

CHAPTER TWO

LITERATURE REVIEW

Introduction

Legislation governing OHS and Workers' Rehabilitation and Compensation has changed the way in which work-places operate (Bohle and Quinlan, 2000).

Organisations in the public and private sectors have, according to WorkCover (1995), a responsibility to ensure safety requirements are met. Gallagher, Underhill and Rimmer (2001) asserted that research concerning OHS has been an important guide to the implementation and systematic management of OHS in organisations.

National standards for the conduct of training and assessment known as Training Packages, developed under the control of the ANTA, have according to Simons, Meyers, Harris, and Blom (2003) changed the way in which work-places develop their staff. Work-places have a new role in developing the competency of their staff through the application of Training Packages in conjunction with Registered Training Organisations (RTO) and Simons et al., (2003) described the use of research to inform work-place utilisation of Training Packages to train, assess and develop staff. The importance of training to the planned support of health and safety in the work-place is highlighted by Gallagher (1997) and Hennekam and Flower (2002). This chapter reviews research literature relevant to implementation of OHS policy and practice and includes a review of current OHS issues, evidence-based policy, and research literature relevant to the application of Training Packages to the work-place.

The chapter will be organised under the following headings: Adult Learning and Training Packages, Trends in Occupational Health and Safety, Management and OHS Practice, OHS Practitioner Training, and Safety Improvement.

Adult Learning and Training Packages

The implementation of OHS practice in a work-place, according to Bohle and Quinlan (2000), involves different forms of work-place training mandated by state legislation. The OHS legislative framework in South Australia outlined general requirements for OHS training. Training Packages promoted by the ANTA and now in widespread use in Australian work-places have been used to standardise training in OHS practice through the application of the Australian Quality Training Framework (AQTF). The design of Training Packages incorporated adult learning principles (ANTA, 2000).

In South Australia, the public sector has arranged the delivery of nationally accredited qualifications to its OHS practitioners and work-place managers. Hennekam and Flower (2002) argued that qualifications for OHS practitioners are derived from "...Public Services Training ... [and] Business Services Training package[s]" (p.10). The framework offered by these Training Packages delivers skills through structured assessment and training based on work-place competency standards "... providing a win-win [sic] outcome for agencies and the individual [through] cost effective training, skills identification, flexible training structures" (p.9). Competency-based training and assessment of competency within Training Packages may, according to Foreman, Davis and Bone (2003), require complex and holistic approaches to the assessment task, particularly at the diploma and advanced diploma levels. These

approaches require the assessor take into account a variety of contexts affecting the participant in the assessment, the nature of the work and significant variation in the participants' experience (p.20). These training and assessment requirements relate to the adult learning principles pioneered by Malcolm Knowles (1980) who asserted that competency was achieved through adults acquiring knowledge in the "context of its application" (p.19).

The European term for adult learning "andragogy" as distinct from pedagogy was promoted by Knowles (1980) as the "art and science of helping adults learn" (p.43).

Knowles (1980) highlighted the cognitive constructivist approach of Piaget that learning is related to cognitive development within a social context. Substantial research in the field of adult education was begun in Canada and USA, in relation to the requirements for literate and skilled labour during World War Two, and according to Knowles (1980) after World War Two, research used literacy materials based on adult concepts, as distinct from learning materials designed for children, and focussed on "the internal process of adult learning" (p.42).

Andragogy was characterised by Knowles (1980) as the application of learning theory to the needs of adult learners, or a learner-centred approach engaging teacher and learner in a cooperative approach to learning where adults bring to learning a depth and breadth of life experiences. Four key assumptions were described by Knowles (1980) regarding adult learners namely: an adult needs to be self-directing, to utilise their own experience in learning, to identify their own readiness to learn, and to organise their learning around life problems (pp.43-44). Further, the design of adult

learning materials needed to encompass values of mutual respect, collaboration, informality, cooperative planning and negotiation, self-diagnosis, and evaluation involving both teacher and student (pp.45-46). Knowles (1980) explained that in an adult learning environment the student becomes an active participant and the teacher takes on the role of facilitator or consultant formulating program objectives and content that will satisfy adult learning values.

On the other hand, Kolb (1984) developed a process to assist in the application of adult learning principles based on the use of what he termed “experiential learning” (p.30). Kolb’s (1984) adult learning framework included opportunities for engagement of adult learners in “active experimentation” which generated “concrete experience”, with opportunity for “reflective observation” followed by process of “abstract conceptualisation” where theory is generated based on the learning experiences (pp.42). Kolb (1984) pointed out that experiential learning approaches culminated in practice and application, where the adult transferred the learning experience into practice. This process may have involved reduced input from the teacher/facilitator and increased levels of self-facilitation, which allowed adults to transfer knowledge from theory to practice and identify their own internal learning outcomes (p.202).

The introduction of Training Packages for work-place training and assessment was promoted by ANTA as part of the establishment of the Australian Quality Training Framework (ANTA, 2001). The work of adult learning theorists was incorporated into

the training and assessment approaches promoted by ANTA in the work-place application of Training Packages (ANTA, 2001). Foreman, Davis and Bone (2003) pointed out that the utilisation of principles of adult learning within the application of Training Packages formed a significant part of training and assessment delivery in the Australian work-place. Training Packages administered by ANTA contained three sections, which had to be adhered to, in order that a valid assessment of work-place competency could be made and a qualification awarded. These three sections consisted of competency standards, qualifications framework and assessment guidelines (ANTA, 2001).

Training Packages were found by Simons et al., (2003) to define competencies for work practice and these competencies underpinned the delivery of training, however, a Training Package did not define training methods, delivery or curriculum. Simons et al., (2003) contended that institutions and their employees who wished to utilise or implement Training Packages to achieve work-place outcomes were required to consider the way in which work practices, work structures and other contexts were used to facilitate the learning of adults and their subsequent assessment.

A study was undertaken by Simons et al., (2003) to examine the implementation of Training Packages and assess the use of new and flexible approaches to learning, training delivery and new methods of assessment, and to provide analysis of the innovative approaches.

Studies of six institutions engaged in innovative Vocation Education and Training (VET) activities were conducted by Simons et al., (2003) across four states/territories. A schedule of ten criteria was used by the researchers to select the six institutions for the study. A total of 38 persons drawn from the six institutions were selected for interview as follows: development personnel, trainers involved in implementation, employers, and learners engaged in the training or assessment. An interview schedule was developed for each category of participants and interviews were audio-taped and transcribed.

The researchers developed detailed descriptions of each innovative VET activity and these descriptions when drafted were returned to sites for verification. After verification of the description of each innovative VET activity, researchers undertook a “cross-case analysis”, in order to synthesise the key issues and themes (p.16). The draft study was submitted to National Centre for Vocational Education Research (NCVER) for external review to obtain objective and authoritative feedback which also was incorporated in the final report.

Training delivery was an important part of successful work-place outcomes when Training Packages were utilised, however, Simons et al., (2003) identified six VET activities which used a tailored approach to work-place assessment and found that these approaches could be equally or possibly more important than training in achieving work-place outcomes.

In the first of six studies, researchers identified innovative assessment approaches that accommodated the needs of both industry and learners in the delivery of qualifications. The researchers asserted that the approach of accommodating industry and learner requirements produced a significant shift away from previous curriculum based approaches (p.32).

Collaborative arrangements depicted by Simons et al., (2003) in the second study, nominated innovative VET activity that involved industry, colleges and learners. Researchers identified that collaboration between work-place and learning organisations, enabled students in secondary education to obtain practical work-place experience leading to the provision of comprehensive and substantial evidence for the assessment process required by the relevant Training Package (pp.33-34).

Assessment of competence may be simulated in a learning institution or may be undertaken in an actual work-place. In the third study, researchers observed the integration of learning and assessment into work practices at a designated work-place that was also a learning centre. Simons et al., (2003) contended the integration of work, learning and assessment required the removal of what they termed the “neat separation” between campus-based assessment of theory and work-place based assessment of practice, in the previous curriculum based approach (p.36). The researchers described the requirements for changes to achieve an integrated delivery of both learning and assessment activities in a work-place purposely designed to meet both Training Package and business requirements (p.36).

In a fourth case study, Simons et al., (2003) described a distance learning and assessment program delivered in the context of a geographically diverse industry, which used video streaming and sessional delivery in a series of geographically remote locations. Researchers found that this combination of delivery approaches was based on, and used, local context to ensure the appropriateness of assessment approaches and provision of information to employers. Contextualisation of content ensured both assessment and learning processes achieved outcomes required by the Training Package, geographically isolated participants and work-places (p.38).

The researchers described a fifth case where a private institution in an emerging industry used a Training Package to create a professional development tool, and to build an industry-based assessor network. Simons et al., (2003) contended the professional development approach developed by the training provider created learning pathways which had not previously existed, thus enabling access to quality assured and nationally accredited learning and assessment systems for existing and future industry participants (p.42).

In the sixth case of their studies Simons et al., (2003) found that a local community-based organisation used a Training Package to implement a system of work-based training and learning, in order to assist staff to gain both professional development and a nationally recognised qualification. The researchers described how the organisation developed partnerships in a regional area between the community service sector, and where work-places and education providers cooperated in programs which supported participants to achieve qualifications using a Training Package (p.45).

Simons et al., (2003) characterised the uses of Training Packages identified in the six case studies, as examples of integrated assessment practices that met the needs of both the contemporary work-place and learner. The researchers asserted that organisations which developed new approaches to learning, based on innovative methods of assessment and training delivery, used a “new way of conceptualising and carrying out the assessment functions for their industry areas.” (p.50).

The case studies reported by Simons et al., (2003) indicated that the design of assessment and training practices across a range of industries and work-places incorporated the principles of adult learning practices in particular, encouraging participants to bring to learning their life experiences. The researchers found that learner-centred approaches engaged assessors/trainers as well as learner/participants in co-operative approaches to learning and they claimed that these approaches were innovative in the area of work-place learning.

The dominant qualifications issued by RTOs within Training Packages are in the Certificate one to Certificate four levels, less numerous are the qualifications offered at the Diploma and Advanced Diploma levels. Research conducted by Foreman, Davis and Bone, (2003) sought information by survey about current RTOs that were able, according to their registration status, to have delivered qualifications at the Diploma or Advanced Diploma levels. However, investigation of a lower than expected response rate revealed that less than 50% had delivered qualifications, assessment or training at the Diploma or Advanced Diploma levels.

Responses were received from 28 course coordinators and 33 assessors working in Registered Training Organisations (RTOs) delivering Diploma and Advanced Diploma qualifications. Foreman, Davis and Bone (2003) used stakeholders, including industry training advisory body representatives, assessor networks, a state training authority and industry practitioners, to validate survey outcomes through a series of consultations and focus groups (p.11).

The survey of course coordinators by the researchers sought information about the following: assessment of Diploma and Advanced Diploma in specific Training Packages; special procedure for assessment; assessment activities and arrangements; assessor qualification experience; and, assessor contact details.

For the survey of assessors, Foreman, Davis and Bone (2003) sought information about the following: assessment at Diploma and Advanced Diploma in specific Training Packages; assessment methods experience; questions about the assessments; comparison between Certificate levels and Diploma level assessments; and, other comments. Certificate levels span the Australian Qualification Framework (AQF) Levels 1-4 and Diploma and Advanced Diploma span the AQF Levels 5-7. The researchers sought to clarify the differences in assessment practices in the context of AQF levels (p.15).

Results from the surveys found that in comparison to lower AQF qualifications, assessors of Diplomas and Advanced Diplomas required more time to gather

evidence, used a variety of indirect techniques, undertook greater customisation of assessment and used greater levels of professional judgment (pp.47-48). Results also revealed perceptions of ambiguity in the competency standards used by assessors, particularly regarding what Training Packages term “performance criteria” and “evidence guides” (p.44). The researchers questioned whether the ambiguity was due to problems with the Training Packages or whether the problem may be due to a lack of training of the assessors or inadequate moderation of assessment activities (p.41). The researchers argued that further research may be needed into professional development and provision of instruction to assessors for higher qualifications, in order to resolve this ambiguity. Foreman, Davis and Bone (2003) contended that greater levels of support are required for the assessment process of higher qualifications in the form of development of administrative staff, adoption of more stringent quality assurance processes and moderation of assessment activities (p.41).

The findings of Simons et al., (2003) and Foreman, Davis and Bone (2003) indicate that training and assessment influence the way that participants in programs gain knowledge and skills of direct relevance to their work-place activities.

These findings have implications for implementation of training and assessment in relation to the mandatory requirements for training within legislation such as the South Australian Occupational Health Safety and Welfare Act, 1986. The Act required that work-places ensure that training was of relevance to the needs of workers in the context of the safety requirements of the work-place.

Trends in Occupational Health and Safety

Although concerns with health and safety in the work-place may be as old as work itself, OHS as a field of research is a newly emerging or developing area. Research is emerging from three distinct areas namely: public health systems (LaMontagne, 2003; Frank et al., 2003), institutions involved in legislative or compliance support (Gallagher, Underhill and Rimmer 2001; Bluff, 2003) and research focussed on work-place applications (Blewett and Shaw 1996; Frick, Jensen, Quinlan and Wilthagen 2000; Rankin 2001).

LaMontagne (2003) is based in the school of Public Health in the University of Melbourne and, like Frank et al., (2003), from the Ontario Institute for Work and Health, considers OHS in the work-place from a public health and an epidemiological perspective. LaMontagne (2003) found that there was an increasing need for research on OHS issues due to the growth of OHS management systems (OHSMS) over the last decade. OHSMS require evaluation regarding the effectiveness of work-place management strategies and implementation of OHS policy. LaMontagne (2003) contended that there has been little research published in peer-reviewed journals, which evaluated either the effectiveness of these systems or the regulatory interventions which drove them. The evaluation methodology described by LaMontagne (2003) as “intervention research” (p.1) provided an opportunity to improve OHS outcomes through production of evidence-based policy. Further, Frank et al., (2003) contended that research needed to be directed to OHS interventions. The research of targeted OHS interventions was needed to provide the evidence required for the development of policy which was readily applicable to the needs of work-

places in general. Frank et al., (2003) argued that OHS policy initiatives should provide an evidence base that will enable objective evaluation of the effectiveness and efficiency of implementation.

In Australia, The National Occupational Health and Safety Commission (NOHSC) provides national coordination of research concerning OHS and support for legislative and standards compliance. An evaluation has been undertaken regarding OHS Management Systems (OHSMS) in Australia on behalf of NOHSC. Gallagher, Underhill and Rimmer (2001) found there was a lack of research in the field. The researchers asserted that ongoing and thorough evaluation of the effectiveness of OHSMS, both across industries and within work-places, was hampered by the lack of objective criteria to measure effectiveness of OHSMS. Further, they argued that new research was required to assess a range of policy approaches in the content of OHSMS implementation (pp.56-60).

The NOHSC sponsored working paper by Bluff (2003) argued that regulating systematic OHS management was contingent on both mandatory obligations and the responses by organisation to those obligations and other pressures (p.51). Bluff (2003) identified that systematic OHS management approaches include management commitment and leadership, planning and resourcing, accountability, OHS specialist knowledge, the development of OHS competency and organisational learning and risk management. Bluff (2003) contends that these OHS management approaches are fundamental to the integration of OHS into organisational management systems (pp.52-53).

The research area which derives its focus from work-place application is based on the assumption that the integration of OHS into the core business of organisations will lead to better business outcomes. Blewett and Shaw (1996) argued that best-practice in OHS contributed to the success of business and they called for adoption of safety as part of a healthy corporate culture. Blewett and Shaw (1996) contended a key to best-practice in OHS is the adoption of a series of positive performance indicators which measure the development of improvement strategies encompassing, safe conditions of work and systems of work, appropriate training, management and leadership.

The adoption of systematic approaches to Occupational Health and Safety Management (OHSMS) was described by Frick, Jensen, Quinlan and Wilthagen (2000) as being characterised by a vigorous wide-ranging and continuing responsibility for OHS outcomes, through an organised management process which discovers, mitigates and prevents work-place hazards (p.1). Frick et al., (2000) identified four different motivators for the establishment of OHSMS. One motivator was intrinsic to the work-place and was characterised as voluntary, whereas three other motivators were extrinsic and characterised as responses to international standards, which included quality, mandatory compliance and hybrid systems (p.1). The development of OHSMS encompassed evidence-based best-practices which used the results of peer reviewed research. Frick et al., (2000) contended that OHSMS which met or exceeded regulatory requirements for internal and external work-place environments ensured that appropriate cultures and climates existed to underpin the implementation of integrated management systems and OHS policy. Measurement

and evaluation which used predictive and accurate lead and lag indicators was essential to continuous improvement of the OHSMS.

The assertion that safety is integral to the efficient and profitable management of a contemporary organisation is based on the claim by Rankin (2001) that modern businesses are based on systematic approaches and, therefore, require plans and controls in order to achieve their organisational goals. Rankin (2001) further asserted that if OHS is to be applied successfully within an organisation, there is no alternative but for the systematisation of OHS within the structure of the organisation.

In South Australia OHS legislation was enacted in 1986. Current OHS requirements for employers have increased in complexity and, as changes occur, training and development to accommodate these changes needs to be undertaken (Frick et al., 2000; Gallagher, Underhill and Rimmer, 2001; LaMontagne 2003).

Training Packages provide a framework for the acquisition of knowledge and skills which can be assessed appropriately (Simons et al., 2003; Foreman, Davis and Bone, 2003). Training Package implementation assures that learning meets the requirements of both legislation and organisational policy. The utilisation of Training Packages may, according to Hennekam and Flower (2002), form an important part of what Bluff (2003) describes as the integration of OHS into an organisation's management system.

Management and OHS Practice

The way that managers seek to change work-place practice is of importance to OHS implementation. Bohle and Quinlan (2000) argued that work-place managers in Australia have the responsibility to ensure that workers have a safe work-place and that OHS policy is implemented. A study by Gallagher (1997) was undertaken to assess if there was a link between the characteristics of the “system type” of OHS management systems (OHSMS) and “system performance” of the OHSMS across a variety of industries (p.1). The researcher selected 20 work-places, two organisations “of similar size...with a similar corporate status” from each of ten industry types in the secondary and tertiary sectors (p. 11). Cases were selected for study on the basis of having an established OHSMS and the employment of “a specialist in health and safety or human resources manager” (p.11).

The researcher conducted structured interviews of a range of work-place employees and managers with different roles in the OHSMS and undertook document analysis to verify responses received from the semi structure interviews. The researcher used the Safety Management Achievement Program (SafetyMap) audit process as the “case study protocol” (p.11). The focus of the interviews was to assess organisational compliance with the SafetyMap audit criteria, characterised by Gallagher (1997) as the benchmark for system performance (p.11). Information obtained from the interviews was verified with case study participants.

Gallagher (1997) described a process where data was used to establish a “system type” of the OHSMS of the organisations examined (p.15). Four system types of

OHSMS were proposed by the researcher. The system types were derived from the synthesis of findings from a review of the theoretical foundation within the OHS literature (p.15). Gallagher (1997) argued the literature described system types such as the 'safe person' and the 'safe place' approach to safety management, with a further separation being formed between the categories by traditional versus innovative approaches to safety management.

The four systems types were characterised by Gallagher (1997) as follows: “the 'sophisticated behavioural' type, with innovative management and safe person characteristics; the 'adaptive hazard manager' type, with innovative management and safe place characteristics; the 'traditional design and engineering' type, with traditional management and safe place characteristics; and, the 'unsafe act minimiser' type, with traditional management and safe person characteristics (p.101). Gallagher (1997) validated the four system types through application of the SafetyMap assessment criteria to the organisations and subsequently matched this against the characteristics of the identified system types. The researcher asserted this assessment “provided a valid categorisation of system type” (p101) and provided the assessment and categorisation of organisation and system type as appendices to the research paper.

The researcher assessed OHS performance results against the SafetyMap criteria in order to identify the level of compliance with regulatory requirements. This assessment of compliance was then cross referenced with the four system types to ascertain if there was any relationship between system type and system performance.

Gallagher (1997) asserted that where a link between system type and system performance could be found the “adaptive hazard manager” system type featured prominently (p.103). Gallagher (1997) identified the critical characteristics which influenced OHS performance included “Senior managers who drive health and safety change, ... transforming the role of the supervisor to support [OHS] , a commitment to ...mobilise resources, ...inclusion of [OHS] in the design of tasks equipment and procedures, ... a comprehensive approach to [OHS] training” (p.103).

Gallagher (1997) found all organisations studied failed to perform satisfactorily regarding the “rigorous integration” of OHS into core management systems and accountability processes, including audit and review mechanisms. The findings indicated the need for further research and consideration of OHS policy implementation strategies focussing on the innovative “ ‘safe place’ prevention strategy” (p.15).

A study by Trethewy, Gardner, Cross and Marosszky (2001) was undertaken to examine OHS management systems in the NSW construction industry. The researchers conducted observations of OHS behaviour and practice in ten building sites. The focus of these observations was the impact of management interaction on fostering and developing “a safe work-place culture” (p.251). Of particular interest to the researchers, was the way that managers used cyclical “goal setting as a motivational driver” and “feedback” to achieve “improvement in performance” of OHS site practice (p.254).

A “site safety meter” (SSM) was developed by Trethewy et al., (2001) in consultation with participating work-place managers and staff. The SSM contained what the researchers called “measurement criteria” for six categories of behaviour and practice, which was used to make judgements from observations of behaviour or practice affecting work-place safety in terms of “correct or incorrect”. The SSM provided written and numerical feedback of these judgments. The researchers established a benchmark of initial site achievement. Subsequently five appraisals were conducted in each site over a six month period. Observations were compiled after completion of the appraisals and were immediately displayed in prominent places in participating sites (pp.256-257).

Observations made by the researchers of the management systems of feedback and goal setting found that data derived from the SSM was referred to in meetings concerning safety performance, and used to set goals for increased safety performance. Trethewy et al., (2001) observed that site safety personnel used the scores within each category to prioritise their safety efforts and also observed that where managers gave feedback to staff, workers expressed an improved opinion of management commitment to safety. The researchers found that workers used feedback on the effectiveness of their safety efforts to actively support a safety management system, and that management and workers developed strategies and systems to implement control of risks identified by the data provided in the site safety metre.

The final SSM results across all thirteen sites showed the average percentage of correct scores had increased to eighty four point five percent (84.5%) in the six categories of correct behaviours and practices.

Trethewy et al., (2001) contended that management involvement in the work-place and the structured use of the SSM in goal setting and feedback was a motivational driver in the achievement of increases in correct work-place safety behaviour and practice. Further, they claimed that, to a degree, observation and feedback of safety behaviours was effective in providing motivation to change safety behaviours.

However, the researchers were of the view that it was management intervention, including the existence of cultures that positively valued OHS and the active control of risks by managers along with supervisors and employees, that most strongly underpinned the motivation of workers to increase their level of safety performance.

A similar study by Marsh et al., (1998) was undertaken to examine management systems in the UK building industry. The researchers conducted a study of the implementation of behavioural safety interventions across fifteen building sites, in order to identify the relationship between management commitment to on-site safety, trained site safety observers and site safety performance.

The researchers developed an observation instrument to measure safety performance of four categories of site safety behaviour. The safety performance measure (SPM) instrument was to be used by the researchers, as a pre-intervention measure and a post-intervention measure, in order to determine change in site safety as a result of the

interventions. Interventions used for the study were: feedback to worksite staff of SPM results, being given training to address identified shortfalls in performance and setting goals for improvement.

The instrument was trialled using six building sites in order to test the impact of interventions. Pre-intervention observation measures of three categories of behaviour were undertaken, feedback and training were given, goals were set and a post-intervention observation measure was conducted. The fourth category of behaviour was used as a control category where no interventions were given and participants were not told they were being observed and measured. The researchers wanted to find out if the intervention resulted in a change in behaviour. SPM results from the trial of the intervention showed that safety behaviour improved at a significant level for the three trial categories. For the control category, site safety improved but not at a significant level.

Marsh et al., (1998) used 15 building sites to validate the SPM in terms of its use with the intervention strategies of the study, and site safety observers used the SPM to conduct pre-intervention and post-intervention observation measures. The average pre-intervention safety score was 82.5 percent and the post-intervention score was 86.5 percent. The researchers reported the validation of the SPM and contended that safety performance levels on construction sites can be “objectively and reliably measured” (p.48).

Having validated the SPM instrument and its application to the interventions, the researchers designed an observation instrument to gather information about what the researchers termed key individual “commitment behaviours” (p.49) of managers, and of the site safety observers, during the application of the SPM and the intervention process. Marsh et al., (1998) sought to obtain data by which to measure the relationship between managers, site safety observers, and goal-setting. The observation instrument was used at points the researchers termed “critical incidents” (p.49).

The SPM results gathered by site safety observers and the data gathered by the researchers regarding the commitment behaviours for managers and for site safety observers and goal setting, were collated, analysed and evaluated by the research team. Marsh et al., (1998) reported that results showed a positive correlation with improved safety performance accounting for 30 per cent of variation, by using the SPM pre-intervention and post-intervention results and frequency classification commitment behaviours of managers and of site safety observers. Marsh et al., (1998) claimed that management commitment was the most significant item to be found in relationship to safety performance, when compared with work-site observer commitment and quality of goal setting.

The studies by Trethewy et al., (2001) and Marsh et al., (1998) found management systems and interventions have a significant outcome for work-place safety performance. These studies highlight the importance of training in the implementation of OHS interventions. These findings have implications for the implementation of

OHS policy in other work-places, in particular, for the application of assessment and training processes for managers and senior staff.

OHS Practitioner Training

Large organisations (employing over 200 staff) commonly employ specialist OHS practitioners. According to Hennekam and Flower (2002) many OHS practitioners in large South Australian public sector organisations lack formal qualifications, but may have gained appropriate skills and experience through the course of their employment in OHS practice and their experience the field of OHS. Where formal training does exist there is little research to examine the nature of work-place outcomes of practitioner training.

A study by Horstmanshof, Hassall, Hassall, O'Connor and Glendon (2002), in Queensland, examined training delivery mechanisms and work-place factors and their relationship to the performance of Work-place Health and Safety Officers (WHSO). A survey was administered to managers, employees and WHSOs, from 22 work-places in three different industries and semi-structured interviews were conducted with each of the three groups. A total of 65 people participated, comprising one each of the category of manager, employee and WHSO, drawn from the 22 work-places in the study.

The survey and semi-structured interview were designed to gather information on the perception of managers, employees and WHSOs, regarding WHSO ability to apply their training to the work-place. The researchers developed a schedule to gather data

on their own subjective impressions of “respondent perceptions of the WHSO role” (p.38) during the semi-structured interviews.

The three surveys consisted of questions with responses recorded on a ten point scale. The researchers’ schedule of impressions contained four questions with responses recorded on a ten point scale. The interviews were recorded and transcribed. Details of questions used in the interview schedule are not provided. The Statistical Package for the Social Sciences (SPSS) was used to analyse the results. From the analysis of data derived from the surveys and interviews, the researchers identified two key areas of what they called “training effectiveness” (p. 39); the first being “organisational and work-place features” (p. 39), the second being features of the “WHSO training” itself (p. 39). The organisational and work-place features consisted of “safety culture, safety climate, role construct and communication” (p.39). The features of WHSO training consisted of “adult learning”, “expectations”, “individual differences” and “outcomes” (p.39). The researchers argued that all of these features contributed to the effectiveness of work-place training.

Horstmanshof et al., (2002) asserted that safety culture and safety climate included the components of “behaviour and attitudes of management” (p.39) to safety. The researchers argued that the integration of safety culture and safety climate into an organisation’s operations, were key work-place factors ensuring the effective transfer of knowledge and skills obtained in WHSO training to the work-place.

The researchers identified a feature of the WHSO role that they termed a “role construct”, which indicated a need for a shared understanding of the WHSO role by managers, employees and the WSHO. Horstmanshof et al., (2002) claimed that this role construct underpinned the WHSO ability to transfer training knowledge. Further, the researchers argued that the way in which climate, culture and construct are communicated by management to the work-place underpins effective transfer of knowledge and skills obtained in WHSO training to the work-place.

Horstmanshof et al., (2002) found discrepancies in perceptions of transfer of skill, in that the WHSOs perceived a greater degree of effectiveness of their transfer of skills to the work-place than that perceived by employees. The researchers also found a similar discrepancy in perceptions of WHSO role and its overall effectiveness in safety, with both managers and WHSOs perceiving the role to be more effective than employees perceived the role to be.

Horstmanshof et al., (2002) contended that the WHSO role is “critically dependent on company-wide commitment that is backed by active and ongoing management involvement” (p.42). The researchers contended that regardless of training and its effectiveness, a lack of involvement in safety by management and workers may diminish the effectiveness of the role of WHSO and leave the WHSOs “frustrated and ill equipped to perform their role” (p.42).

This study is important as it reinforces the findings of Gallagher (1997) regarding the importance of systematic support for OHS and the central role of management. The

findings also indicate the importance of examining the role which Training Packages could have in the assessment of work-place performance and outcomes regarding OHS Training delivery involving OHS practitioners.

Safety Improvement

The achievement of safety improvement has been linked to the performance of management in a number of studies that also highlight the development and changes required of managers to achieve those improvements.

A study by Baker (1990) of the bauxite–alumina industry in Western Australia in the period 1980-1990 examined participative approaches to safety management and subsequent effects on safety performance. Baker (1990) used data derived from both safety authority records and company records and he undertook unstructured interviews with employees, managers and safety representatives within the Worsely Operation of Alcoa in Western Australia.

From the analysis of data, Baker (1990) identified two different styles of management. At the opening of the new plant in the early 1980s Baker (1990) claimed that there was an authoritarian or ‘“top down” management style’ (p.472). After the initial phase of plant commissioning in the mid 1980s to 90s, the management of the company developed a participative approach to safety management. Baker reported that this change included the following elements namely: leadership, trust, open systems, motivational programs and trained people.

Baker (1990) contended that the participative style of management facilitated improvement to site safety through the establishment of functioning health and safety committees, safety representative training, crew safety plans, health support schemes, employee rehabilitation schemes, job skills training, project safety reviews, accident investigation and industrial hygiene approaches.

Baker (1990) described behavioural approaches before and after implementation of participative management. For example, prior to the participative management style there was, what Baker (1990) called, a reactive role in safety management responding to safety concerns only after incident or accidents, whereas after the adoption of the participative approaches, management sought out opportunities to eliminate unsafe behaviour and conditions generally. Baker (1990) found that consistent improvements in preventative action led to a drop in serious injuries in the period 1980 to 1990, indicated by a drop in the Serious Injury Frequency rate, with the “total number of lost workday cases, alternative duty cases and medical treatments per 200,000 [working] hours” from 16 in 1980 to 5.5 in mid 1990 (p.472).

Baker (1990) concluded that the basis for ongoing success in safety will be achieved in a well resourced safety environment through worker participation and management support in a process of continuous improvement (p.480).

A study by Rowe (2001) analysed the effects of the implementation of a behavioural based approach to safe work practice and subsequent changes to management of safety in WynCare, a wholly owned subsidiary of the Wyndham City Council

Victoria. The implementation involved 65 staff engaged in high risk areas in home care activities and eight trained safety officers acting as assessors.

Rowe (2001) described the implementation as using a participative approach to development of safe working procedures for home care workers. Data was gathered through the use of monthly observations of the home care workers by the eight trained safety-officers, with each observation followed by feedback and development of safe responses to identified hazards. These safe responses included appropriate training and risk management strategies. Data from the trained safety-officer's observations were analysed in order to develop a schedule of key risks and a checklist of safe work procedures to manage those risks. This safe work checklist was then piloted with each of the 65 workers, ergonomists and other specialists.

The checklist was developed into a manual and a training program was developed in order to minimise key risk behaviours and other risk elements. This manual was then used as a basis for competency based training in injury prevention. A cycle of six-monthly observations was then undertaken to ensure continued application and improvement of the implementation.

Rowe (2001) contended the participative approach used in the implementation led to the development of a sustainable approach to risk management. The risk management approach included induction, training, continuous improvement of tools (such as checklists and MSDS and other reference material) and equipment, supported by staff involvement, ongoing periodic observation and safety audits.

Rowe (2001) described a change in the management of safety at WynCare from a reactive management style, where safety issues were only acted upon after an incident or accident occurred, to a proactive management style of safety, driven by employee involvement, supported by the strong commitment of managers to employee safety.

Rowe (2001) reported the Lost Time Injury Frequency Rate (LTIFR) dropped from 38 to 16 over the two year implementation period, which yielded a 20 percent reduction in WorkCover premiums in the period 1999-2000. Rowe (2001) contended that involvement of staff and management in finding solutions for health safety issues in the work-place, was a key aspect of change to practice contained in the implementation of health and safety policy. Changes were effective because staff and management were committed to the change (p.6).

Changes to organisational performance leading to safety improvement as highlighted by Baker (1990) and Rowe (2001) have required changes to both the way employees undertake their work in the work-place, and a change to the way in which managers manage the work-place. Such changes require significant alteration to systems of work and these alterations require significant degrees of support including the provision of appropriate training to both employees and managers.

Summary

This chapter included a review of current OHS issues and evidence-based policy, as well as research relevant to the use of Training Packages. Several key points emerged from the literature review.

Adult learning principles applied in the context and use of Training Packages, were found to be keys to the implementation of OHS practice involving work-place training and assessment, and the use of Training Packages to standardise OHS practice (Hennekam and Flower, 2002; ANTA, 2000).

The integration of learning and assessment practices involving the use of Training Packages allowed for innovative methods of assessment and training delivery (Simons et al., 2003).

Key trends in Occupational Health and Safety include the need for development of evidence based policy, both public and work-place related. (Gallagher et al., 2001; Frank et al., 2001; LaMontagne, 2003).

The use of performance indicators and the implementation of strategies which promote individual ownership of safety outcomes and demonstrated by safe behaviours are features of companies with integrated OHS management systems within their organisational structures. (Blewett and Shaw 1996; Frick et al., 2000; Rankin, 2001)

Management involvement in the work-place through structured management systems and the use of goal setting and feedback was found to be a driver in the achievement of improved OHS Practice, with demonstrated management commitment the most significant factor in the relationship to improved safety performance (Gallagher, 1997; Marsh et al., 1998; Trethewy et al., 2001).

The successful application of OHS Practitioner Training is dependent on company-wide commitment backed by active and ongoing management involvement (Horstmanshof et al., 2002).

Safety improvement is achieved through a well resourced safety environment with worker participation and management support for continuous improvement of safety systems. The involvement of both staff and management in finding solutions for health safety issues in the work-place, was identified as a key aspect for improvement in the implementation of health and safety policy (Baker, 1990; Gallagher 1997; Rowe, 2001).

This chapter has reviewed research literature relevant to implementation of OHS policy and practice. The next chapter describes the methodology of the study.