or unsafe behaviour. These are detailed in Table 1. The original constructs gathered from using the Repertory Grid, which are now incorporated into Table 1, are detailed in full in the Appendix.

Table 1 illustrates the emergence of a variety of issues, many of which are reflective of the focus group discussions and the literature results presented in Figure 1. In the interviews we carried, two of the key influences that were identified as important to the learner included their ability to understand and learn health and safety related policies and their motivation to apply the learning. Many providers and supervisors reported the wide ranging levels of ability, maturity and communication within learners that had an impact on whether they grasped the key issues relating to safe learner behaviour. Their motivation to behave safely was reported by learners and supervisors alike as a key influence and this could be affected by their own abilities but also the various contextual factors (*eg* peer pressure, supervisory behaviours *etc.*). For learners, the way that the supervisor acted was a key to the way they behaved or adhered to safety procedures. Many learners reported that even though they knew they should have their safety bags with them all the time, they were seen as 'skiving' or wasting time if they insisted on putting on their safety equipment. However if they were with a supervisor who always wore them, it was not a problem.

**Table 1: Key influences identified in the interviews for safe/unsafe behaviour in learners**

| Factors | Key Influences | Evidence |
|---|---|---|
| **Learner** | | |
| | Ability to understand and learn health and safety related policies | Individual differences in ability of learners to take on board and apply information |
| | Motivation to apply learning – transfer of learning | Individual differences in willingness to behave safely – influenced by peer pressure, supervisor behaviour or contextual factors |
| | Concentration or attention on tasks | Some learners need more monitoring than others as differences in attention spans |
| | Quality of supervisor role model | Impact of 'learning with Nellie' training methods emphasises quality of supervisor |
| | Inaccurate assessment of risk | '*People laughed at me when I told them I had an accident at work. They were like, you work in an office, what can happen?*' |
| | Impact of peer pressure and co-worker behaviour | Joining in with 'messing around' while at work |
| | | Not using safety equipment for fear of being singled out |
| | | Positive aspects of co-worker behaviour |
| | Awareness of potential outcomes | Health and safety at the 'back of their mind' |
| **Supervisor** | | |
| | Accurate assessment of their own knowledge and competencies; willingness to ask for help | Poor supervisors assume they 'know it all', *eg* provide inaccurate information to learners |
| | Acceptance that accidents will happen | Expectation that if you go in to some trades, you will have some injury in your learning and career |
| | Learning from mistakes (in health and safety) is an acceptable way of learning | The shock of an accident 'brings learners back in to line' |
| | Willingness to change to 'new ways of working' | Unwilling to change from 'old ways' under which they were trained. The 'old ways never harmed me' |
| | Motivation to apply learning – transfer | For example, have been on a course and collected certificate, but behaviour remains the same. Do not pass on learning to learners |
| | Assumptions of learner's knowledge and understanding | Poor supervision assumes learner can see dangers for themselves |
| | Certain set of skills important, these include:<br>• Communication (tells learner exactly what they want; no ambiguity)<br>• Ability to develop relationships with young learners | |

| Factors | Key Influences | Evidence |
|---|---|---|
| | • Gaining and maintaining trust<br>• Developing empathy (seeing the learners perspective)<br>• Knowledge and understanding of H&S issues (up to date, can deal with paperwork *etc.*). Awareness of risks, ability to assess and communicate risks<br>• Understanding of expectations and responsibilities towards learners<br>• Learning from experiences<br>• Role model for learner; Act as they say<br>• Appropriate attitude towards learner<br>• Development of coaching skills | |
| **Context** | | |
| *Organisational* | Level of support in work environment | Valuing supervisors role and work; Empowering supervisor to intervene |
| | Viewing safety as everyone's responsibility (similar to Quality initiatives) 'part of the job' | Devolving responsibility for safety to individuals but with support |
| | Safety culture | Providing a culture and climate through which training in safety can be easily transferred |
| | | Production pressures over-riding safety concerns and 'cutting corners' to do the task quicker |
| | | Not just paying 'lip service' to safety documents |
| *Societal* | Industry specific policies and guidance *eg* CITB | |
| | Impact of family, religious values | Impact of values on behaviour on the job |
| | Training providers – content of courses and evaluation procedures | Quality of information of safety issues – *eg* risk assessment and risk awareness. Assessment of knowledge |
| | Application to business model | Increased likelihood of practices being implemented if there is a business case (similar to quality initiative) |

*Source: IES, 2002*

The role of the supervisor was identified as central by all parties we interviewed. Many of the key influences revolved around the set of skills which were identified as important and on the most part reflected what would be effective supervisory skills in general, although there are undoubtedly some skills that become vital when dealing with learners. For example, it was highlighted that although communication is an important supervisory skill, the style and level of communication is different when dealing with young people who are learners. Developing an appropriate

working relationship was seen as central to influencing safe learner behaviour. For learners, 'good' supervisors 'have the right attitude' towards them, while for providers it was important that supervisors were able to see the learners perspective (*ie* had empathy for their situation).

For many providers and supervisors there was concern regarding unwillingness of some supervisors to change from the old ways of working that 'never harmed me'. This approach meant that there were poor role models out in the field that were providing learners with conflicting information. There was some concern that many supervisors were not aware themselves of what the hazards are and how to carry out risk assessments. Many providers and supervisors that we spoke to suggested that some pretend they know the issues or go on a course to get the certificate (required in some industries), but come back and carry on behaving the same way. This unwillingness to transfer learning from training will be returned to later.

Contextual influences that emerged from the interviews focused around the need for a supportive environment, organisational safety culture and the impact of society influences. Many felt that safety culture was important, not just in the policies and procedures that were written down but in paying more than 'lip service' to safety documents. Some reported the success of the application to the business model, similar to the approach taken to the quality initiative in achieving priority for safe behaviour.

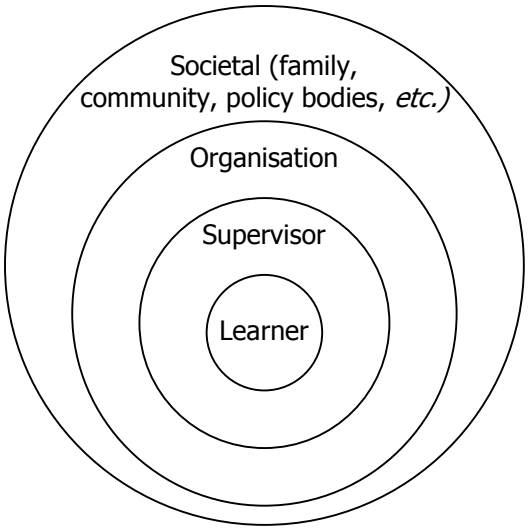
Table 1 provides some further details for the findings. A key task is to be able to use these findings appropriately. The next section explains how we have interpreted these findings, and how we have amended the working model developed in Stage 1 to better understand the 'Safe Learner' model.

## 3.5 Revising the 'Safe Learner' model

### 3.5.1 Review of current findings

A review of the findings from the focus group and interviews (including repertory grid constructs) suggests that there is a 'triangulation' of the data. That is, the issues raised by participants in the focus group were also identified by the interviewees as important. On a general level, the factors contributing to safe learner behaviour are those detailed in Figure 1. These are the learner and the supervisor, with context being split into organisation and societal. We have illustrated this 'framework of influence' in Figure 2, which represents the requirement, particularly voiced by the focus group participants, of the learner to be viewed at the centre of the process.

**Figure 2: Framework of influence contributing to Safe Learner behaviour**



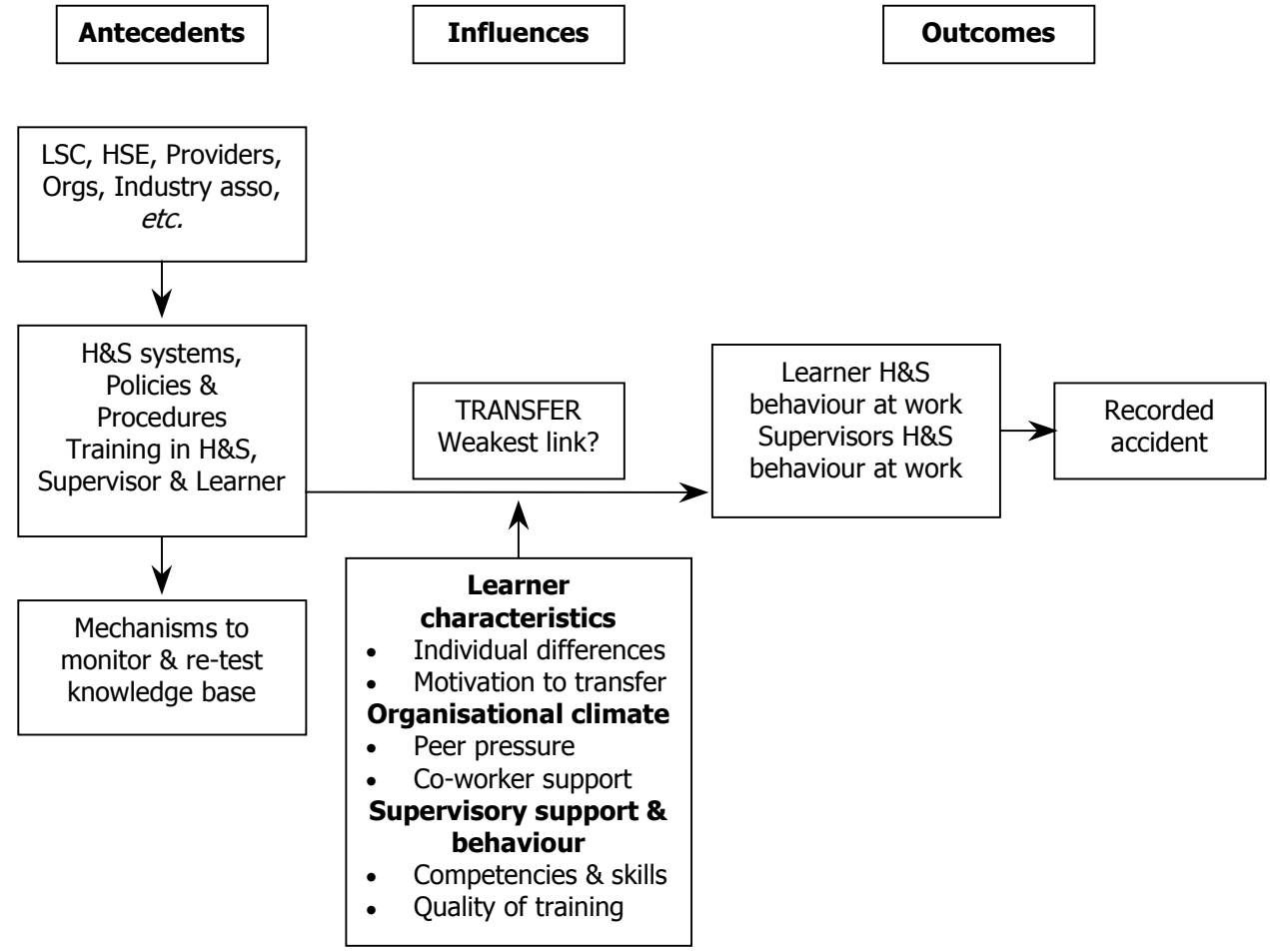

*Source: IES, 2002*

Whilst the literature and subsequent model developed in Figure 1 were useful in guiding our research and interviews for Stage 2, neither Figure 1, Table 1, nor the 'framework of influence' alone help to explain the processes involved or identify areas for intervention. A more interactive analysis is needed, and on the basis of our findings, we have now developed a revised model. Figure 1 was used as a working model representing an 'ideal' type, in that it identified all of the factors that the literature had suggested were important to safe learner behaviour. However, with the information from the focus groups and interviews, we are now able to build a model which is more reflective of the *situation* that learners, supervisors and organisations find themselves in when attempting to implement safe behaviour. This new model, illustrated in Figure 3 identifies the key influences and more importantly the key barriers and roadblocks to safe behaviour. We have captured those most commonly reported as important in our data and the final two sections of this chapter identifies the processes involved and any practical interventions which can be made.

### 3.5.2 Explaining the revised model

The revised model presented in Figure 3, utilises our knowledge of the transfer of training literature (Baldwin & Ford, 1988; Tracy *et al.* 1995). This provides a base through which to understand some of the key challenges affecting the success of many initiatives focused on producing safe behaviour in learners. One of the major issues to emerge from the findings is the accepted difficulties with putting policies and training into practice, and the various barriers identified with this process. The reason for using the training transfer model is because the key issues which have arisen as barriers and roadblocks to safe learner behaviour reflect the key aspects that are reported as important to the transfer of training.

**Figure 3: A model of the antecedents and influences and their impact on Safe Learner behaviour**




*Source: IES, 2002*

Figure 3 illustrates the role of policy makers, organisations and training providers in delivering policies, practices and training for learners and supervisors. It also recognises that there are often mechanisms (either governmental, industry or organisational based) for testing what has been learnt (in terms of knowledge acquisition of safety procedures), both at the time of the training and after some time delay (*eg* test-re-test of knowledge). However, the impact of this on actual safe behaviour at work (the outcomes) is mediated or moderated by a number of key influences. The findings presented in Table 1 have identified these and it is argued that these provide the 'weakest link' to transfer as show in Figure 3. An organisation or a training provider may have designed the best health and safety program available in terms of quality and content, but unless the learner has the ability to understand it and apply this newfound expertise, there will be no improvement or impact on safe behaviour. Some of the reasons why it is not applied, are expanded on below.

Models of training transfer argue that there are two major areas that act as mediators and moderators and both these areas are represented in our findings. First, learner characteristics, and

second organisational characteristics (*ie* climate and supervisory support). As was recognized in the focus group, learners, by virtue of their personality and motivations for example, may well be embarking on a given training activity from different starting points. For example, the level of learner motivation and beliefs about their own personal capabilities are undoubtedly going to influence the learning process. Since research has demonstrated that such variables are likely to have a significant impact on the learning process, they can be assessed and changed through directed intervention.

With organisational characteristics, the crucial challenge here is whether the organisational context facilitates or inhibits transfer of the learning activity. Previous research has identified *supervisory support* and *organisational climate and culture* as key variables that influence the transfer process. For example, transfer can be enhanced by rewards and recognition, or could be discouraged by ridicule from peers. Some research has highlighted that intention to transfer can be influenced by several organisational **'signals'** such as:

- learners receive relevant information about **strategies for transfer** prior to the training content
- learners recognize they would be held **accountable** for learning and,
- training is mandatory and is **supported by senior management.**

Broadly, research has suggested that by creating an appropriate organisational climate, transfer is more likely.

## 3.6 Summary

The revised model in Figure 3, can help us to identify where there are roadblocks and barriers and hence identify areas for improvement. Before expanding on what the practical implications might be, the next chapter reports on workshops that were designed and delivered to providers and organisations in order to share the research findings and gather input through consultation in how to take the practical implications forward. Following this, the final chapter will conclude with an overview of what these recommendations are and how the LSC might take them forward.

# 4. Stage 3: Disseminating the Findings: Provider Workshops

## 4.1 Introduction

Findings from both Stage 1 and Stage 2 suggested supervisors were a pivotal influence on safe learner behaviour, given their potential to influence behaviour on a daily basis. Although peer pressure was also identified as important, it was evident from the findings in the literature (Stage 1) and in practice (Stage 2) that where the supervisor has the appropriate skills and attitude towards the learner, peer pressure becomes less of a contributing influence. Transfer of learned skills was identified as a key issue in Stage 2, as was the central role supervisors have to play in facilitating this transfer. The evidence suggested that learners are being taught the theory and so know how they should be behaving, but often do not transfer this into practice, or are not encouraged to practice safe behaviours (*eg* carrying out risk assessments regularly). Therefore they soon forget what they have learnt in place of other unsafe behaviours.

Drawing on the findings from Stage 2, the provider workshops were one way of disseminating the evidence and consulting with key stakeholders in how to take the messages and outcomes from the research to supervisors. We detail here the aims and objectives of the workshop and the outcomes from the discussions that took place, while the final chapter puts forward some of the recommendations for interventions based on these findings.

## 4.2 Aims and objectives of workshops

One of the objectives set by the LSC for the 'Safe Learner' project was to be able to develop a workshop to disseminate the findings from the research to providers and colleges. As such, the workshops were aimed at training providers and focused on how the transfer of safe learner behaviour from classroom to the organisation might be enhanced through the supervisory role. The workshop built on research carried out and reported in Stage 1 and 2. The workshop aimed to:

- Present a summary of the research findings.
- Explore the key influences on safe learner behaviour and the role of the supervisor.
- Engage providers in discussions concerning the identification of barriers to supervisors in aiding the transfer of safe learner behaviour from the classroom to the workplace.
- To discuss ways for supervisors to cope with and overcome these barriers to improve the likelihood of transfer.
- Consult providers in how these findings might best be disseminated to supervisors.

Two workshops were run with providers and representatives from organisations, one in London and one in the Midlands. A total number of 26 participants took part, including representatives from the LSC. The workshop was designed by IES around the aims stated above and in consultation with the LSC.

## 4.3 Output from workshop

### 4.3.1 Influencing safe learner behaviour

After a brief introduction to the 'Safe Learner' project, the key findings from the research were presented to the participants. In particular, the three factors (learner, supervisor and context) that were identified as significant in influencing behaviour were outlined. The participants were asked to consider the influences under each of these headings (using Table 1 as a prompt) and suggest, from their experience, factors that they considered most important. The groups reported difficulty in prioritising influences in terms of importance as they felt that it depended on the situation and the learner. A summary of the observations and key points raised are set out below.

**Learner factors:**

- The learner's motivation to learn was seen as very important and that it is inevitable that some learners will not want to be on the course in the first instance. This will lead them to have apathy about the course and about health and safety issues.

**Supervisor factors:**

- The quality of the supervisor is very important. Supervisors need to act as role models.
- Informal networks are more important for supervisors in acquiring the appropriate information they need. For example, it was reported that supervisors are more likely to ask a colleague about health and safety issues that to look at an the HSE or LSC website.

- It was seen as important that supervisors are able to highlight their own strengths and weaknesses and act on this.

**Contextual factors:**

- The safety culture was seen as central to increasing support for supervisors and learners, and the view of health and safety being everyone's responsibility. However, it was recognised that there is a need to consider how the size of the organisation can influence this process.
- Health and safety should be included in the organisation's business model.
- Health and safety induction's are often too short; for example, one day at the start of job. A good health and safety programme takes about two to three months to complete in order for the information to be internalised and behaviour to be changed.

### 4.3.2 Barriers to supervisors in aiding the transfer of learning

**Learner factors:**

- Confidence was viewed as a very important barrier in terms of both over and under confidence. For example, if learners have a lack of confidence it may cause them not to ask questions, or to say that they don't understand something. Conversely, over confidence may cause learners to carry out tasks unsupervised that they are not competent enough to do.
- Related to this, peer pressure not only affects learners in terms of not complying with safety procedures or engaging in unsafe behaviour, it may also stop learners from asking questions during training.
- For some learners, it was felt that it does not reflect well on them if they are asking questions all the time, because it implies they are not a good worker or do not know their job well. In addition, in some cases this could even affect their pay.
- A lack of respect by learners for authority was seen as a barrier in teaching and following rules and procedures for safe behaviour.
- It was felt that the fact that young people tended to find it hard to look to the long-term in relation to risk perception.

**Supervisor factors:**

- Supervisors may only have a limited understanding of their role. They may have made been good at their trade, but this does not mean they will be a good supervisor.
- In addition, supervisors do not often know what is expected of them in terms of health and safety responsibilities.
- Communication was seen as the key barrier as this affects all aspects of the relationship between the learner and the supervisor.
- Litigation fears has led organisations to make supervisors more responsible for the safety of their learners. However, some reported that the impact of this is that fewer supervisors will want to become supervisors.
- The amount of production pressure placed on the supervisor was viewed as a barrier. Organisations cannot apply pressure to adhere to safe working practices whilst at the same time applying pressure to increase output.
- The style of supervision was viewed as a barrier: Many reported contrasting styles and outputs and differences between those who are seeking to assert control and those who are encouraging their learners to be more proactive in their approach to health and safety.

**Contextual factors:**

- Lack of management support, lack of time, lack of money, lack of resources were all seen as barriers.
- Pressures of production over health and safety concerns.
- Organisations may not have rigorous procedures for every job the learner must do.
- The influence of family and wider society.
- Performance management systems which set targets for accidents could be potential barriers. For example, where the quota of accidents is exceeded, what is the incentive to still adhere strictly to safe working practices?

### 4.3.3 Overcoming barriers to transfer

The outputs from the workshop suggest that there are a number of levels and ways in which the barriers to transfer can be overcome. Much of the focus centred on the way in which supervisors can help and also be supported in their role in facilitating the transfer of safe behaviours.

In taking any messages forward to supervisors, it was agreed that that the mechanisms have to be relatively informal. Participants noted that if the process in any way ‘smacks of formality,

supervisors will run a mile'. Providers were seen as key in communicating the safety message to supervisors. Workshops for providers could be planned to focus on methods of communicating the safety messages to supervisors and learners. There was strong agreement that there was a need to encourage supervisors to meet together in small groups, where information is presented in their own language and context. The messages that are delivered should be short in length, to the point, on site, and interactive.

Some of these approaches to overcoming barriers and disseminating the findings of the research to supervisors are explored further in the final section which provides conclusions of the research and recommendations for practical interventions.

# 5. Conclusions, Recommendations and Practical Interventions

Taking the findings from the research carried out in Stages 1, 2 and 3, there are a number of recommendations and practical interventions that can be made in taking this work forward. The biggest challenge identified in the project to date has been the transfer between theory and practice. Figure 1 illustrates aspects involved in safe behaviour and represents an understanding of the hazard to harm process. Working with the amended model in Figure 3 has allowed us to present a more realistic model of the 'Safe Learner' process in practice. From the research, there are a number of interventions that the LSC, organisations, supervisors and providers can work with which are aimed at strengthening the transfer of safe learner behaviour from classroom to the workplace.

The interventions focus on the transfer issue (the weakest link in Figure 3) and areas of influence which can have an impact on this. In particular, the focus is on delivering this message to supervisors, who have been identified as key facilitators in encouraging safe learner behaviour. One of the reasons for prioritising the role of the supervisor and focusing interventions around the impact on them, has been as a result of what we know from the work carried out by Reason *et al.* (1998). This research suggests that the use of procedures, rules and regulations to restrict individual behaviour to action that is considered safe and productive, may often be limited. Instead, a focus on social and self-controls would be more appropriate. Simard and Marchand (1997) also reported that social relationships on the shop floor were the primary determinants of the propensity to safety compliance behaviour. The supervisor, as the nearest person to the learner in the transfer process, has the best chance of influencing behaviour and so the priority must lie with this group, along with developing a general supportive organisational climate. Finally, it has been noted that supervisors can play a significant role in translating higher management policy making into predictable situation specific action related to health and safety behaviour (Zohar 2000).

The interventions that have been suggested as a result of the research are designed therefore, to overcome barriers to transfer and help to 'roll out' the research message to all key stakeholders, in particular supervisors.

## 5.1 Overcoming barriers: interventions to aid the transfer process

The outcomes from the interviews, focus group and workshops in terms of suggested interventions, broadly fall into six categories or levels of intervention which we outline below. These are:

1. information dissemination and policy documentation
2. support networks
3. interactive sessions with providers
4. development and skills training
5. raising the supervisor profile
6. wider issues.

### 5.1.1 Information dissemination and policy documentation

Many ideas were shared regarding documentation's and information that some providers already use, or would like to use, in passing the key messages on to supervisors. These included interventions aimed at the learner, supervisor, organisation and providers.

**Information for supervisors and learners**

- The development of 'crib' sheets with key messages for supervisors and learners was seen as a useful intervention. Those that were reportedly working successfully in practice were laminated, simple and easy to use as a permanent reference. The better ones were seen as those that directed supervisors to the next point of call and those that had an easy to use checklist for learners.
- Guidelines that identify the expectations of supervisors and learners were suggested as useful to give to supervisors when they sign up. This should clarify the roles and expectations on the part of the supervisor, learner, organisation and provider and would work in a similar way to a learning contract.
- Trouble shooting and problem solving tools were viewed as requirements for supervisors. For example, information on 'what if?' scenarios. These might include simple flow chart diagrams leading to help points or 'traffic light indicators' to help supervisors in decision making. All of the these are aimed at helping supervisors know where to go to for help if the learner presents a problem. Any information would need to be tailored for small and large organisations and link in to existing information and help (*eg* HSE/LSC links *etc.*). The use of a visual chart was seen as one way to provide the basis for an introduction and discussion with supervisors on site. The

'what if?' scenarios could be tailored to the industry and made relevant to the supervisors context.

- Communicating approaches that already exist to support supervisors was identified as important *eg* the Health and Safety Laboratory report on Good Practice by SMEs in Assessing Workplace Risks. This describes 'Tool Box Talks' which are a system of informal work team meetings, lead by a supervisor to provide information and discuss feedback on safety issues (HSL 2000).
- A further example of good practice were the use of logbooks that include guidelines on safe behaviour and blank pages at the back where supervisors can add any additional information or comments on learners behaviour. This was seen as particularly useful in industries where the learner may have multiple supervisors in the course of training. Each new supervisor would be able to read any comments that previous supervisors had written, and risks can be better anticipated.

### Information for organisations

- Information leaflets which inform organisations in simple steps of their obligations on legislation was seen as a necessary intervention. In particular, for SMEs who are often not aware of their responsibilities and providers end up advising them and coaching them on what they should already know. Providers reported spending a great deal of time carrying out this service, which a simple information sheet could overcome by showing organisations how to get started, what they should know *etc.* A step by step guide with follow on contact information was required. For example, 'Is your organisation new to supervision? If yes, then contact A, if no, what provision do you have in place?' 'Do you know your legal obligations? If yes, do others know, if no, this is where you can find out more?'. Alternatively, frequently asked questions could form the basis of the leaflet, *eg* 'Where do I go to find out about xyz'?
- Interventions relating to the organisation should also focus on developing and maintaining an organisational climate that supports safe learner behaviour. Developing practical guidelines on key barriers to transfer and ways of developing an appropriate climate to support this, is one way forward.

### Information for providers

- A start up pack for providers which contains all of the information to go to organisations was suggested as a potential intervention. The key role for providers is to ensure that the relevant information gets to the correct person *eg* learner, supervisor, management in the organisation. The benefits of this approach would be that it should ensure a

consistency of information that providers are giving out to learners and supervisors.

- A further suggestion for intervention at this level is the development of guidelines for providers to help facilitate the first meeting between the supervisor and learner. Using these should ensure that expectations are set (see above) and that time is spent on developing both the lines of communication and the working relationship.

### 5.1.2 Support networks

Some interventions suggested here included:

- There was strong agreement that the message would be more powerful coming from other supervisors. The suggestion was to identify 'good' supervisors who would be able to translate the key messages to other supervisor within the same industry.
- The development of networks for supervisors which facilitate the dissemination of the above information through both formal and informal channels.
- The development of innovative ways of passing on knowledge and information to and between supervisors. As discussed in the introduction, these should not be formal workshops, rather something that fits in with the mechanisms that this group normally uses to share information and knowledge.
- The development of a helpline which supervisors can call for independent advice regarding how to deal with learners when they have had problems with them. Some examples of providers setting these up already exists, but a more systematic approach to this system would be more effective. This could perhaps be regionally based so that a group of providers could use the same number.

### 5.1.3 Interactive sessions with providers/supervisors

- The research highlighted that the provider could provide a key role in communicating safety messages and that this could be carried out during placement visits. Interactive workshops to help the provider placement officers with this task, focusing on how to communicate and sell the safety messages would be useful.
- Use of scenarios could also be a further way of providing interactive sessions with supervisors. These could be contextualised for each industry. Relevant scenarios could be generated and supervisors would discuss what they would do next. It can be make interactive and informative by providing them with three options to help them answer it. This could be related to a popular TV show whereby one option could be to phone a friend (supervisor role model / provider / LSC), ask the

audience (someone within your organisation), or 50/50 (have a guess). These options could be linked in with the development of the information dissemination initiatives and helplines to create awareness in supervisors of both the issues and the support network.

### 5.1.4 Development and skills training

- This area was consistently identified as requiring first, more support from within organisations to help facilitate the development, and second, from the LSC to provide guidelines on the core behavioural skills for supervisors which can be used by organisations to select and train the appropriate people. The findings from Stages 2 and 3 of this project identified these skills which included good communication skills, the ability to build and maintain relationships (particularly with younger workers), gaining and maintaining trust, developing empathy, being proactive *etc.* (see Table 1 for a full list). Where organisations are too small to have the resources to fully train in these areas, these core skills can still be used as a benchmark to which supervisors should aim towards.
- Research reported in Stage 1 found that employees who had high quality relationships with their supervisors are more likely to raise safety concerns and they suggest that organisations should encourage the development of effective exchange relationships between supervisors and employees (Hofmann and Morgeson 1999).

### 5.1.5 Raising the supervisor profile

A major concern that many participants raised in the research was regarding the decreasing numbers of people willing to be supervisors. With six million learners, it is becoming more essential to have good quality supervisors that can influence safe learner behaviour. The perceived decrease was put down to the fact that the role was not valued within or external to the organisation and the benefits and recognition for the job was negligible. Some suggestions for improving this were put forward:

- A key question is what can be done to raise the profile of supervisors, and in particular recognise role that they provide in a meaningful way which will incentivise them? This does not necessarily have to be financial, as many participants recognised that this may not attract the right supervisor, but some mechanisms need to be in place to recognise the work they are doing. Recognition of their work, in a way which means something and is also not too bureaucratic may include the introduction of something akin to national 'supervisor awards'.
- Recognition on an individual level was also seen as important to stimulate interest in being a supervisor. Linking the role to

continuing professional development (CPD) and accreditation of some kind would help to make supervisors see that there is a development part for them in the role. This could be linked to development of the core skills.

- It was felt that more promotion was needed around the benefits and consequences of being a supervisor. What does the supervisor and the organisation get out of it? How could those interested get involved?

### 5.1.6 Wider issues

A number of other issues were raised which, while not directly fitting in to the interventions as outlined above, have implications for interventions in the wider arena. Some of these are briefly introduced here.

- The antecedents of safe learner behaviour identified in Figure 3, (*eg* the way health and safety is taught) was seen as problematic. Learners are encouraged to view health and safety as separate from the rest of their course, as they are taught and assessed in it separately. The way NVQ modules are structured and verified mediates against the integration of health and safety into all areas of the learning experience. For some participants, this sends signals to the learner to see if as something separate rather than 'part of the job'. A re-assessment of how it is integrated with the rest of the learners curriculum was seen as necessary.
- A PR initiative was seen as one way of raising the profile of safe learner behaviour. Some suggested using a high profile celebratory to take on the mantel of safe behaviour, although the cost implications may be considerable. Shifting the emphasis so that health and safety is 'cool' and 'trendy' was also felt to be one way of overcoming barriers from peer pressure.
- Participants in the research reported a need to review the content and delivery of training, both in providers and in organisations to ensure that content is relevant. A review of the methods used to teach safe behaviour and a consideration of more innovative ways of delivering and teaching the knowledge basis is required.
- Promoting a business argument for safe learner behaviour was viewed as a way forward. The parallels with the 'Quality' initiatives in the 1980's has already been discussed and the extent to which this framework could be taken and translated to the safety at work area was evident to workshop participants, as much of the work in quality revolved around changing attitudes, knowledge and perception of quality, organisational culture and ultimately changed behaviour on the job.

- A longer-term approach to teaching safe behaviour was suggested requiring intervention earlier on in the process, *ie* pre-16, and teaching safety as an integral part of future life skills.

The key issues for many of the interventions put forward for overcoming the barriers to transfer, is who is responsible for the implementation and where are the resources going to come from in order to carry out some of these suggestions? These questions are particularly pertinent for smaller business who will not be able to invest in some of the development and skills training. Therefore the role of providers, LSC, HSE and other government agencies is crucial here in facilitating and providing the resources to fund some of these interventions.

## 5.2 Disseminating the 'Safe Learner' model

While the feedback from the research was to avoid using workshops for supervisors, there appeared to be positive feedback for the use of workshops to providers. The workshops that were piloted in London and Telford enabled the findings of the safe learner model to be discussed with providers and LSC staff. Future workshops with providers could be designed to have a networking element and to introduce how the messages are going to be targeted at organisations and supervisors. This would give providers an understanding of the rationale behind the interventions that the LSC are carrying out (*ie* illustrate the research findings) and would also serve as a place to launch any of the above interventions. This approach would ensure that providers are using similar systems, disseminating the same message and sharing best practice. The workshops could be regionally based.

## 5.3 Conclusions

This report has outlined the findings of the research to develop a 'Safe Learner Model', which was commissioned by the Learning and Skills Council and carried out by the Institute for Employment Studies. The research was carried out over a number of stages between March and November 2002. Stage 1 of the project provided a literature review of the area, Stage 2 gathered data through interviews with learners, supervisor, providers and other stakeholders (DfES, HSE, LSC), while Stage 3 has illustrated how these findings might be disseminated further through providers. In conclusion, the findings call for a model of safe learner behaviour which focuses on the 'transfer' issue (Figure 3) and suggests that the role of the supervisor is crucial to this transfer occurring. The interventions put forward in this final chapter aim to facilitate the supervisor in this key transfer role, by providing information, documentation, support networks, interactive sessions, developing skills and by raising their profile.

All of these interventions provide suitable ways forward, but require input and resources from the LSC, and also from other agencies. While some of the interventions may not be the direct responsibility of the LSC (particularly with some of the wider issues raised), there is still a role for the LSC in influencing other agencies. In terms of a direct influence, it is possible to see how the LSC can make a contribution to all of these recommendations by providing policy and practical guidance to those involved in developing safe learner behaviour at work. Our recommendations are based on the research findings and the development of a 'Safe Learner' model, and from this we have indicated what we feel the LSC should be targeting and with what methods. In this way, the LSC can leverage the most influence and impact and contribute to the aims of 'informing policy and improving practice in health and safety on Council funded programmes'.

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# Appendix 1: Staffing

**Dr Máire Kerrin**, a Senior Research Fellow, was the contract manager for this project, ensuring that the work runs to time and specification. Máire's background is in training and development where she has been both a practitioner and an academic. As a Chartered Occupational Psychologist, she has a sound understanding of behavioural approaches to safety and how the lessons that can be learnt from the literature can be translated into practical applications and training programmes.

**Dr Louise Thomson,** is a Research Fellow with extensive experience of conducting research on psychosocial, social and organisational issues in occupational health and safety. She has knowledge of a wide range of qualitative and quantitative research techniques and has previously conducted research investigating accidents and absence from work.

Máire and Louise will be assisted by **Michael Silverman** and Dr **Hülya Hooker**, Research Officers at the Institute. Michael Silverman joined the Institute in 2001 and he will work on the data collation element of this study. Hülya has a particular expertise in developing focus groups and interview schedules to be used as part of the critical incident technique.

**Dr Kevin Daniels**, is a Reader in Organisational Psychology at the University of Nottingham. Kevin will be acting as an external Associate to advise the project team at two key stages. Firstly in the development of the theoretical model and secondly in the methodologies used in the workshops. Kevin has a distinguished academic background in the area of risk perception, having worked on several major HSE research projects, both independently and with IES. He has over 130 scientific publications in risk and/or cognition at work and is a Chartered Occupational Psychologist. Kevin is Assistant Editor of the Journal of Occupational & Organisational Psychology (JOOP).

Full CVs of the team are available on request.

# Appendix 2: Outline of Stages

**Appendix Table 2. 1: Outline of stages with aims and objectives, methods used and outcomes**

| Aims and Objectives for Research Project Stages 1-5 | Methods | Outcomes |
|---|---|---|
| **Stage 1** | | |
| To ensure that the project includes the most recent research | Literature review | Theoretical model |
| To examine the organisational database | Analysis of database | |
| To develop a theoretical model | | |
| To produce an interim report | | Interim report |
| **Stage 2** | | |
| To collect data and evidence of antecedents and behaviours that lead to learner accidents | Focus Groups and interviews with stakeholders | Developing further understanding of theoretical model |
| To propose what learners regard as the positive consequences | | |
| To feedback information into theoretical model | | |
| **Stage 3** | | |
| To develop a workshop for dissemination of findings to providers | Interactive Workshops | Recommendations for interventions |
| To implement the workshop | | |
| To gather recommendations for further dissemination | | |
| **Stage 4** | | |
| To produce a final report addressing project aims | Integrate information from stages 1-4 | Report |

# Appendix 3: Interview Discussion Guide

## Introduction:

This research has been commissioned by the LSC to inform policy and improve practice in health and safety for people who are involved in training / learning. This stage of the project involves consulting with learners, supervisors and training providers in order to gain different perspectives on the factors that contribute to a safe learning environment for learners.

This interview is completely confidential and anonymous, no reference will be made to either you or your organisation. Your organisation was selected at random from the LSC's database of organisations currently involved with apprenticeships of some kind.

## Critical incident interview:

1. *Get chatting with interviewee and make them feel relaxed. Seek permission to record the interview (If unsure just take notes).*
    - What is your name?
    - Can you tell me a bit about your job? - What your job title is, how long you have been in the job and briefly what the job involves?
2. The reason I've come to talk with you today is because we are currently conducting some research about accidents that happen to people whilst they are training.
    - As you are: *someone who supervises learners/a trainer/a learner*, we wanted to find out about your views concerning accidents among learners.
3. What I'd like you to do is to think back over the last XX months / years.
    - *Were you involved in any accidents whilst training during this time/did any accidents involving learners you were supervising/training occur during this time?*
4. What I'd like to do is to explore with you in detail the events leading up to the accident; what actually happened; what the outcome was; and whether you think the accident could have been prevented in any way.

- *Try to collect examples of both safe and unsafe behaviours, near misses and any factors that prevented a potential accident from occurring.*
- *Probe to find out underlying behaviours.*
- *Looking for a specific incident with a specific outcome.*
- *Remember to probe as much as possible:*
  - *What happened next?*
  - *Why did it happen?*
  - *How did it happen?*
  - *With whom did it happen?*
  - *What did the parties concerned feel?*
  - *What were the consequences –both immediate and longer term?*
  - *How did the respondent cope?*
  - *What tactics were used?*

5. *Can you think of any other incidents/accidents involving learners?*
   - *Without mentioning names etc, can you give me an example?*
   - *What happened?*
   - *What were the underlying behaviours that were involved?*
   - *What was the outcome?*

# The Repertory Grid (Supervisors and Trainers only):

I'm now going to use a technique called a rep grid to explore with you the factors that lead to learner accidents. It's simply a way to help me organise what you say. In order to do this, I'll be asking you to compare the characteristics of different types of people that are involved in the training process. May I also remind you that what you say is completely confidential.

*The rep grid contains four elements: Safe Learner; Unsafe Learner; Supervisor and Trainer.*

### Supervisors:

I'm going to give you 5 cards, and in a minute I'm going to ask you to think of 5 different types of people, and I'd like you to write their initials down on these cards; so you'll have one set of initials on each card.

I'd like you to start by thinking of a learner who in your opinion is likely to have an accident during training, or who has been involved in an accident during training. Write their initials on card 1, we'll call them an unsafe learner.

Now, I'd like you to think of a learner who would be unlikely to have an accident during training. Write their initials on card 2, we'll call them a 'Safe Learner'.

Now think of a person who you think is an effective supervisor in terms of fostering openness, reporting problems, and having a good relationship with their learners. Write their initials on card 3, we'll call them an effective supervisor.

Now think of a person who you think is not so good a supervisor. This might be someone who isolates themselves from their learners, and who is not seen as approachable. Write their initials on card 4, we'll call them an average supervisor.

Lastly, I'd like you to think of someone who is a trainer. Write their initials on card 5.

*Give the first triad: Physically move the cards so that there is a pair and a single card.*

In terms of safe learner behaviour, how are the people in this pair similar, and how are they different from this single person ? There is no 'correct' answer here, it is just how you view the people you have chosen.

*Give 6 triads, pairs dictated by the table.*

*Next, give same triads, but this time use free association (ie let them choose pair).*

*Write similarities on left side of grid, and difference on the right.*

Now, the words I've written down on the left: Imagine they define the '1' end of a 5-point scale. And that the words I've written down on the right define the '5' end of a 5-point scale.

I'd like you to rate each of the three elements on this scale; give each of them one of the numbers 1, 2, 3, 4, or 5.

## Trainers:

I'm going to give you 5 cards, and in a minute I'm going to ask you to think of 5 different types of people, and I'd like you to write their initials down on these cards; so you'll have one set of initials on each card.

I'd like you to start by thinking of a learner who in your opinion is likely to have an accident during training, or who has been involved in an accident during training. Write their initials on card 1, we'll call them an unsafe learner.

Now, I'd like you to think of a learner who would be unlikely to have an accident during training. Write their initials on card 2, we'll call them a safe learner.

Now think of a person who you think is an effective trainer in terms of communicating the learning material and having a good relationship with their learners. Write their initials on card 3, we'll call them an effective trainer.

Now think of a person who you think is not so good a trainer. This might be someone who does not communicate the learning material that well, and who is not seen as approachable. Write their initials on card 4, we'll call them an average trainer.

Lastly, I'd like you to think of someone who is a supervisor. Write their initials on card 5.

*Give the first triad: Physically move the cards so that there is a pair and a single card.*

In terms of safe learner behaviour, how are the people in this pair similar, and how are they different from this single person.? There is no 'correct' answer here, it is just how you view the people you have chosen.

*Give 6 triads, pairs dictated by the table.*

*Next, give same triads, but this time use free association (ie let them choose pair).*

*Write similarities on left side of grid, and difference on the right.*

Now, the words I've written down on the left: Imagine they define the '1' end of a 5-point scale. And that the words I've written down on the right define the '5' end of a 5-point scale.

I'd like you to rate each of the three elements on this scale; give each of them one of the numbers 1, 2, 3, 4, or 5.

**Appendix Table 3. 1: Rep grid**

| Construct | Elements | | | | | Construct |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| Similarity | Unsafe Learner | Safe Learner | Effective Supervisor/ Trainer | Average Supervisor/ Trainer | Trainer/ Supervisor | Difference |
| | | | | | | |
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**Appendix Table 3. 2:**

| | Set pairings | | Free association | |
|---|---|---|---|---|
| Triad | Single | Pair | Single | Pair |
| 1, 2, 3 | 1 | 2 & 3 | | |
| 1, 3, 5 | 1 | 3 & 5 | | |
| 1, 2, 4 | 2 | 1 & 4 | | |
| 3, 4, 5 | 4 | 3 & 5 | | |
| 2, 3, 5 | 2 | 3 & 5 | | |
| 2, 3, 5 | 3 | 2 & 5 | | |

**Appendix Table 3. 3: Repertory grid constructs, supervisors and training providers**

| Triad | Similarity | Difference |
|---|---|---|
| **1. Unsafe learner** | | |
| Safe learner & effective supervisor | Unlikely to misbehave | Likely to misbehave |
| | Awareness of unsafe situations | Unaware of unsafe situations |
| | Carry out risk assessment | Do not carry out risk assessment |
| | Understand dangers in workplace | Do not see dangers |
| | Act if they see risk | Do not act (often can not see risk) |
| | Concentration on job | Lapses in concentration |
| | High levels of attention to task | Poor attention to tasks and dangers |
| | Confident in their actions | Not confident in tasks |
| **2. Unsafe learner** | | |
| Effective supervisor & trainer | Mature outlook, acts responsibly | Immature outlook, acts irresponsibly |
| | Has health and safety issues at back of mind, *ie* Observant of hazards | Does not think about health and safety issues, *ie* Unobservant of hazards |
| | Has knowledge of health and safety issues | Does not have knowledge of health and safety issues |
| | Aware of workplace risks | Unaware of workplace risks |
| | Understand safety policies and procedures | Do not understand policies |
| | See safety as part of the job | See safety as someone else's task |
| | Understands consequences of unsafe behaviour | Does not always see potential outcome |
| **3. Safe learner** | | |
| Unsafe learner & average supervisor. | Uninterested in work | Interested in work |
| | Low motivation and enthusiasm for work | High motivation and enthusiasm for work |
| | Do not follow rules | Follows rules |
| | Unaware of dangers | Aware of dangers |
| | Cuts corners | Carries out procedure as shown |
| | Think they 'know it all' | Willing to ask questions and prepared to say they don't know |
| | No confidence in them | Confident to leave alone |
| **4. Average supervisor** | | |
| Effective supervisor & trainer | If an effective trainer, good relationship with employees | Poor relationship with employees |
| | Good Communicator | Poor communicator |
| | Tells learner exactly what to do | Unclear in directions |
| | Act as they say | Inconsistent in how they act. Send wrong signals to learners |
| | Delegates tasks appropriately | Unaware of what can be delegated |
| **5. Safe learner** | | |
| Effective supervisor & trainer | Has work experience | Lack of work experience |