# PRACTICES AND PERCEPTIONS OF INTRODUCTORY OHS EDUCATION IN SECONDARY SCHOOLS – TOWARDS A CONCEPTUAL FRAMEWORK FOR EFFECTIVE OHS EDUCATION FOR YOUNG WORKERS

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**Nasreen Jahan**

## DEDICATION

This thesis is dedicated to the memories of my loving parents Md. Ramzan Ali Khan and Gulzar Nahar Khanam for their endless love, support, encouragement and giving me the strength to reach for the stars and chase my dreams.

# ACKNOWLEDGEMENTS

# ABSTRACT

**Background**

Despite the evidence of significant under-reporting, young workers are over-represented in injury statistics. Possible reasons for higher injury rates include lack of skill due to inexperience, cognitive and emotional immaturity, inadequate training and supervision, and unfamiliarity with working requirements and safe operating procedures. This may also include incomplete physical development for physically demanding work and unsafe behaviours due to peer pressure or risk-taking tendencies.

There is a body of evidence indicating an association between occupational health and safety (OHS) training and a lower incidence of workplace injuries, but other research indicates that young workers often receive little or no training. The limited knowledge among young people about workplace hazards, together with inconsistency in the provision of workplace OHS training indicate a need for introductory OHS education in schools. Ideally such education should be complementary to that provided in workplaces, in the community and in the home by parents. Key informants of the situation in schools are the teachers themselves. However, teacher perspectives, as well as parent perspectives have received little attention in the literature.

In order to contextualise the issues, as part of the preliminary work of this research, a statistical review of young worker injury experience over a ten year period in South Australia was undertaken. A significantly higher rate of injury among young males was found, along with higher rates for 15-19 year olds compared with 20-24 year old workers.

An international literature review of school-based OHS education programs was carried out, which revealed a shortage of evaluation studies. The literature review was then extended to systematically examine workplace-based training in the hospitality and food retailing sectors, where a high proportion of young people are employed. The findings suggested the importance of relevance, co-learning, and mode of delivery of training particularly participatory engagement.

It is evident that there are significant knowledge gaps, not only about the elements of effective OHS education, but also how they are seen (perspectives) and operationalized (practices) by the various stakeholders.

Thus the objectives of the research are twofold: Firstly, to survey current school-based introductory OHS teaching practices as well as the perspectives of teachers and parents: Secondly, to analyse and synthesize the findings and ideas to develop a conceptual framework for effective OHS education for young workers.

**Methods**

A mixed methods approach was used – namely a questionnaire survey of teachers and interviews with parents. Following focus group discussions with teachers and school-to-work advisors, a questionnaire was developed. The participants of the survey comprise teachers from all public, independent and catholic schools providing secondary education in South Australia (n=211). Questions on current practice, teachers' perceptions and barriers and incentives were included. Potential predictors of effective safety education were examined, and were grouped in terms of teacher-, school- and teaching-related variables. Bivariate and multivariate statistical analyses were undertaken with SPSS.

Telephone interviews with parents of year 11 students were carried out, with recruitment via information in school newsletters. The participants were invited to respond to a series of semi-structured questions relating to parents' perceptions, opinions, views and expectations on the OHS education provided by their child's school. The transcribed data were analysed with NVivo to identify themes, patterns and contents.

**Results**

*Teacher questionnaire survey*

Responding teachers (n=156) had a variety of backgrounds and experiences with an average of 21 years of teaching experience and 9 years of experience teaching OHS. They also taught subjects from all areas of the curriculum. Almost half (48%) of the teachers came from the pool of general teachers with various responsibility including teaching other mainstream subjects. Sixteen percent (16%) of teachers providing OHS education had not been trained in OHS.

Despite there being State guidelines and resource materials, a variety of approaches was reported. OHS education is commonly delivered in years 11 and 12 as part of VET subjects or apprenticeship training. More generally it is delivered to year 10 students prior to work placements, at the beginning of the year or term. Almost 90% of teachers taught OHS for less than 10 hours per year. The majority of teachers gave tests or assignments for which successful completion was required prior to work placements.

Three quarters of teachers considered the content both accessible and appropriate for the developmental level and capabilities of most students. Some of the respondents commented that teaching materials often contained too much information specifically related to theory and legislation, resulting in poor student response. In terms of the usefulness of resources, guest lecturers were given the highest rating.

More than half of the teachers (56%) who indicated negative or mixed responses from students, suggested that students find OHS education "boring", "dull" or "dry" from too much information and text, particularly that relating to theory and legislation. Reported barriers to OHS education were limited time availability due to the demands of a 'crowded curriculum', resource issues and lack of consistency.

The age of teachers (>45 years), years of overall teaching and years of teaching occupational safety were significantly associated with positive student response. It was also found that there are significant associations between (i) use of videos and students' knowledge gain; (ii) use of case studies and student engagement and participation (in public schools only) and (iii) years of overall teaching and teachers reporting the concepts as easy to teach. On the other hand, sharing own experience was negatively associated with positive student response.

The results of multivariate analyses involving the outcomes relating to effective learning and teaching show that there were significant association between use of videos and gain of knowledge by students (adjusted odds ratio, 2.94), public sector school (AOR, 2.60) and use of case studies (AOR, 2.17) with student engagement and participation. There was also a strong association, though not statistically significant, between years of teaching experience (more than 20 years) (AOR, 3.04) and positive student response. The teachers who reported that the quality of education is compromised due to other demands were less likely (AOR = 0.48) to report the concepts as easy to teach.

*Parents' interviews*

Parents (n=11) were largely unaware of any school-based preparatory OHS program. Some of them were aware about safety education as part of the relevant subjects in schools. Parents' views about OHS focused on common sense and safe work practices. Parents thought OHS meant wearing appropriate footwear, school uniform, goggles, hat, clothing and other personal protective equipment (PPE). They seemed to be unsure if the present school OHS education had any effect on their acquiring knowledge and skills for safety in work settings.

A few parents said that incorporation of OHS into the curriculum is important, but it should be precise and specific, so that their children need not spend a lot of time on this, and that it does not detract from their primary objective of having effective mainstream education. From parents' perspectives, the people who are in best placed to provide OHS education were not necessarily teachers. However, they acknowledged that teachers could be the providers if they had the required knowledge and training. Concerns were expressed regarding inadequate training of teachers who deliver OHS education in their child's school.

On the basis of the quotations and data, parents had a very narrow and common-sense view of what OHS is which is not in line with the view of teachers. Although parents seemed disinterested in OHS education in schools, they did care about their child's safety at school, both in the class room in relevant subjects, and on school premises, and in workplaces.

**Discussion and Implications**

Time constraints and the lack of standardization were the two most commonly identified challenges by the teachers engaged in the provision of OHS education. Development of a standard set of guidelines may assist in addressing both of these challenges. In terms of teaching methods, the survey, and other studies, suggests that those that are engaging, interactive and face-to-face are most effective.

Although parents admitted that they knew very little about their child's school's OHS initiatives, they are an important influence on their children's learning experience and they are the dominant force in the lives of these children as they prepare for future work. Consequently addressing parents' understanding is an important aspect of effective learning for students.

A little less than half (44%) of teachers indicated that students responded positively to OHS education and this may result in a positive change in safety behaviours. However, further work is needed to validate this prediction – i.e. direct investigation with the students and carefully designed research to understand the effect of the OHS education on the students' actual OHS behaviour in workplace situations. It is also important that future OHS education initiatives be subject to rigorous evaluation.

The findings have implications for the way OHS education in the schools is delivered. It is evident from the findings that the concepts of OHS education may vary according to the stakeholder. In addition to addressing community expectations, there is a possibility that the programs would need to be tailored to address the perspectives of different stakeholders. In addition, there should be a partnership between schools and industry, such that knowledge and skills introduced at school are complemented and reinforced in the workplace.

The findings from the reviews and empirical research lead to a conceptual framework. The framework specifies key contributors to OHS education and their inter-relationships. It describes effective education principles for young people, such as relevance, assessment and self-efficacy, but adapted to the time course of physical and psychosocial development, and the learning opportunities in the school and workplace environments. The framework identifies the need for an evidence-based and socially acceptable standard of OHS education to deliver by schools to students at the age of first entry in the workplace. Such a standard can provide a foundation for future training based in the workplace, but should be informed by parent perspectives, and may require additional teacher training. It should facilitate progressive learning from primary school through to professional and vocational education sectors.

# LIST OF ABBREVIATIONS

| | |
|---|---|
| ABS | Australian Bureau of Statistics |
| ACARA | Australian Curriculum Assessment and Reporting Authority |
| AIHW | Australian Institute of Health and Welfare |
| ASCC | Australian Safety and Compensation Council |
| DECD | Department for Education and Child Development |
| DECS | Department for Education and Children Services |
| DEEWR | Department of Education, Employment and Workplace Relations |
| EU-OSHA | European Agency for Safety and Health at Work |
| HREC | Human Research Ethics Committee |
| HWSA | Heads of Workplace Safety Authorities |
| ILO | International Labour Organization |
| IWH | Institute of Work and Health |
| NHMRC | National Health and Medical Research Council |
| NIOSH | National Institute for Occupational Safety and Health |
| OHS | Occupational Health and Safety |
| OHS&W | Occupational Health, Safety and Welfare |
| OHSW | Occupational Health, Safety and Welfare |
| PE | Physical Education |
| PLP | Personal Learning Plan |
| SACE | South Australian Certificate of Education |

SPSS            Statistical Package for the Social Sciences

SWA            School-to-Work Advisors

SWL            Structured Workplace Learning

SWSA           Safe Work SA

VET            Vocational Education and Training

WHO            World Health Organisation

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# THESIS OVERVIEW

This thesis takes a mixed method approach to understanding current practices of school-based OHS education and the perspectives of teachers and parents to introductory OHS education.

## Research questions

This study addresses the following questions developed from literature review and statistical review.

1  What are the practices and teacher perceptions of introductory OHS education in secondary schools of South Australia? Specifically,
   1.1. What is the current practice of introductory OHS education in South Australian secondary schools?
   1.2. What are the teacher perspectives on school-based OHS education?
   1.3. What teaching/school factors are associated with positive learning outcomes (as perceived by the teachers)?
2  How do parents understand OHS education in secondary schools?

The findings of the research and other literature suggest the development of a conceptual framework for effective OHS education for young workers.

The structure of this thesis is as follows:

## Chapter 1 The Research Context

This chapter provides an account of young workers' health and safety issues, community/industry responses and injury rates in South Australia for a 10-years period (1998-2007).

## Chapter 2 Literature Review

This chapter provides the background to the development of the research questions. This includes a review of existing OHS education for young workers, particularly in high schools, highlighting current efforts and progress made towards finding solutions to the problems that are discussed in chapter 1. Moreover, the chapter focuses on education as a preventive activity in secondary schools in particular and concludes with questions for subsequent chapters.

Taken together, chapters 1 and 2 describe schools' role in OHS education and suggest that the providers of mainstream education in schools can play a vital role in the provision of introductory OHS education by reaching young people on a large scale.

**Chapter 3 A Survey on Introductory OHS Education in Secondary Schools: Current Practices and Teachers' Perspectives**

This long chapter is an account of a cross-sectional survey of teachers conducted to investigate the current practice of OHS education in South Australian high schools. The other important areas related to school-based OHS education are also explored. They include the perspectives of teachers about the OHS education and the factors associated with positive learning outcomes. This survey involves high school teachers from all public, independent and Catholic schools from both metropolitan and rural areas.

The findings from the survey revealed that the teaching methods should be engaging, interactive, and should incorporate case studies and class discussion. The content and delivery mode of OHS education should be appropriate for young workers. There are other range of aspects of this research may be considered worth exploring. For example, OHS education relating to the type of teachers, kind of resources used by different types of teachers, OHS education by teacher age, gender, training.

**Chapter 4 Parents' Perspectives on School-based OHS Education**

The main purpose of this chapter is to explore school-based OHS education from the perspective of parents. The chapter describes a qualitative study involving parents of year 11 students to gain an in-depth understanding of their views and perceptions regarding OHS education. The chapter critically examines OHS from a parent's point of view and demonstrates how occupational health and safety is defined by parents and what they think is important.

**Chapter 5 General Discussion**

This chapter summarises the findings from previous chapters regarding practices and perceptions on school-based OHS education and compares the findings revealed by different methods in the context of other published work. It also discusses the importance of these findings within the framework of Australian school-based OHS education and young people.

It presents an appraisal of strengths and weaknesses of the work and a reflection of the significance of the work. Finally, it develops a conceptual framework of effective OHS education drawing on the findings of this thesis and other sources of literature.

**Chapter 6 Conclusions and Recommendations**

This chapter concludes the findings of this study and suggests future research needs and provides recommendations in order to address the high injury rate among young workers.

# SUMMARIES OF THESIS CHAPTERS

The following is a diagrammatic overview of the thesis.

| Chapters | Detail | Outcome |
|---|---|---|
| Thesis Overview | Research questions and Thesis organization. | Orienting the reader to the structure and constituents of the thesis, and to the areas of emphasis. |
| Chapter 1 The Research Context | Situation of young workers' health and safety issues and their injury rate. Domains of activity and role of education to address higher injury rates. | Provides an account of young workers' health and safety issues and a statistical review on young workers' injury experience in South Australia. |
| Chapter 2 The Literature Review | Defining intellectual content of research and formulating research questions. Identifying elements of effective OHS education through a systematic literature review. | Identification of research gaps and opportunities. |
| Chapter 3 Teachers' Survey on School-based OHS Education | The current practices of school-based OHS education and the teachers' perspectives. | Distribution of approaches and usage of resources. Correlates of effective education. |
| Chapter 4 Parents' Perspectives on School-based OHS Education | Examines school-based OHS education from a parent's point of view. Demonstrates how parents understand occupational health and safety. | Parents' perception of OHS education in schools. |
| Chapter 5 General Discussion | Integrated summary of the main findings from previous chapters and provides a reflection of the significance of the work. | Positions the key findings into a conceptual framework for effective OHS education for young workers. |
| Chapter 6 Conclusions and Recommendations | Concludes opportunities and provides recommendations. | Presents future research needs based on the proposed conceptual framework. |

**Layout of the thesis**

# CHAPTER 1 THE RESEARCH CONTEXT

## 1.1 Overview

This chapter provides a situation analysis of the young workers' health and safety 'problem' by an examination of the injury experience in South Australia. A brief description of Australia's young workers is provided. This includes their short demographic profile and their participation in the Australian workforce. The chapter concludes with a description of the domains of preventive activity in response to the problem, and the role of education to address higher injury rates among young workers.

## 1.2 Description of the target population – Australia's young workers

### 1.2.1 Characteristics of young workers

Young workers are internationally defined as 15-24 years olds who are working permanently or casually, in full or part time work. Young Australians who are on labour hire, working as apprentices or trainees, and part of a work placement or structured workplace learning program are also included in this definition (WorkSafeVictoria, 2007). Eighteen is the legal age at which young people are legally defined as adults which enables them to attain a driver's licence and voting rights. Between the years 17-18 young people in Australia usually finish senior school and undertake the transition to independent living and/or further studies (Fraser & Fraser, 2002; Pitman, Herbert, Land, & O'Neill, 2003). Children under the age of 15 years are generally regarded as dependent on their parents for support, wellbeing and development.

In Australia, the majority (70-80%) of young workers first enter the workforce prior to completing their school education (Australian Bureau of Statistics, 2006a; Australian Institute of Health and Welfare, 2007). Entry age is variable and may unofficially start during early adolescence in family businesses (Smith & Green, 2001). However, the majority of teenage workers commence casual work at the age of 15, corresponding to middle high school in Australia.

### 1.2.2   Young workers' participation in the Australian workforce

Young workers in the age range of 15-24, represent 14% of the total population of Australia and make up of 21% of the workforce ( Australian Institute of Health and Welfare, 2007). In Australia, the casual workforce is composed mostly of young workers. Compared to 1984 status, the proportion of young workers in casual jobs has doubled (Australian Bureau of Statistics, 2006a; Australian Institute of Health and Welfare, 2007). In a study involving the young population over a ten years period (between May 1994 and May 2004), it was found that the participation rate of young part-time workers showed a substantial  increase from 67% to 74% (HWSA, 2009 ).

### 1.2.3   Behaviour and circumstances of young workers

A report on the social, economic, health and family lives of young people portrays a positive picture of Australia's young people (Muir, 2009). The report notes that many Australian young people often take part in community based activities and actively contribute to a range of important areas. Independence and personal development are dominant considerations.

An important aspect of the transition to adulthood is an increase in risk taking behaviours which is a major contributing factor for injury. Risk-taking behaviour has been defined by Tull (2009) as the tendency to engage in behaviours that have the potential to be harmful or dangerous, yet at the same time provide the opportunity for some kind of outcome that can be perceived as positive. Tull (2009) also stated that this kind of behaviour may elicit positive feelings in-the-moment, but, they can also place young people at higher risk for potential harm, such as accidents.

Examples of behaviour associated with risk taking and recklessness in the context of OHS have been provided by Meek (2007) and Robotham (2012). These include a desire to impress others, increased independence, opportunity, peer/cultural influence, and continued brain development. Some young workers often do not disclose their uncertainty about instructions they have been given. Moreover, for many teenagers taking risks and making mistakes, is perceived as part of what adolescence is. According to a longitudinal study of adolescent risk taking behaviours (Sheehan, Siskind, & Schonfeld, 2004), high risk takers are more likely to be impulsive and enjoy high risk activities. They are less likely to believe they will be caught and are more likely to report negative attitudes towards authority.

Additionally, peer group pressure, impressing friends and wanting peer group acceptance, and having a sense of invincibility have been presented as common reasons of young people's risk taking (Transport Accident Commission, 2011).

A study interviewed 146 teenagers treated for workplace injuries in emergency rooms, found that 19% of their injuries occurred while they were engaged in risk taking and prohibited tasks (Knight, Castillo, & Layne, 1995). Australian Bureau of Statistics (2008) data also suggested that risk taking behaviour and exposure to prohibited tasks may increase risk of injury among youths, and that this could impact on their own health and wellbeing with ensuing consequences for others. On the other hand, young people are more likely to be given risky or repetitive tasks that require low or no technical skills resulting in more hazards and injuries (Breslin, 2011). Typically, these jobs have limited scope for safety training (Delp, Runyan, Brown, Bowling, & Jahan, 2002).

## 1.3 Health and safety for young workers: A situation analysis.

A review of past research studies and their findings states that young workers (15-24 years old) are at higher risk of injury in the workplace in comparison with older workers (Brooks & Davis, 1996; Delp, et al., 2002; Hale, 1984; Hertzman, McGrail, & Hirtle, 1999; Knight, et al., 1995; Miller & Kaufman, 1998; Rasmussen, Hansen, Nielsen, & Andersen, 2011; C. W. Runyan, Schulman, Santo, Bowling, & Agans, 2009; Saarela, 2005; Schober, Handke, Halperin, Moll, & Thun, 1988; Zierold & Anderson, 2006). The risk of occupational injuries is inversely related to the worker's age as shown by Jovanović (2004), and Palukka and Salminen (2005). Permanent impairment among adolescents and young adults, though less frequent than for adults, was of concern because these long term health consequences might result in increased need for health care services into adulthood and beyond (Breslin, Koehoorn, Smith, & Manno, 2003).

The reasons for young workers' higher injury rates may include lack of skill due to inexperience, cognitive and emotional immaturity, lack of training and supervision, and unfamiliarity with working requirements and safe operating procedures (Castillo, 1997; Holizki, McDonald, Foster, & Guzmicky, 2008; Saarela, 2005). This may also include incomplete physical development for physically demanding work and unsafe practices due to peer pressure or risk-taking tendencies (Saarela, 2005). The enhanced risk may be, as

explained by Mayhew (2007a), due to factors associated with their biological, neurological, developmental and labour market characteristics. In this study, the author added that it is not just the supervisors and the machineries or the processes they are involved with; there are peers and co-workers who create issues for young and inexperienced workers resulting in harms and injuries to them.

## 1.3.1   Young workers' injury experience in Australia

Reviews of Australian studies also indicate that young workers have the highest work injury rate in comparison to other age groups. According to the survey of work related injuries conducted by the Australian Bureau of Statistics (2006a), people aged 15 to 24 years had the highest work-related injury rate (around 75 per 1000 employed people). Comparable findings were reported by Scott, Hockey et al (2004). They found that workers in the 15-17 years old age group were twice as likely to be injured in the workplace as other workers. Furthermore, the Australian Safety and Compensation Council now known as SafeWork Australia, shows that 15 to 24 year olds have a 75% greater risk of being injured at work compared to older workers (Australian Safety and Compensation Council, 2008). In relation to occupational injuries, Australian Bureau of Statistics (2011) states that around 640,700 people experienced a work-related injury or illness in 2009-10. The cost of these injuries is a significant burden to Australia and the total economic cost for the 2008–09 financial years is estimated to be $60.6 billion, representing 4.8 per cent of GDP for the same period (Safe Work Australia 2012).

To get a current profile of the injury experiences in South Australia, an analysis of young worker injury claims experience from 1998-2007 was conducted and published in 2009 as part of this research (Jahan, Pisaniello, Stewart, Braunack-Mayer, & Winefield, 2010). This was a limited analysis using data of South Australia to acquire a basic understanding of the prevailing trends and rates of injuries, an account of which is presented in the following paragraphs. It was also focused to see whether these findings are consistent with other relevant literature.

### 1.3.1.1   Statistical review: Young worker injury experience in South Australia (1998–2007)

The sections above shed light on the current situation of OHS issues related to young workers. This section provides an overview of young worker injury claims experience for a 10-year

period. It aims to highlight occupational injury epidemiology and time trends in injury claims in South Australia from 1998-2007.

*1.3.1.1.1 Background*

Sections 1.1 and 1.2 of this chapter reveal that young workers are over represented in workplace injury statistics, and this has been attributed to a range of factors such as lack of experience, incomplete physical and mental development, and risk-taking behaviours (Westaby & Lowe, 2005). Injuries among young people represent a significant burden to society in terms of potential long-term costs and lost opportunity. As part of the National OHS Strategy 2002–12, all Australian jurisdictions set a target of reducing workplace injuries by 40%, with a reduction of 20% to have been achieved by 30 June 2007 (Safe Work Australia, 2002 ). With respect to young workers, interventions have included secondary school safety education initiatives, regulatory campaigns in the hospitality industry, and young worker websites.

It is important to understand the factors that are associated with higher injury rates, the types of injuries experienced, as well as, temporal trends. Such information may be useful for training and prevention programs. This study examines time trends in injury claims based on age, gender, and industry category in South Australia from 1998-2007 in order to explore the current situation. It also examines serious claims and injury types by body location among young workers using 2007 workforce injury claim data of South Australia.

The main purpose of this statistical review was to characterise young worker injury claims experience in South Australia (SA) in the context of the national objectives. The Objectives were:

- To examine time trends in overall injury rates with a focus on differentials in terms of age and gender.

- To examine time trends in serious claim rates with a focus on differentials in terms of age and gender.

- To describe young worker injury types by body location.

- To understand the claim experience of young workers by industry category.

*1.3.1.1.2 Methods*

The number of SA workers in the age range 15–24 years during the period 1998–2007 was estimated from ABS census data and workforce participation data (Department of Further Education & Technology, 2007). The age and gender-specific working populations were interpolated when data for individual years were not available. Claims data were provided by WorkCover SA, and serious injuries defined as 5 or more days off work (Safe Work Australia, 2009), were considered separately. WorkCover SA injury claims by 15–24-year-old workers in the period 1998–2007 were combined with Australian Bureau of Statistics (ABS) census and workforce participation data to estimate injury rates.

Claims rates are expressed as the number of claims per worker, as there was no data on full- or part-time employment or the number of hours worked. There was no adjustment for multiple claims for the same individual in any one year. However, in general, such multiple claims represent a very small proportion of the total. Industry-specific data are expressed as absolute claims across the period 1998– 2007. Claims by body location are presented from 2007 statistics, but other years are similar. In order to assess the experience of teen workers, young workers were stratified as 15–19-year-olds and 20–24-year-olds. The statistical analysis was done using Microsoft Excel.

*1.3.1.1.3 Results*

In this section the findings are presented for work related injury according to age group, gender, industry categories and body location including findings on serious injuries for a time period covering from 1998 to 2007.

*1.3.1.1.3.1 Serious injury claims*

Rates of serious claims over the period 1998–2007 show a weak decline in both age strata (Figure 1.1), with a steeper decline during 2004–07. Rates in the 20–24 years age group are about twice those for the 15–19 years age group.
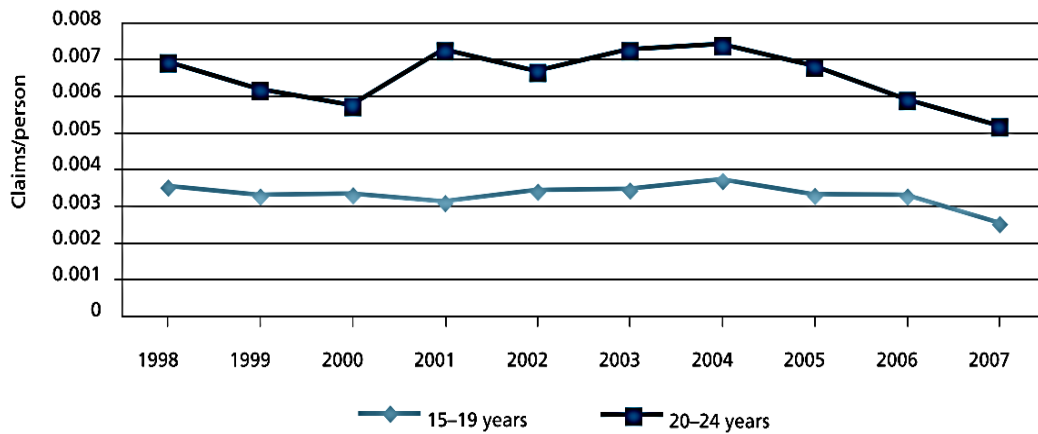
**Figure 1.1: Serious claims by age group and year**

Data for male and female workers for the same period also show a temporal decline (Figure 1.2). Rates for males are approximately double those of females.
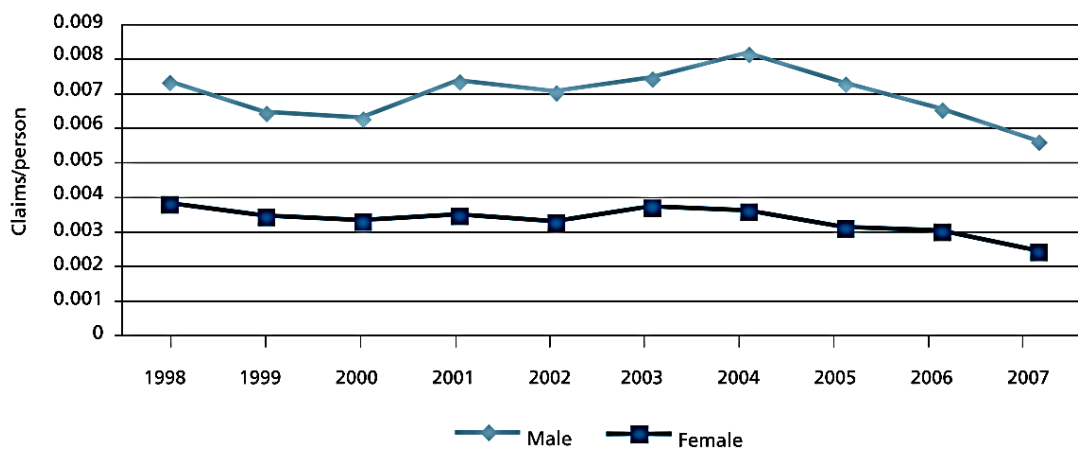


**Figure 1.2: Serious claims by gender and year**

*1.3.1.1.3.2  All injury claims*

When all injuries are considered, there is a more noticeable decline. Figure 1.3 shows consistent declines for 15–19-year-olds as well as 20–24-year-olds.
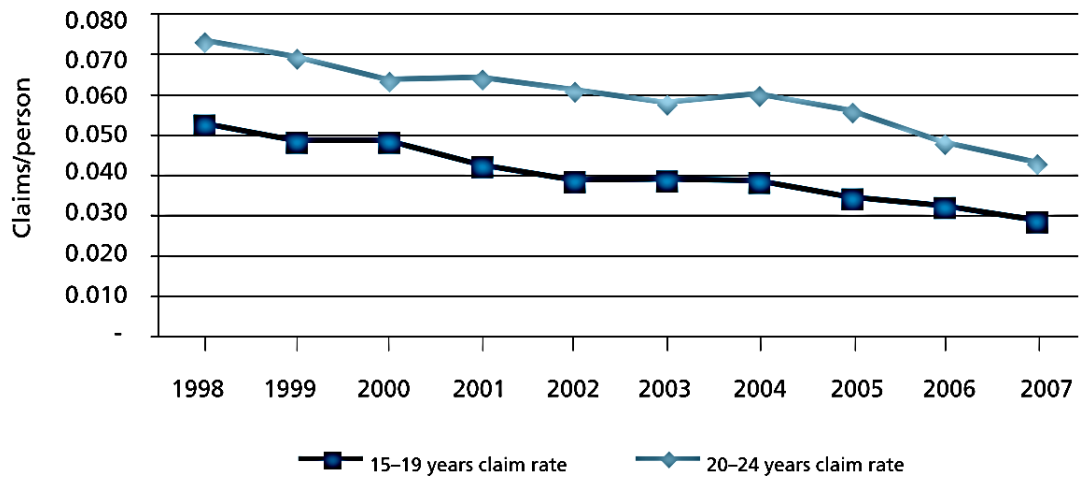
**Figure 1.3: Injury over time by age group**

Injury claims by gender shows markedly higher rates for male workers compared to female workers. However, the rates are clearly falling in both cases.
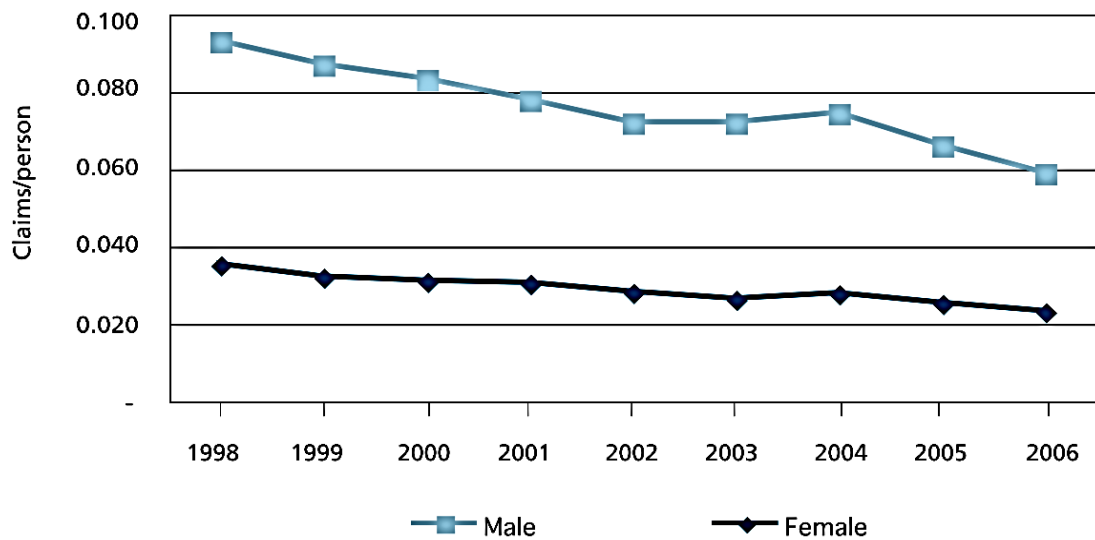


**Figure 1.4: Injury over time by gender**

*1.3.1.1.3.3  Injury claims by body location and industry categories*

Figure 1.5 shows the percentage of injuries by body location during 2007 for young workers aged 15–24 years. The important body locations are shown separately in this chart. Body parts with minor share in injury claims are included in 'other' category (32%). Fingers, thumbs, hands and wrists account for about 31% of the claims. One in 10 claims was for lower back injury.

**Young workers' injury claims by body location, 2007**

| | |
|---|---|
| ■ | Fingers |
| ■ | Lower back |
| ■ | Hand |
| ■ | Shoulder |
| ■ | Wrist |
| ■ | Knee |
| ■ | Thumb |
| ■ | Eye-unsp. |
| ■ | Ankle |
| ■ | Foot |
| ■ | Neck (musc-skel) |
| ■ | Psych. System |
| ■ | Elbow |
| ■ | Other |
| ■ | Missing |
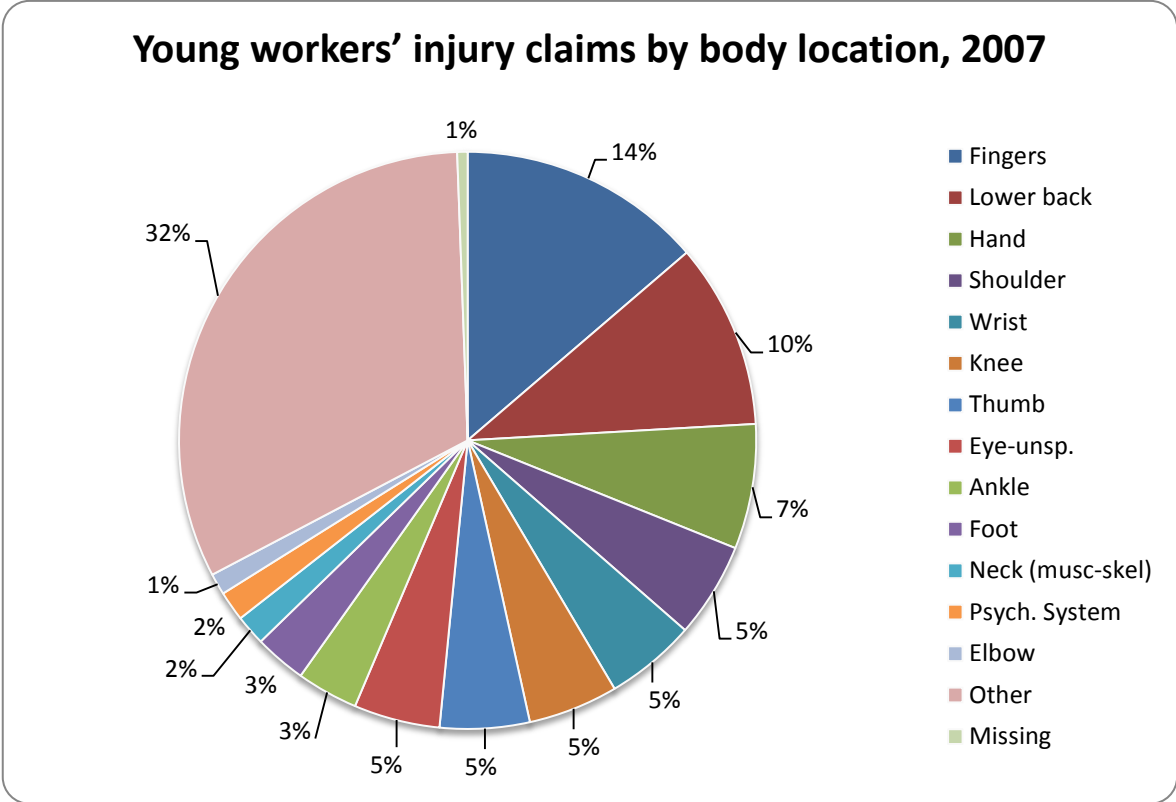
**Figure 1.5: Young workers' injury claims by body location, 2007**

Figure 1.6 shows the absolute number of injury claims by five major industry categories. The highest numbers of claims were found in manufacturing, but these decline rapidly over time. A slight increase in claims in community services is apparent from 2000.
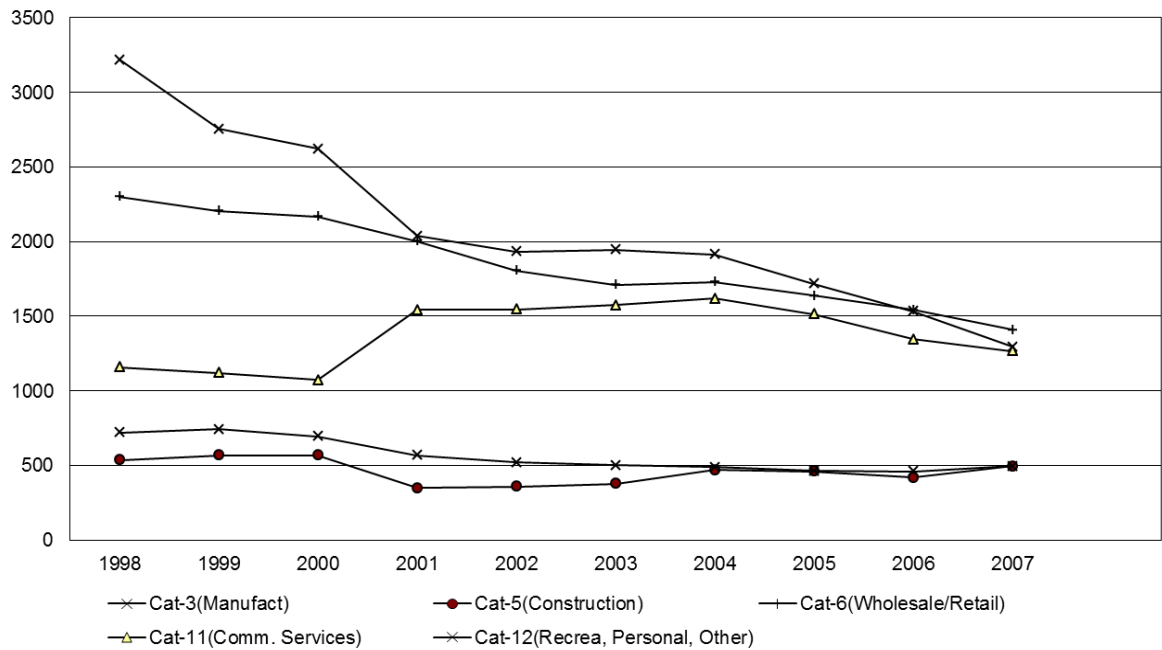


**Figure 1.6: Young worker injury claims for five major industry categories**

Figure 1.7 shows the absolute number of injury claims over time for two industry categories with a high proportion of young workers. A significant reduction has occurred for wholesale and retail trade, which includes supermarkets. The reduction is less apparent for recreational, personal and other services which include cafes and restaurants, pubs, taverns, bars, accommodation and clubs (hospitality).
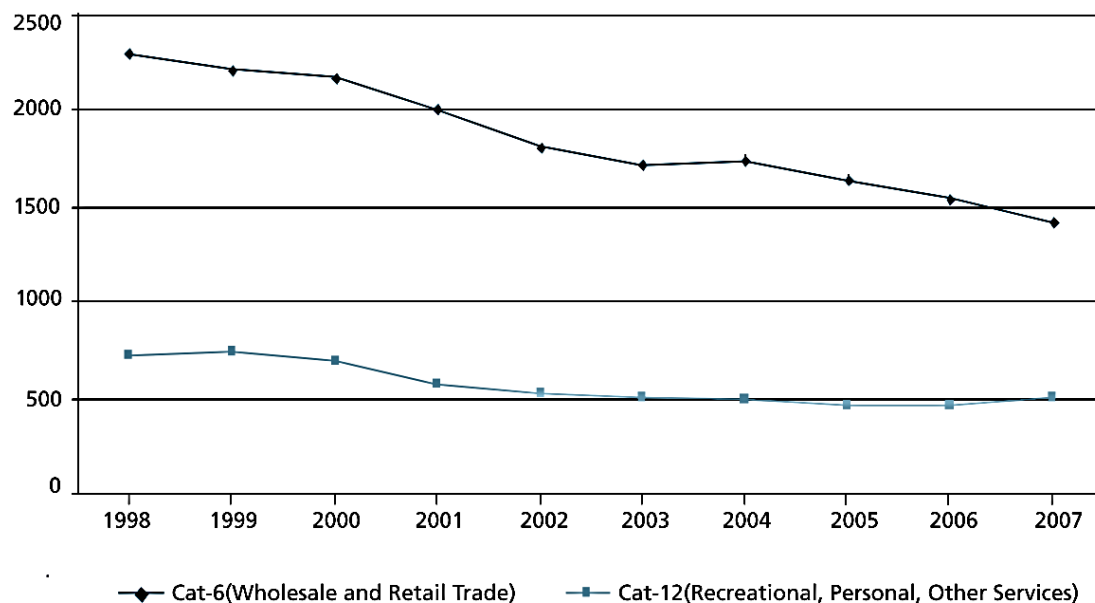


**Figure 1.7: Injury claims over time for two industry categories with a high proportion of young workers**

*1.3.1.1.4 Discussion*

Results of this review indicate that young worker injury rates in SA are generally declining with time. The decline in young worker injury rates is less obvious for serious injuries. This is consistent with the national statistics for the period 2000–01 to 2005–06, which shows that the number of serious claims decreased by 16% (Australian Safety and Compensation Council 2009). However, there has been little change over this period in the proportion of serious claims lodged by male employees compared to female employees (67% and 32% respectively), which is similar to findings presented in Figure 1.2. According to a recent report of Safe Work Australia (2011), male employees were almost twice as likely as female employees to lodge a claim for an injury or disease (16.7 serious claims per 1000 male employees compared with 9.0 serious claims per 1000 female employees). This difference in the number of serious claims for male and female employees reveals fundamental gender differences in work safety outcomes (Safe Work Australia 2011). Those in the older age

group (20–24 years) and males are more likely to lodge a serious injury claim. This may be due to more awareness of older people about their rights than young people or it may be due to more job security and doing more hazardous jobs.

In terms of all injuries, 15–19-year-olds were less likely to claim than the older age group (20–24-year olds), and overall injury rates are higher among male compared with female workers.

It is reported in the ABS Work Related Injuries Survey (Australian Bureau of Statistics, 2008) that there might be considerable under-reporting by age and sex groups. The possible reasons for under-reporting are: minor injury not considered necessary to claim, did not think eligible, negative impact on current or future employment, inconvenient and required too much effort or paperwork, not covered, or not aware of workers' compensation. These issues of under-reporting need special considerations in assessing the burden of serious injury by age group and sex. This will in turn assist in strategic planning and implementing remedial interventions for effective occupational health and safety.

The findings on injury by body location show the upper limbs as one of the most common injury site. A similar finding is also reported in Australian Safety and Compensation Council report (2009) on worker's compensation and Safe Work Australia (2011). Although the time trends are encouraging, a significant gap exists between males and females, and the decline in serious injuries is weak. The overall incidence of workplace injury among young age group is still unacceptably high as an average of 1 in 15 young male workers makes an injury claim each year. Hand and finger injuries, along with lower back problems, appear common among young workers. More targeted studies and analysis are required to understand the factors that are associated with higher injury rates and fuller details of injury and safety issues pertaining to young workers.

## 1.4   What has been done and the domains of preventive activity

There are many ways to address the problem of higher injury among young workers. The domains of preventive activity to reduce higher injury among young workers include structural (legislation), enforcement (regulation), educational (for students, of teachers) and awareness (for employers and community) which are described below.

## 1.4.1 Structural (Legislation)

The Occupational Health, Safety and Welfare Act 1986 provides health, safety and welfare of persons at work; and for other purposes (Government of South Australia, 1986). But this act does not specifically refer to young workers. Equal Opportunity Act (Government of South Australia, 1984) describes about discrimination against workers. The Children's Protection Act 1993 (Government of South Australia, 1993) is an act to provide for the care and protection of children. Mourell (2005) contends that legislation governing child protection appears to be insubstantial. Given the high degree of participation of young people in the labour market Mourell's study also indicates that the laws pertaining to child protection are generally ineffective. Additionally, this study suggests that child labour legislation is a piecemeal and needs to be reformed.

The Department of Education and Children's Services (DECS), now Department for Education and Child Development (DECD), has published the Workplace Learning Guidelines which support compliance with legislation including the OHS&W Act and Regulations. The guidelines suggest providing a minimum of 3-4 hours of training prior to the first work placement, dealing with not only OHS issues but also relevant issues arising from the Equal Opportunity Act and the Children's Protection Act. Although the Workplace Learning Guidelines suggest that schools provide a minimum of 3-4 hours of training prior to the first work placement, implementation is not monitored.

### 1.4.1.1 Proposed Child Employment Laws for South Australia

Employment-related legislation nationally and in South Australia already provides a range of existing protections for all employees. However, most types of protection are not targeted at the specific needs of young workers. To complement the existing child employment regulations, in 2008, the South Australian Government requested that SafeWork SA, the statutory OHS body begin the development of specific child employment laws. In March 2011, South Australia introduced Child Employment Bill 2011 which was mainly concerned with protecting children against potential exploitation and harm at work (South Australian Government, 2011). The bill focuses on provisions for the establishment of particular employment arrangements through regulations and industry-specific codes of practices. The bill details the meaning of work, duties related to employment of children, codes of practices, enforcement. The object of the act is to ensure that children are not required to undertake

work that may be harmful to their health, safety or development and does not adversely affect schooling.

## 1.4.2 Enforcement (Regulation)

The Occupational Health, Safety and Welfare (OHSW) legislation in each state is enforced by an inspectorate. In 2009, a regulatory campaign in the hospitality industries was conducted (HWSA, 2009). This targeted training and the conditions of young workers.

Guidelines by the Heads of Workplace Safety Authorities (HWSA) assist employers to provide safer workplaces and better understand their obligations to new and young workers. The guidance material provides practical information on the workplace health and safety issues for new and young workers. It includes adequate provision of information, instruction and training; adequate supervision, consultation, and ongoing communication about OHS issues; and maintenance of a hazard free working environment (HWSA Hospitality Industry Campaign, 2009).

## 1.4.3 Educational

There are a number of interactive websites including industry specific ones such as hospitality industries. For example, from NSW WorkCover, 'Information for Young Workers', 'vPack'; and from the NSW Labor Council, 'YouthSafe' were established in response to the ongoing statistical evidence showing a high incidence of accidents involving young people at work. The site includes various information case studies. In South Australia a new website from SafeWork SA, 'Youth@Work 'and 'U-Who' is a network of young people dedicated to improving the rights and conditions of young workers by assisting them to join and actively participate in unions.

Other varieties of available resources are: Get Certified, Safety Check, Hunt the hazards. An OHS training module 'Schools, Education and the World of Work' has been made available in some of the schools. At the high school level, the web based OHS educational assessment module 'Passport to Safety' was piloted in 2007 (Australian Safe Communities Foundation, 2008). South Australia has been a leader in respect of the Australianisation of the Canadian Passport to Safety program.

In Alaska, USA, a secondary school occupational safety program provided in-service teacher training seminars, a curriculum manual including lesson plans and a resource library (Wigglesworth, 1987). The program focused on teaching students how to recognise and control work-related health and safety hazards. Evaluations by a small number of teachers who replicated the program after receiving training revealed that it was well received, leading to an increase in awareness of hazards for both teachers and students.

In Washington state, USA, researchers evaluated a health and safety awareness program for working teens (Linker, Miller, Freeman, & Burbacher, 2005). This program provided a curriculum and teacher training sessions to 760 teachers. Teaching resources included video, hazard-mapping exercises, games and a role-play activity. The program was found to have increased students' knowledge of workplace health and safety issues and was rated by teachers as effective and useful. According to teachers, the strength of the curriculum was its hands-on activities and ready-to-use lesson plans. Internet-based resources were included, for the purpose of complementing but not replacing classroom teaching, because teenagers are accustomed to accessing health information online.

## 1.4.4   Awareness (for employers and community)

SafeWorkSA (2010) provides information for employers such as the need to ensure a safe working environment and that young workers are properly trained and supervised for the tasks they are asked to perform, especially if it is the first time they have undertaken the task or they are new to the workplace. This information also states that, while there are legitimate work experience programs, these are specifically undertaken through schools and other education institutions and do not involve trial or probationary work. The information also suggests that employers should always be aware about the fact young people may feel reluctant to speak up or ask questions, so it is important to put them at ease and encourage them to speak up if they are unsure how to perform a work task safely or what their pay and working conditions are (Media Release - SafeWork SA, 2010).

Some literature (Salminen & Palukka, 2007; Schulte, Stephenson, Okun, Palassis, & Biddle, 2005) suggests that employers should play a greater role in encouraging schools to provide a standard generic OHS education, such as requiring OHS certification prior to commencement of work placements. Recognition of community learning activities and participation in a

community-developed program or providing care for a family member, may also contribute in the domains of preventive activity (Linker, et al., 2005)

## 1.5   Role of education on occupational health and safety

Internationally, safety education interventions targeting adolescents have achieved mixed results. Highly engaging and participatory training methods have been demonstrated to be most effective in achieving greater knowledge acquisition (Burke et al., 2006).

While there is evidence that school-based educational programs have the potential to significantly increase knowledge about safety, it cannot be assumed that safe behaviour and ultimately injury reduction will result from this knowledge.

An association between OHS education and a lower incidence of workplace injuries is reflected in some research (Goldenhar, & Schulte, 1994; NIOSH, 1998), while other research (Castillo, 1999a; Runyan et al., 2007) indicates that young workers often receive little or no training. Literature suggests that secondary school is an appropriate setting for OHS education (Lerman, Feldman, Shnaps, Kushnir, & Ribak, 1998; Wigglesworth, 1987). School-based provision of OHS education has been identified as having an important role (Davis & Pollack, 1995; NIOSH, 1998; Schulte, Stephenson, Okun, Palassis, & Biddle, 2005). This involves improvements in the provision and effectiveness of OHS education, from school education at the early stage to education in the place of work to reduce the burden of young workers' injury and occupational hazards. Improvement in school-based education, consistency and effectiveness are two aspects that have been identified as requiring further attention.

A report for the European Agency for Safety and Health at Work highlighted inconsistency in approaches to OHS education, both between and within member states (European Agency for Safety and Health at Work, 2009a). It has been argued that the quantity and quality of OHS education is largely at the judgment of the instructor and school (European Agency for Safety and Health at Work, 2009a; Salminen & Palukka, 2007; Schulte, et al., 2005). The quality of education may be influenced by a  teacher's enthusiasm and experience, the availability of time and resources, and the level of engagement of the students themselves (Burke, et al., 2006).

Yet the literature does not convincingly show that young workers' high injury rates are positively affected by the vast quantity of OHS information and resources. Furthermore, there is anecdotal evidence suggesting a lack of consistency in schools' use of resources and approaches to OHS education. Therefore, it is necessary to investigate the practices and perceptions of safety education providers around the existing OHS resources and interventions. This investigation should not only focus on views and perceptions, but also adopt a systematic approach to develop a conceptual framework for an effective OHS education.

## 1.6    Conclusions

Given the situation described above, there is a need for more research focussed on attaining a better understanding of how school-based OHS education can be effective in positively influencing behaviours, including the complementary roles of industry- and school-based training.

Chapter 2 analyses literature pertaining to young workers' health and safety education, more specifically introductory health and safety education in schools, as a method for preparing students for future workforce participation.

# CHAPTER 2     LITERATURE REVIEW

## 2.1  Overview

In chapter 1, a range of possibilities of preventive activities were presented as a response to injury problems. This chapter addresses education and training as an intervention approach to the young worker problem. The focus is on introductory OHS education delivered in secondary schools. There are two reviews, namely a general literature review of OHS education and training for young workers with a special focus on school-based OHS education, and then a systematic literature review of industry-oriented OHS training in the hospitality and food retail sectors. The findings of the reviews are used to formulate specific research questions that are covered in Chapter 3 (teacher survey) and Chapter 4 (parent interviews).

## 2.2  A general literature review of OHS education and training for young workers with a focus on school-based interventions

### 2.2.1  Introduction

Occupational health and safety has been a priority area of public health for a number of years, and widespread legislative reform commenced in the mid 1980s (Biggins, 1995). This is also an important concern for all working individuals. Earlier discussion reveals that young people are in their early stage of life lack experience and exposure. As young workers are a vulnerable subpopulation and are over-represented in injury statistics, it is necessary to develop approaches which cover injuries both inside and outside the workplace for this target group.

Objective

The principal orientation of the review of OHS education of young workers was, to explore strategies and interventions, and identify elements of effective school-based OHS education.

### 2.2.2  Methods

A review of the literature on OHS education of young workers including secondary school OHS education was conducted. Relevant literature was sought using electronic databases

PubMed, SCOPUS, CINAHL, Cochrane Library, Web of Science and Science Direct and the search engine Google Scholar. In addition, reference lists of identified papers were checked and the authors were searched to identify additional relevant literature. Thus a pool of literature published in peer-reviewed journals in English was identified and reviewed.

The key words used for the data bases were 'young', 'adolescent', 'student', 'teenager', 'young worker', 'OHS', 'safety', 'health and safety', 'occupational health', 'safety education', 'occupational health and safety education', 'high school', 'apprenticeship', 'school safety education', 'OHS learning', 'high school safety education'.

**Exclusion of some articles**

This literature review included primarily the most comprehensive articles on  OHS education and training focusing on young workers. There were articles in professional journals which talked about the need for safety training and injury prevention strategy, but which had not actually provided any data and not reviewed others' works. For example, Isernhagen (2000), addresses some of the key components that need to be included in an effective work injury prevention program. Moreover, Isernhagen (2000) justified that an effective work injury prevention program needs to have a way to measure its outcomes and comparison of data from one period to the next.  This article was excluded as it was based on a series of remarks and observations of the writer and opinions of professional bodies in the form of loose narratives without an empirical basis.

Similarly, Gleeson (2001) did not provide an insight into OHS education, as the author attempted to highlight the epidemiology over a 10 month time period. This article did not provide what is being taught in relation to students but has simply analysed the reported injury data, and made suggestions to the student OHS education. It is not possible to make comments of the effectiveness of any OHS strategy based on the study.

Another study by Carlin (1998) was included first as the focus was to evaluate possible benefits of a school-based bicycle safety education program on the risk of bicycle injury in children. But later, this was also excluded from this literature review because of study participants were not in the young worker age.

2.2.3   Results

This section presents the findings of general literature review. It commences with existing school-based OHS education followed by an overview of young workers' health issues, and then encompasses the recognition of the importance of school-based OHS education, the need for evaluation of OHS education interventions and role of schools in OHS education.

2.2.3.1   Literature on existing school-based OHS education

OHS education, particularly in secondary schools, is an important means of addressing the injury issues of young workers, but the literature on the evaluation of efficacy and effectiveness of OHS education and training is very limited. This general review of OHS education and training for young people focuses on school-based interventions. This literature search reconfirmed the paucity of literature on the topic of school-based OHS education, particularly in terms of quantitative assessments of current practice and evaluation of interventions, as described elsewhere in the literature (Bazas, Maris, & Vatopoulos, 2002a; Schulte, Stephenson, Okun, Palassis, & Biddle, 2005b).

International review and evaluation of OHS education and training with a focus on school-based interventions

In the review, summary of which is cited below in Table-2.1, studies were collected based on the following criteria: (i) the studies were published, most of them in peer reviewed journals, (ii) the studies were on evaluation of OHS education of young workers, though a few included all ages and in addition to the literature on school-based education, some of the very relevant studies on industry based OHS education were also presented in this table.

Most of the publications on evaluation of OHS training interventions come from United States, United Kingdom, Canada, Netherlands, Greece and Finland, and few are from Australia. Some of the key international literature is presented in Table 2.1.

**Table 2.1: International review and evaluation of OHS education and interventions**

| Country | Authors/Year | Title | Design and study population | Main findings | Comments |
|---|---|---|---|---|---|
| Israel | Lerman, et al., 1998 | Evaluation of an Occupational Health Education Program among 11th Grade Students | A longitudinal study of 196 students of grade 11 with a before-and-after test design for all participants. | The post-intervention group had a statistically higher mean score (from 24.56 to 80.74) after completing the course. At least 50% more students of the experimental group gave correct answers after the course, while there was no such change in the control group. | Good quality study with good generalizability |
| Finland | Salminen & Palukka, 2007 | Occupational safety training in the Finnish education system | A total of 1363 school teachers | In secondary schools, the teachers spoke about occupational safety for 2 hours per term. Most of the teachers taught occupational safety based on their own work experience. One fourth of teachers invited an external specialist to speak about occupational safety to their students.<br><br>Although almost all Finnish schools have access to the internet, over half of the teachers used text books for teaching occupational safety which is a most traditional learning material.<br><br>Revealed a lack of coordination between educational institution and workplaces.<br><br>As part of basic teacher education to teach occupational safety, 40% of teachers had acquired enough knowledge and skills, 32% had participated in extra courses on occupational safety, and 28% had no formal education in the subject. | This research includes the whole Finnish education system and included all level of educational institutions including day care centers, elementary schools, secondary schools and universities. An overall low response rate (34.5%) limits the findings and recommendations made by this study. Thus this article provides a very basic description of the topic. |

| Country | Authors/Year | Title | Design and study population | Main findings | Comments |
|---|---|---|---|---|---|
| UK | Roberts & Kwan, 2001 | School-based driver education for the prevention of traffic crashes | A systematic review of randomised controlled trials to quantify the effect of school-based driver education versus no driver education on licensing and road traffic crashes. This study includes young people aged 15 to 24 years who had not yet obtained a driver's license | Driver education leads to early licensing. They provide no evidence that driver education reduces road crash involvement, and suggest that it may lead to a modest but potentially important increase in the proportion of teenagers involved in traffic crashes. . | A good quality (Level I) study with good generalizability. It looks as though school-based education as a public health preventative measure has mixed success. |
| USA | Linker, et al., 2005 | Health and safety awareness for working teens: developing a successful, state-wide program for educating teen workers | A convenience sample of high school students took pre-tests and post-tests, answering open-ended questions about teen worker. Study population includes high school students (n = 200) and 760 teachers across the state, including those in remote, rural school districts. | Evaluations of Health and Safety Awareness for Working Teens (HSAWT) curriculum showed that student knowledge increased after exposure to the curricula and teachers found the curricula to be useful and easy to use. Teachers were most likely to use the introductory video supplied with the curriculum (more than 80%). Teachers reported that the video was engaging, easy to use, and fit easily into lesson plans because of its length (12 minutes). | Results of the evaluation are not necessarily representative of all students who were exposed to the curriculum. |
| Greece | Bazas, Maris, & Vatopoulos, 2002 | General secondary school students' occupational health knowledge | A survey of eleventh and twelfth grade students (n=855) and 114 secondary school teachers residing in various districts of the city. | Two-thirds of the students lacked any knowledge about health-effects of work (68%) and existing Greek preventive or diagnostic OH services or organizations (73%). This study recommends a need for the development of OH educational material, tailor-made for Greek pupils, with | The article is well-organized and essentially complete with limited generalizability. |

| Country | Authors/Year | Title | Design and study population | Main findings | Comments |
|---------|--------------|-------|----------------------------|---------------|----------|
| | | | | emphasis on areas where actual knowledge is scanty. | |
| Alaska, USA | Wigglesworth, 1987 | Occupational safety and health training for high school teachers/ industrial/vocational education instructors | A training program evaluation of teachers and school personnel (30 totals) who replicated the program after receiving training. Study population were high school teachers, course participants including school nurses, school administrators, and Alaska Department of Education personnel. | The graduate level course enables teachers to become more comfortable with the program, and provides additional enrolment incentives for teachers by qualifying for teacher recertification credits. Students also benefited from the program by gaining new awareness about potential occupational safety and health issues. | In general, the course has been well received in Alaska. |
| USA | Schulte, et al., 2005 | Integrating Occupational Safety and Health Information Into Vocational and Technical Education and Other Workforce Preparation Programs | A review of vocational and technical educational programs | The study assessed the status of including OSH information or training in workforce preparation programs and found there is an inconsistent emphasis on OSH information. | This review article addresses the main aspects of the topic and provides some meaningful contents on OHS. |
| USA | Blair, Seo, Torabi, & Kaldahl, 2004 | Safety beliefs and safe behaviour among Midwestern college students. | A cross-sectional study of 1059 undergraduate students investigating the relationship of safe behaviour with safety beliefs, age, gender, class standing, and geographic region. A stepwise multiple | Safety education of adolescents and young adults in United States has not been effective. Present social and school environment is less conducive to the students' safe behaviour and beliefs than a decades ago. | Within the limitation of this study that includes convenience sampling and self-report of safe behaviour, this study revealed useful information regarding the safe behavior and beliefs of Midwestern American college students. |

| Country | Authors/Year | Title | Design and study population | Main findings | Comments |
|---------|--------------|-------|----------------------------|---------------|----------|
| | | | regression analysis was conducted. | | |
| USA | McQuiston, 2000 | Empowerment evaluation of worker safety and health education programs. | A literature review on health and safety intervention programs using a theoretical framework. This evaluation show how various participatory and empowering approaches might address important issues confronting the study of occupational safety and health education. | There is a substantial body of knowledge and experience about participatory and empowering approaches to research and evaluation from both within and outside the field of occupational safety and health. Use of these approaches has the potential to strengthen capacities for organizational learning and improve both program theory and practice. | This review comprehensively covers the defined scope, providing useful and appropriate information about worker safety and health education programs. |
| USA | Zwerling et al., 1997 | Design and Conduct of Occupational Injury Intervention Studies: A Review of Evaluation Strategies | A literature review of evaluation strategies on design, conduct, and interventions on industry workers. | This review suggests a need to have a clear conceptual model of how the intervention will prevent injuries in order to define the appropriate outcome measures. | This is useful for employers or regulatory agencies to implement injury prevention interventions, but it would not provide the level of quality of the articles used for this review. |
| USA | Burke, et al., 2006 | Relative Effectiveness of Worker Safety and Health Training Methods | A meta-analyses of ninety-five quasi-experimental studies (n=20991) published between 1971 to 2003. | Highly engaging and participatory training methods were more effective in greater knowledge acquisition and consequently in reducing accidents and hazards | Good quality study to improve conceptualizations and communications of the effectiveness of safety and health training interventions. It is a thorough and representative analysis of the relevant literature. |
| Canada | Berthelette, Desnoyers, Gilbert, & | Evaluation of the Outcomes of an Occupational Health and Safety | A pre-test post-test control group design in order to evaluate a training program's outcomes among | The authors identified the legal right for a worker to refuse to execute a dangerous working activity. | High quality, but small scale study demonstrating useful information. |

| Country | Authors/Year | Title | Design and study population | Main findings | Comments |
|---------|-------------|-------|----------------------------|---------------|----------|
| | Leduc, 2000 | Training Program. | young workers. The study population was composed of members of a Quebec union confederation. The intervention group was composed of union delegates (n = 40) who were exposed to the OHS training program and union delegates ( n=47) who participated in other training programs provided by the union confederation, served as controls. | The training program under study increases knowledge and understanding of the notions related to the right to refuse to execute a dangerous working activity. | |
| USA | Kurtz, Robins, & Schork, 1997 | An Evaluation of Peer and Professional Trainers in a Union-Based Occupational Health and Safety Training Program | An observational study with a total of 426 workers at a United Automobile Workers Union health and safety training program. | Workers receiving training from peer trainers would demonstrate the greatest positive change in self-efficacy. | This study was limited by the fact that workers were not randomly assigned because there was no control over how or when training sessions were organized or over who the trainers would be. Given this limitation, this study provides important results that support the use of peer trainers as a very good strategy for the delivery of health and safety training |

The above studies (Table-2.1) suggest that OHS interventions in different countries had mixed results. In Israel, USA, and Canada training course on OHS education proved to be effective. In others, there was less improvement in OHS behaviour and practices. The study by Burke (2006) in USA, indicates that highly engaging and participatory training methods are more effective in greater knowledge acquisition and consequently in reducing accidents and hazards. The study by Roberts & Kwan (2001) revealed that school-based driver education in UK was not successful in reducing road traffic accidents. This study also suggests that school-based driver education may lead to increase in the proportion of teenagers involved in traffic crashes.

Given the importance of prevention efforts, studies in Canada, America and Europe recommend the development of school-based OHS programs that involve stakeholders to develop and implement interventions (Berthelette, et al., 2000; Blair, et al., 2004; Burke, et al., 2006; Roberts & Kwan, 2001; Schulte, et al., 2005) .

A lack of consistency in school-based OHS education appears to be of concern internationally. A survey of Finnish teachers concluded that the teaching of occupational safety is largely dependent on the initiative of the teachers, suggesting that safety training would be improved with the introduction of a compulsory course (Salminen & Palukka, 2007).

Chapter 1 described a variety of interventions to prevent injuries, and in addition there are many training approaches include school to work programs and apprenticeships. It was argued by Schulte (2005) that the practice of incorporating OHS information and training into vocational and other training programmes has not been widespread, and the extent to which this occurs has not been assessed. Schulte (2005) also commented that if students receive OHS information or training as part of their secondary and post-secondary education, this may be the only time many workers are exposed to this information. The next step of investigation looks at the elements of effective school-based OHS education.

Improving the effectiveness of school-based OHS education

Reviews and commentaries on school-based OHS education provide the following suggestions and recommendations:

- *Formal integration of OHS in the curriculum.*

OHS content should be explicit within curriculum frameworks, e.g. competencies and learning outcomes (Bazas, et al., 2002b; European Agency for Safety and Health at Work, 2009a; Linker, et al., 2005; Schulte, et al., 2005)

- *Monitoring curriculum development.*

New opportunities to integrate OHS content should be identified and OHS education initiatives should be compatible with curriculum frameworks (European Agency for Safety and Health at Work, 2009b)

- *Cross-curricular approach.*

OHS content should be embedded in a variety of subjects in which it is relevant ( European Agency for Safety and Health at Work, 2009b)

- *Appropriate content.*

Baseline student knowledge should be assessed and OHS courses should focus on identified gaps in student knowledge (Bazas, et al., 2002). Generic OHS skills should be the focus, rather than workplace- or task-specific information. Appropriate topics could include hazard recognition, understanding of the principles of hazard control and health and safety rights – knowledge that students "will carry with them throughout their working lives" (Davis & Pollack, 1995; Schulte, et al., 2005).

- *Increasing educator support.*

Support for educators for school-based OHS education should be increased by raising awareness of the extent and impact of workplace injuries, using case studies. Schools' legal obligations should also be highlighted (Bazas, et al., 2002; Linker, et al., 2005; NIOSH, 1999)

- *Increasing industry support.*

One study detected that, if workplaces were to require a safety "passport" requiring a one-day safety course before a new employee can start at a workplace, most

vocational schools would introduce such a course (Salminen & Palukka, 2007). In addition, it has been suggested that training must be accompanied by management commitment, otherwise effectiveness will be limited (Salminen & Palukka, 2007; Schulte, et al., 2005).

- *Improving teacher training.*

While there are excellent teaching resources available, little attention has been paid to the preparation of teachers themselves. It has been recognised that teachers need training on how to deliver safety education, and if they do not have such training they may be reluctant to teach it, particularly if it is not a compulsory topic. OHS should be included in teacher training curriculum (although it has been acknowledged that this would be a challenging task for the OHS community) (European Agency for Safety and Health at Work, 2009).

- *Evaluation.*

Outcomes should be evaluated in terms of increases in student knowledge (Bazas, et al., 2002; Lerman, et al., 1998; Linker, et al., 2005; Wigglesworth, 1987).

2.2.3.2   An overview of health issues of young workers

*2.2.3.2.1   Factors influencing health of the young workers*

Teenagers enter the workplace in after-school and summer jobs or in school-based work experience programs. Bachman (1983) argues that more than three-quarters of high school students work during the school year. Additionally, about one-third of the males and one-quarter of the females report that they spend  more than 20 hours per week at work (Bachman, 1983). In a cross sectional study it was found that working more than 20 hours per week was associated with increased rates of emotional distress, substance abuse and early onset of sexual activity in high school students (Resnick et al., 1997).

A high school survey collecting self-reported data from the students suggests that the prevalence of occupational injury increases  significantly as the number of work hours increased (Shipp, Tortolero, Cooper, Baumler, & Weller, 2005). Though this study is limited by selection bias, it provides considerable understanding of the issues related to the health of

the young workers. Other literature states that, in addition to high school work related injuries, working long hours while attending school has been associated with undesirable outcomes, such as, increased risk of alcohol, tobacco, or drug use (Bachman & Schulenberg, 1993; Mortimer, Finch, Ryu, Shanahan, & Call, 1996; Resnick, et al., 1997).

Work has both positive and negative effects on young people. This view was supported by Morrell (1998), who stated that a good job may offer young people financial independence, a sense of control, self-confidence and social contact. In contrast, insecure employment and unfavourable working conditions have been associated with low self-confidence, feelings of depression and mental health problems in young people. In another study, Wegman and Davis (1999) found that young people learn about accepting responsibility, punctuality, ways of dealing with people, and gaining skills to become independent. On the other hand, it was also reported by Wegman and Davis (1999) that students who work long hours are less likely to advance as far as other students, and are more likely to smoke cigarettes and use illegal drugs. Furthermore, they  may have insufficient sleep and exercise, and may spend less time with their families (Wegman & Davis, 1999).

The developmental factors of adolescents, combined with workplace risk factors, may increase their vulnerability to injury and illnesses. Working teenagers may be physically unable to correctly use tools and equipment designed for the average adult or may lack the strength to perform a job safely. Even physically mature adolescents may lack the emotional maturity or judgment necessary to perform a particular work assignment safely (Pollack, 1999).

A wide range of predictors of workplace injuries have  been proposed by Frone (1998). Frone described 5 categories of predictors of work injuries among employed adolescents, which are demographic (gender, age), personality (negative affectivity, rebelliousness, impulsivity), substance use, health (physical and mental) and employment (tenure, work hours, environment). Barling & Kelloway (1999) also mentioned similar demographic and socio-economic differences such as age, gender, socioeconomic class, the voluntary nature of employment may influence the individual experience of employment. In addition to these factors, Breslin et al (2003) identified "newness" and inexperience as risk factors in workplace injury which apply to all new workers irrespective of age category.  According to

Crowe (1995) safety values were a better predictor of a person's safe behaviours than all the other factors (gender, class standing, and geographic region) combined.

All these factors need to be considered in the formulation and evaluation of OHS interventions targeted to young workers.

*2.2.3.2.2 Young workers' Safety perceptions*

Studies described that a lack or inadequate safety training is a contributing factor for higher workplace injuries as the young people often work with inadequate supervision and tasks for which they may be developmentally unprepared (Castillo, 1999b; Holizki, McDonald, Foster, & Guzmicky, 2008; Saarela, 2005).

An exploratory study conducted in Australia (Wadick, 2006) examining the OHS situation and the current state of OHS training in a construction industry found that young workers want to be safe at work but believe that their safety concerns were not actually addressed. Workers considered much OHS legislation as neither practical nor effective. The concerning issue is that most young workers considered OHS courses as a waste of time rather than as a means of enhancing their knowledge. In this study, 150 participants expressed that the reasons of their learning to work safely were their 'common sense' (25%), followed by 'mistakes over the years' (13.3%), 'stories from others' (13%), 'from other jobs'; whereas very low response rates were for 'OHS courses' (1.3%) and 'schools' (1.3%). These indicate that school OHS education could not make any effect on them and it is especially important to understand this in more detail.

Despite US federal regulations prohibiting teens under the age of 18 from using certain type of dangerous equipment or serving or selling alcohol in places where it is consumed, 52% males and 43% of females of this age reported having performed a prohibited task. Most of these adolescents never received safety training on how to prevent injury they suffered and they lack adult supervision on the job (Runyan, et al., 2007). Additionally, younger students have 50% more risk of injury compared to senior students and more than 50% of injuries occurred among 15-24 years in the first five months on the job (Hertzman, et al., 1999). In Australia, about 92% of the injuries were identified as involving trainees or apprentices (Scott, et al., 2004).

A survey of incoming students at four Australian universities found that approximately 80% of students were involved with paid or voluntary work, while 55% of local students and only 15% of international students have had some exposure to OHS training. Approximately half of all students from 4 universities had been assessed on this training (Aumann, et al, 2007). In the follow up survey, responses reflected the influences of safety education of secondary schools, workplaces, families, and community experiences.  It is of concern that about 40% of local students had not received any training (Thamrin, Pisaniello, & Stewart, 2010 ).

While there is a vast quantity of OHS information and resources currently available, there is limited evidence regarding its effectiveness. Many of the previous studies suggested that OHS education should be focused specifically on the issues pertaining to young workers (Jacks, 1955; Linker, et al., 2005; C. Mayhew, 2007b; Saarela, 2005), and the level of high injury rate among young workers indicates that OHS education programs are not serving as well as expected.

Data suggest that OHS education must be given before workers start their jobs as their lack of experience may play a particularly important role in size of burden of injury among young population.

2.2.3.3   Recognition of the importance of school-based OHS education

The importance of providing OHS education in the secondary school setting, in addition to training in the workplace, has been widely recognised.  In an 'Alert' published by the National Institute for Occupational Safety and Health, entitled 'Preventing Deaths and Injuries of Adolescent Workers', educators are listed as a key partner in prevention, together with employers, parents and adolescents themselves (NIOSH, 2003).   Another NIOSH publication, 'Promoting Safe Work for Young Workers', reflects the lessons learned from three NIOSH funded community based health education projects on young worker issues (NIOSH, 1999). Similarly, Schulte et al. (2005), in their assessment of current practice in the integration of OHS information into vocational and technical education, suggest delivery of OHS in the secondary and tertiary education sectors for adopting safe work practices as part of their progression toward the workforce.  With workplace OHS training often lacking, the education sector may be the only source of OHS education.

The importance of school-based OHS education has also been recognised by an international collaboration developed by the International Social Security Association, entitled 'Quebec City Protocol for the integration of OHS competencies into vocational and technical education'(International Social Security Association, 2003). The Protocol provides a framework for cooperation between institutions responsible for prevention and those responsible for integrating OHS competencies of young workers into vocational and technical education. The protocol also encourages close collaboration among the education community, government, injury/illnesses prevention organizations, business and labour organizations.

The School-to-Work Opportunities Act, passed in the USA in 1994 (United States. Congress. House of Representatives, 1994), provides an example of legislative support for OHS education. According to the Act, which aims to improve the acquisition of skills and knowledge enabling young workers to successfully make the transition from school to vocationally-oriented work, OHS is one of the components that should be incorporated in school-to-work programs.  Davis et al. (1995) argue that the Act has significant potential to provide youth with much-needed OHS skills, but this potential has not yet been realised.

2.2.3.4   The need for evaluation of school-based OHS education

Chapter one described the need for improvement of OHS education through evaluation of existing interventions. This literature review identified documents that describe evaluations of specific school-based OHS educational programs. A recent European report (European Agency for Safety and Health at Work, 2011) identified the gaps and areas that need special attention on mainstreaming OSH into teacher training programs. This report suggests the importance of feedback and evaluation of the implementation of this program and facilitating and developing a good working relationship and communication between partners. Many of the studies presented in Table 2.1 also discuss the need for evaluation of school-based OHS education. For example, in Alaska, USA, a secondary school occupational safety program provided in-service teacher training seminars and a curriculum manual including lesson plans and a resource library (Wigglesworth, 1987). This program focused on teaching students how to recognise and control work-related health and safety hazards.  Evaluations by a small number of teachers who replicated the program after receiving training revealed that it was well received, leading to an increase in hazard awareness  for both teachers and students.

Another evaluation of an occupational health education program among 11th grade students in Israel found that secondary school is an appropriate setting for such learning, and that improvements in knowledge, attitudes and beliefs were achieved (Lerman, Feldman, Shnaps, Kushnir, & Ribak, 1998). In Washington state, USA, researchers evaluated a health and safety awareness program for working teens (Linker, et al., 2005). This program provided a curriculum and teacher training sessions to 760 teachers. Teaching resources included video, hazard-mapping exercises, games and a role-play activity. The program was found to have increased students' knowledge of workplace health and safety issues and was rated by teachers as effective and useful. According to teachers, the curriculum's strength was its hands-on activities and ready-to-use lesson plans. Internet-based resources were included, for the purpose of complementing but not replacing classroom teaching, because teenagers are accustomed to accessing health information online.

**School-based OHS education in South Australia**

In South Australia, OHS education is delivered to secondary students either:

- within a subject - as a topic within the curriculum or to prepare students for a subject-related work placement; or

- as part of the training for school-wide work experience programs (delivered to all students)

(SACE Board of SA, 2010)

At senior secondary level (years 10 to 12), studies comprise a combination of compulsory and elective subjects. Although it is not a stand-alone subject in South Australian secondary schools, a review of curriculum statements (SACE Board of SA, 2010) revealed that OHS, or general safety, is included in the curricula of many subjects across a variety of learning areas. Elective subjects appear to be the main source of subject-delivered safety education. The curricula of many elective subjects include explicit OHS content. In some cases, particularly in Vocational Education and Training (VET) subjects, this content is detailed, specific and assessed. OHS is not a required topic , but rather an optional topic in the new compulsory year 10 subject 'Personal Learning Plan' (SACE Board of SA, 2009).

Most senior secondary students participate in work placements, providing students with worksite experience without direct supervision by a teacher. According to the SACE curriculum, there are two types of work placements: 'Structured workplace learning' (a component of VET subjects) and 'Work experience' (usually undertaken by all students within one or more year levels, often during year 10). The Department of Education and Children's Services (DECS, 2008) has published the *Workplace Learning Guidelines* which support compliance with legislation including the OHS&W Act and Regulations. The guidelines suggest providing a minimum of 3-4 hours of training prior to the first work placement, dealing with not only OHS issues but also relevant issues arising from the Equal Opportunity Act (Equal Opportunity Commossion of SA, 2010) and the Children's Protection Act (Office of Parliamentary Counsel Attorney-General's Department, 2011).

2.2.3.5   Role of schools in OHS education

Schools are the place where children spend a large portion of their life and  have a considerable  influence on health status of young people. Additionally, schools have an important role in OHS education for young workers as they can potentially reach young people on a large scale. A cross sectional analysis of data from the National Longitudinal Study of Adolescent Health (Resnick, et al., 1997) indicates  that family and school connectedness are protective against every health risk behaviour such as emotional distress, suicidal behaviours, violence, substance use and sexual behaviour. Bearing this in mind, these young people can be reached  for providing OHS education, especially year 10 students, as most of the high schools undertake a work experience program of one or two weeks in year 10.

The recent report of the European Agency for Safety and Health at Work (2011) presents success factors for promoting OHS education in schools. Along with a whole-school approach with the delivery of OHS education, these factors include the involvement of students, parents, teachers, and school managers. This report also highlighted that even as it is necessary to continue to train teachers, it is also essential to ensure that other stakeholders are trained, including school principals, members of educational boards and parents, so they have an understanding and can play their part. In South Australia, all the relevant stakeholders have placed a strong emphasis on young worker OHS education. Moreover, schools are increasingly incorporating work-related learning experiences and programs into their

curricula, particularly during the latter part of the compulsory years (Australian Safety and Compensation Council, 2006 ).

A study conducted in Greece, where OHS is not included in secondary school curricula, found an important gap in secondary school students' knowledge of workplace safety, particularly regarding the possibility of adverse health effects at work and preventive measures available (Bazas, Maris, & Vatopoulos, 2002). It was argued that this gap in knowledge indicates a need for a multifaceted prevention approach including improving educational resources (Mayhew, 2007b). The need for school-based OHS education has been well articulated in the ASCC (2006) document entitled "Getting Students to Work − Safely". This report provides guiding principles for health and safety education for students in transition from school to work. These guiding principles include a comprehensive whole-school approach. This program not only suggests information, but also develops skills, attitudes, values and behaviour using a range of student-centred, interactive and innovative teaching and learning strategies.

Additionally, this guiding principle includes a post-work experience briefing to ensure that each student retains both the knowledge and skills acquired in a particular workplace, and realises their broader applicability shaped by continuous and regular feedback from all involved (DEEWR, 2009).

### 2.2.4   Conclusion

It is evident that there is a shortage of articles, papers or reviews related to school-based OHS education. An understanding of young workers' OHS education and issues necessitates an examination of sectors beyond the school environment where large numbers of young people are engaged. These include hospitality and food retailing sectors as identified and presented below.

## 2.3 A systematic review of elements of effective OHS education, examining the literature in hospitality and food retail trade industries

### 2.3.1 Background and research question

There are some industries to which young people are more attracted than others. The hospitality and food retailing sectors are two of these industries. The retail trades, and particularly the restaurant industry, are common places of employment of youth (Bureau of Labor Statistics, 1999; Hendricks & Layne, 1999).

The Committee on the Health and Safety Implications of Child Labour, USA, reported that retail trades comprised 52% of the employment for youth aged 15 to 17, whereas eating and drinking establishments alone comprised 28% of the total (Committee on the Health and Safety Implications of Child Labor, 1998). Similarly Personic (1991) also showed that teenagers aged 16 to 19 accounted for about 25% of the workforce in eating and drinking establishments. Most of the increase in retail trade employment of young workers can be attributed to a sharp expansion in two key industries within the retail trade division: eating and drinking places, and food stores (Haugen, 1986). The takeaway food industry, a sub-division of food retailing, is also a significant employer of young workers (Department of Industrial Relations, 2009).

More than half of U.S. teenagers work in the retail industry, including restaurants, grocery stores, and other retail establishments (Bureau of Labor Statistics, 1999). According to the European Agency for Safety and Health at Work (Fig-2.1), the hospitality sector including hotels and restaurants is the number one employment sector for young workers (European Agency for Safety and Health at Work, 2007).
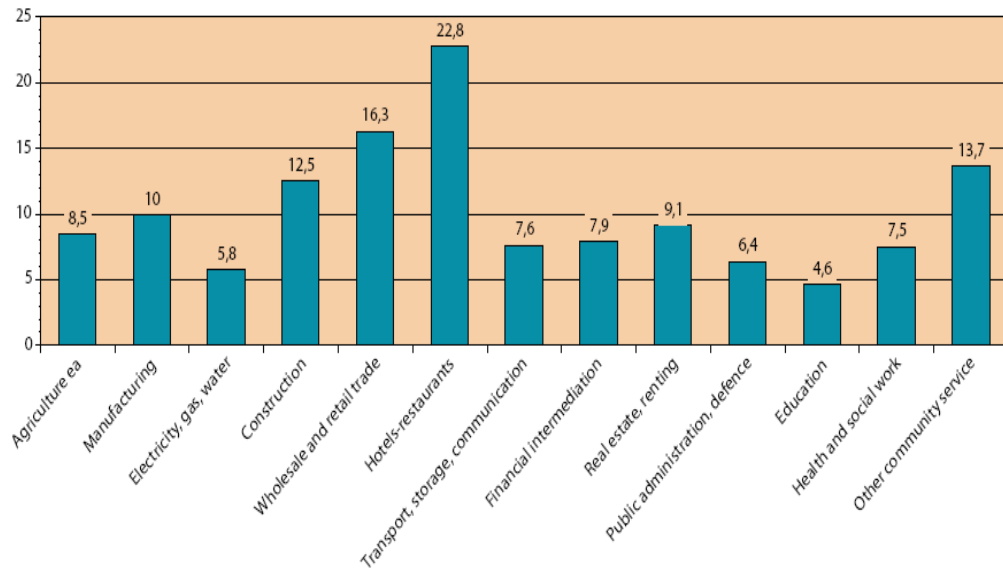
Proportion of young workers per sector, EU-25, 2005, LFS

**Figure 2.1: Proportion of young workers per sector**

 A large proportion of Australian workers had their first job in the retail sector. By 2003, more than half the teenage labour force (67%) was employed in retail trade or accommodation, cafes and restaurants (Brosnan and Loudoun, 2006). Compared with other subsectors of the retail trade, food retailing is a traditional employer of young people, with a lower percentage of mature employees aged over 25 (Career Advice Australia, 2008). Australian Bureau of Statistics (2007) data  suggest a gradual increase in food retailing sector. In South Australia, the hospitality industry has the fourth highest claims cost for injury (Safe Work SA, 2000). ABS (Australian Bureau of Statistics, 2007) data also suggests a gradual increase in this sector (Figure-2.2).

Source: ABS (2007), Labour Force, Australia, Cat. No. 6291.0.55.001.

**Figure 2.2: Employment in the Accommodation, Cafes & Restaurants industry division, S.A., 1992 to 2007**

Studies highlight that in the hospitality and food service industries, there is often frequent training, e.g, in terms of long-term production efficiency, cost savings, customers' satisfaction and food safety (Lillquist, McCabe, & Church, 2005; Saarela, 2005).

This is an opportunity to understand the effectiveness of an OHS education and training program for young workers by exploring the characteristics of OHS educational interventions in the hospitality and food retailing sectors. Thus this review addresses the following research question:

*What are the essential elements of an effective OHS educational intervention in the hospitality and food retailing sectors?*

2.3.2  Methodology

The literature search was systematic in its approach with a defined process for identifying, excluding and reviewing the articles. Relevant articles were sought from electronic databases and websites of key government and non-government organisations.

The key concepts and areas of interest are defined below.

*Hospitality sector*: The hospitality sector covers those industries of the general economic environment that operate to meet lodging, vacation, business, and recreational needs of visitors and the resident population. Specifically, it includes hotels, eating and drinking establishments, and institutions that offer shelter, food, or both to people away from home (Buergermeister, 1983). According to the Australia and New Zealand Standard Industrial Classification the hospitality sector consists of accommodation; pubs, taverns and bars; cafes and restaurants; and clubs (Australian Bureau of Statistics, 2006b; Learning and skills council, 2004).

*Food retailing sector:* This includes supermarket and grocery stores; fresh meat, fish and poultry retailing; fruit and vegetable retailing; liquor retailing; bread and cake retailing; take away food retailing; milk vending and specialised food retailing (Australian Bureau of Statistics, 2006b).

For the purpose of this review both the hospitality and food retailing sectors are considered together.

2.3.2.1   Search strategy- electronic databases

The search used multiple databases and sources including PubMed (including MeSH terms), CINAHL, SCOPUS, Cochrane Library, Science Direct and Web of Science. The PubMed Search Strategy (MeSH – [mh] and titles and abstracts – [tiab]) including the terms and combinations applied using Boolean Logic 'OR' (terms within columns) and 'AND' (between the columns) are describing below.

**Table 2.2: Keywords used to identify relevant articles**

| The following combinations of keywords were used to identify relevant articles: |
| --- |
| Young* OR youth OR adolescen* OR teen* AND (training OR education OR induction OR intervention) |
| Young* OR youth OR adolescen* OR teen* AND (safety OR occupation* OR work* OR health) |
| Young* OR youth OR adolescen* OR teen* AND (hospitality OR fast food OR restaurant OR café* OR hotel OR Food retail* OR Take away) |
| Young* OR youth OR adolescen* OR teen* AND (training OR education OR induction OR intervention) AND (safety OR occupation* OR work* OR health) AND (hospitality OR fast food OR restaurant OR café* OR hotel OR Food retail* OR Take away) |
| |
| PubMed Search Strategy included the following MeSH headings: |
| Food industry[mh:noexp] OR Food handling[mh:noexp] OR Food packaging[mh:noexp] OR Food processing industry[mh] OR Food services[mh:noexp] OR Restaurants[mh] OR Restaurant*[tiab] OR Food retail*[tiab] OR Take-away[tiab] OR Takeaway[tiab] OR Cafe[tiab] OR Cafes[tiab] OR Cafeteria*[tiab] OR Hotel*[tiab] OR Hospitality[tiab] OR Fast food[tiab] AND Adolescent[mh] OR Adolescen*[tiab] OR Young[tiab] OR Youth[tiab] OR Teen*[tiab] AND Occupational health[mh] OR Occupational hygiene[tiab] OR Occupational safety[tiab] employee health[tiab] OR Employee safety[tiab] OR Industrial hygiene[tiab] OR Industrial safety[tiab] OR Accidents, occupational[mh] OR Occupational accident*[tiab] OR Industrial accident*[tiab] OR industrial injur*[tiab] OR occupational injur*[tiab] OR accident prevention[mh] OR accident prevention[tiab] OR risk management[tiab] OR Worker*health[tiab] OR Worker*safety[tiab] |

2.3.2.2   Inclusion criteria

The search aimed to identify studies that met the following inclusion criteria:

*Publication type:* Peer reviewed journal articles published in the last twenty years.

*Population of interest:* hospitality industry and food retailing workers located anywhere in the world were considered.

*Nature of study:* Studies examining either OHS training/education implementation or the effectiveness of OHS training intervention and published in English.

2.3.2.3   Reasons for exclusion of articles

A total of 757 potentially relevant articles were found through searches performed on multiple databases and sources. This included additional "hand search" using the reference list of articles revealed through database search. A careful review of these 757 articles excluded 393, as their titles did not meet inclusion criteria. The evaluation of abstracts of the rest of the articles (364) resulted in further exclusion of 342, as they were related to cleanliness, generic trade-specific training, and environmental hygiene. Upon receipt of the full text, the remaining 22 were formally reviewed applying the inclusion criteria. After close scrutiny 6 papers of the full text version of these 22 papers were excluded giving a total of 16 potentially appropriate papers. A detailed account on the reasons for exclusion of articles is given below.

Reviews and research related to cleanliness, generic trade-specific training, and environmental hygiene were excluded. Articles predominantly about 'food safety' rather than 'worker safety' were not included. Specifically, 4 articles on food safety practices, training sessions and motivational programs to improve employees' food safety behaviours were not included (Howells et al., 2008; Lillquist, et al., 2005; Lynch, Elledge, Griffith, & Boatright, 2005; Tracey & Cardenas, 1996).  Gleeson's (2001) study on the frequency and nature of injuries experienced by students in a catering school over a full year was also excluded as there was no specific reference to OHS education. However, Pragle's (2007) article on hand-washing behaviours was included as it focuses on the OHS educational issues of workers. Another study by Runyan et.al (2005) was included as it examines teenagers in retail industries, as well as,  investigating training and workers' views about training. Although, strictly speaking, this article focuses on working conditions, it is relevant because the results relate to training and particularly the views of teenager students about training.

At the end of this sequential process, there were 12 studies in total that were included in this review. The figure below shows the process of selection of articles.

```
┌─────────────────────────────────────┐
│ 757 potentially relevant articles   │
│ were found through searches         │
│ performed on PubMed (MeSH – [mh]    │
│ and [tiab]), CINAHL, SCOPUS,        │
│ Cochrane Library, ScienceDirect and │
│ Web of Science. Additional "hand    │
│ search" were performed using the    │
│ reference list of selected articles.│
└─────────────────────────────────────┘
                │                         ┌────────────────────────────────┐
                ├────────────────────────>│ 393 papers were excluded, as   │
                │                         │ title did not meet inclusion   │
                ▼                         │ criteria                       │
┌─────────────────────────────────────┐  └────────────────────────────────┘
│ The abstract of 364 potentially     │
│ relevant articles were evaluated    │  ┌────────────────────────────────┐
└─────────────────────────────────────┘  │ 342 papers were excluded, as   │
                │                         │ the abstract revealed that     │
                ├────────────────────────>│ papers were related to         │
                │                         │ cleanliness, generic trade-    │
                │                         │ specific training, and         │
                ▼                         │ environmental hygiene          │
┌─────────────────────────────────────┐  └────────────────────────────────┘
│ Upon receipt of the full text, they │
│ were formally reviewed with respect │
│ to the inclusion criteria and 22    │
│ potentially appropriate papers were │
│ obtained and analysed               │
└─────────────────────────────────────┘
                │                         ┌────────────────────────────────┐
                ├────────────────────────>│ 6 papers were excluded after   │
                │                         │ close scrutiny of the full     │
                ▼                         │ text version of these 22 papers│
┌─────────────────────────────────────┐  └────────────────────────────────┘
│ 16 potentially appropriate papers   │
│ being retrieved                     │  ┌────────────────────────────────┐
└─────────────────────────────────────┘  │ 4 articles predominantly about │
                │                         │ 'food safety' rather than      │
                ├────────────────────────>│ 'worker safety' and            │
                │                         │ motivational programs to       │
                ▼                         │ improve employees' food safety │
┌─────────────────────────────────────┐  │ behaviours were excluded       │
│ A total of 12 articles was found    │  └────────────────────────────────┘
│ and included in this review         │
└─────────────────────────────────────┘
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**Figure 2.3: Process of selection of articles for the review**

## 2.3.3   Results of review

Table 2.3 is a summary of the articles. In assessing the quality of the articles, a limited number of studies with good evidence of effectiveness were found. Of the 12 articles, one was quasi-experimental and was found to be good quality study based on the assessment of the study design and generalizability. There was no randomised controlled trial. None of the papers were of sufficient quality to be assessed using the framework of the National Health

and Medical Research Council (NHMRC) level of evidence. However general statements/comments about quality are made in Table 2.3 below.

**Table 2.3: Review of OHS education and interventions in the hospitality and food retailing sectors**

| Country | Author/ Year | Title | Design and study population | Main findings | Quality and comments |
|---------|--------------|-------|------------------------------|----------------|----------------------|
| USA | Sinclair et al., 2003 | Evaluation of a safety training program in three food service companies | Intervention study (quasi-experimental design). Study participants are workers of food service facilities | Group having more interactive training achieved higher knowledge test score compared to the group receiving traditional training. | Good quality study with good generalizability |
| Australia | Farris & Stancliffe, 2001 | The co-worker training model: outcomes of an open employment pilot project | Intervention study on selected workers with disability from 11 KFC restaurants. | The co-worker training model may provide a viable, cost-effective alternative to the traditional place and training model. | Small sample size, conducted in a special population group. Limited generalizability |
| USA (North Carolina) | Zakocs, 1998 | Improving Safety for Teens Working in the Retail Trade Sector: Opportunities and Obstacles | A mixed method exploratory study among working teens between the ages of 14 and 17. | Unqualified trainers, too much information, inappropriate formats, hard to read material, and management's lack of concern were reported as reasons for ineffective training. Incorporating parents' views was found helpful for developing an effective OHS training and to reduce work injury. | The survey sample was comprised of youth with a consistent work history over a one-year period, and does not represent more intermittent and transitory youth workers. Results cannot be generalized. |
| Las Vegas, USA | Landers, 2004 | Effects of a work injury prevention program for housekeeping in the hotel industry | Risk analysis of the work environment. Study population were guest room attendant (GRA), house persons, and housekeeping supervisors. | The training intervention resulted in reduction in total injury claim, medical expenses, and lost work-time. The training was successful due to the strong support and participation by the managers with the participants. | Limited generalizability (small sample). |
| USA | Bush et al., 2007 | Restaurant supervisor safety training: Evaluating a small business training intervention | An evaluation of a service delivery program including 213representative of 161 small business restaurant or food- | Easy-to-use training materials, short, interactive health and safety workshops, and involvement of the employee in safety programs can | Lack of comparison group and selection bias limits generalizability. |

| Country | Author/ Year | Title | Design and study population | Main findings | Quality and comments |
|---|---|---|---|---|---|
| | | | provision service organisations. | lead to improvements in the workplace. | |
| USA | Pragle, et al., 2007 | Food Workers' Perspectives on hand washing behaviours and Barriers in the Restaurant Environment | A qualitative study using focus groups to interview food workers and kitchen handlers | Training programs should be 1) a hands-on training program; 2) involvement of both managers and co-workers in the training; 4) continued support of the managers, and co-workers; and 5) involvement of health departments (Policy makers). Insufficient scientific information on methods of performing tasks, time pressure and stress, lack of accountability were identified as barriers. | Participants were recruited from a very specific trade, from a small geographic region, and the responses were generated from only two focus groups. Cannot be generalized. |
| Australia | Patterso, O'Conno r, Farr, & Wilks, 1994 | Workplace health and safety needs in the Queensland tourism and hospitality industry: A pilot study | A pilot study using data collected by questionnaires and focus group discussions with 97 people working in the Queensland tourism and hospitality industry. | Videos, handbooks and personal discussion should be used as educational tools. | Pilot study with small sample. |
| New Zealand | Poulston, 2008 | Hospitality workplace problems and poor training: a close relationship | A questionnaire survey among hospitality students and employees | Managers are reluctant to invest in training. Poor training is associated with workplace problems including workers injury. Respondents (36.8%) considered working without proper training as a problem. | Disproportionately more response was from a specific sub-group of respondents leading to skewness of data. |
| USA | Hendrick s & Layne, 1999 | Adolescent occupational Injuries in Fast Food Restaurants: An Examination of the Problem From a National | A study using data from the National Electronic Injury Surveillance System were examined for nonfatal injuries to adolescents, ages 14 through 17, injured while | Intervention should address the task-specific risk factors and efforts to increase awareness. Proper supervision and safety practices could help to prevent injuries. | Secondary analysis of injury surveillance data and provides useful information. |

| Country | Author/ Year | Title | Design and study population | Main findings | Quality and comments |
|---------|--------------|-------|----------------------------|---------------|----------------------|
| | | Perspective | working in fast food restaurants. | Restaurant managers and employees must be informed about the safe work environment, including the use of high risk equipment. | |
| USA | Milman, 1999 | Teenage Employment in the Hospitality Industry: An Exploratory Study | An exploratory study with a sample of 156 working students. | Participants expressed importance in working with friendly co-workers and a comfortable working environment. They also emphasized on standard operating procedures. Special training should be provided to the employees who supervise teens. | Limited generalizability. |
| UK | Ram, Sangher, Abbas, & Barlow, 2000 | Training and ethnic minority firms: the case of the independent restaurant sector | A study involving a qualitatively-oriented account of the experiences of 37 employers and 86 employees in the City of Birmingham's ethnic minority owned restaurant trade. | The study showed that small businesses like restaurants were reluctant to utilise formal programs of training. | Cannot be generalized (small study involving minority ethnic groups) |
| USA | C. W. Runyan, et al., 2005 | Potential for violence against teenage retail workers in the United States | A well designed survey with large multi-locality samples involving teenage workers of restaurants and groceries. | Young workers reported that they were not adequately trained to deal with potentially violent circumstances at work. Improvement in child labour practices with respect to training and supervision was expressed. | Although focuses on working conditions, but investigates workers' views about training and provides meaningful information. |

The outcomes of this review can be categorised into four sets of elements: elements related to the *training content, mode of training delivery, structural/organizational issues* and *stakeholders' perceptions and views*.

2.3.3.1   Content of training:

Workers who had received some type of training expressed concern about its adequacy and the need for specific relevant content in the training materials. Too much information given at one time, inappropriate formats, and hard to read materials were cited as reasons for ineffective OHS training (Bush et al., 2009; Zakocs, 1998). One study suggested that the content of the education material should emphasize standard operating procedures and include information about injuries and preventive measures (Milman, 1999). Another study emphasized the inclusion of instructions related to tackling angry customers, robbery, and sexual harassment in training programs. Findings also indicated areas of potential improvement in child labour practices, particularly with respect to training and supervision (Runyan, et al., 2005).

2.3.3.2   Mode of training delivery

This review shows that the mode of training has a crucial role in making training effective. In one study, food workers indicated that training programs should be hands-on and interactive (Pragle, et al., 2007) and another study states that training should not be too long or boring (Zakocs, 1998). An evaluation study found that the group which had more interactive training involving manuals, laminated prompt cards, videotapes, and posters achieved higher knowledge test scores compared to the group receiving traditional training (Sinclair, et al., 2003). Other studies also encouraged  the use of  videos, handbooks and personal discussion as educational tools (Patterson, et al., 1994). From telephone survey results, it was found that 96% of food service workers want safety training before commencing their job.

2.3.3.3   Structural/organizational elements

*2.3.3.3.1 Involvement of managers and co-workers in the training:*

One of the vital elements emerging from this review is managers' concern about workers' safety. The involvement of both managers and co-workers in the training was considered

useful and may result in better outcomes (Bush, et al., 2009; Landers, 2004; Milman, 1999; Pragle, et al., 2007; Zakocs, 1998).

In Australia, a co-worker training model featured training of both co-workers and managers, the availability of support to co-workers from job coaches, as well as, the core feature of co-workers providing direct training and support to employees with a disability. The co-worker training course was effective and it may provide a viable, cost-effective alternative to the traditional place and train model (Farris & Stancliffe, 2001). A study conducted in New Zealand identified that managers are reluctant to invest in training, as their time is fully occupied with recruitment and selection (Poulston, 2008). Restaurant managers and employees must be informed about the importance of safe work environments, for example, including the use of grease-cutting agents on floors and proper footwear for employees, and burn prevention strategies (Hendricks & Layne, 1999).

*2.3.3.3.2  Supportive workplace environment*

A supportive and comfortable organizational environment is important for effective training (Milman, 1999). Lack of management's support, time constraints, lack of adequate training to deal with potentially violent situations at work and non-compliance with child labour practice were identified as barriers to improving workplace safety (Ram, et al., 2000; Runyan, et al., 2005). Another barrier to improving workplace safety was perceived by teens to be lack of control over the work environment (Zakocs, 1998). Poor training and under-staffing were also identified as workplace problems in a study conducted by Poulston  (2008).

*2.3.3.3.3  Assessment of training and constant supervision:*

Assessment of training programs was suggested as a very important element. After training, improvement in skills can be measured through testing and job performance evaluation. Practical testing was suggested to be performed to assess the level of workers' understanding and to hold them accountable for the information that was being taught (Landers, 2004). Positive and constructive feedback has been shown to enhance training interventions and can be utilized during and after training to reinforce newly learned work practices. Lack of accountability was identified as a barrier to effective training (Pragle, et al., 2007).

2.3.3.4   Stakeholders' views and participation

*2.3.3.4.1   Workers' perceptions about training:*

The effectiveness of a safety training program may be enhanced by understanding workers' perceptions of the workplace and worker-management interaction patterns. Incorporating workers' concerns and recommendations for improving safety may increase training relevance and ultimately lead to more effective interventions (Bush, et al., 2009). A study conducted in North Carolina (Zakocs, 1998) indicated that working in unsafe environments, fear of assault, being rushed, feeling powerless, and receiving inadequate training from managers insensitive to safety issues were common among working teens. This study also indicated that workers noted that managers failed to provide basic protective equipment like oven mitts, trays, and usable utensils. Additionally, they failed to provide enough guidance or training on how to perform jobs safely, but rather they encouraged them to meet the demands of the customer (Zakocs, 1998).

*2.3.3.4.2   Incorporating parents' views and involvement of policy makers:*

A study involving food workers employed in a restaurant indicated that educational and training programs should involve health departments and other policy makers (Pragle, et al., 2007). Zakocs (1998) noted that the importance of understanding more clearly the nature of parents' views about adolescent work. This study also suggests that incorporating parents' views by exploring their expectations about safety training or education for their children, including comments on the level of student engagement and participation, may provide information about the standard of the program and monitoring of compliance. The parents' views would be helpful for developing an effective OHS training and to reduce work injury (Zakocs, 1998)

2.3.4   Discussion and conclusions

This systematic literature review has highlighted the paucity of high quality studies relating to OHS training and education in the hospitality and food retailing sectors. No randomised controlled trial (RCT) was identified in this review. This could be due to the inherent difficulty of conducting RCTs in occupational health intervention (Nicholson, 2007; L. S.

Robson, et al., 2010; Zwerling, et al.,1997). Even so, this review does suggest a number of essential elements of effective training and positive perceptions about OHS training.

The article by Sinclair (2003) stressed participatory, adequate, interactive and hands-on training. Articles by other authors also noted this (Landers, 2004; Pragle, et al., 2007; Zakocs, 1998). These findings, though industry-specific, concur with other established training approaches that have been recognized to be useful and effective (Berthelette, et al., 2000; Culvenor, Cowley, & Else, 1996; C. Mayhew & Quinlan, 2002). It is important to apply these principles in designing training and educational interventions for young workers. Similarly, in terms of contents of training, Zakocs (1998) and Landers and Maguire (2004) suggested that training materials should be easy to understand with appropriate format, and that they should include the important issues and topics. These findings are consistent with other general OHS training standards (Goldenhar & Schulte, 1996; NIOSH, 2004). In addition to the findings related to the contents, duration and timing of training, involvement and engagement appear to be very important factors for young people (Sinclair, et al., 2003). This is similar to the finding of a US study (Burke, et al., 2006) and warrants special consideration. However, Robson et al (2010) has mentioned the lack of sufficient evidence for this. Some of the reviewed articles identified assessment of training and constant supervision as two vital elements of training (Landers, 2004; Pragle, et al., 2007). It was also argued by Landers (2004) and Pragle (2007) that regular assessment, monitoring and auditing should be formal and routine components of training intervention targeted at young workers. Comparable findings have also been identified in areas outside the hospitality and food retail sectors (EdgeTrainingSystems, 2009).

The results of this literature review indicate the importance of stakeholders' views and participation in training (Bush, et al., 2009; Pragle, et al., 2007; Zakocs, 1998). One of the important aspects of this review is the need to understand parents' views about adolescent work. This is consistent with the telephone survey findings of parents of working adolescents conducted by Runyan (2009) who found that 40-50% parents were concerned about adolescents working alone or not having adequate safety training. As well as the effort made to increase access to OHS education in high schools, the involvement of parents and other stakeholders have also been advocated by other studies (Chin et al, 2010). Moreover, this study indicated that, although injury management is understood, preventive measures are less often practiced.

A related issue is employers' ignorance of child-labour laws (Bush, et al., 2007; Bush, et al., 2009; Poulston, 2008; Pragle, et al., 2007; Runyan, et al., 2005). Many hospitality-industry operators are unfamiliar with them. This ambiguity in child labour laws can result in inappropriate engagement of young workers in hazardous jobs (Parkinson, 2001). In this regard, all stakeholders including health departments and other policy makers should be involved in OHS training (Pragle, et al., 2007).

There are some limitations to this review. Although, this review has attempted to identify published research papers on training, some relevant reports may appear in the 'grey' literature and may therefore have been missed. Many of the publications do not directly describe the outcomes of interest - the essential elements of an effective OHS training in hospitality and food retailing sectors. As only one of the reviewed articles is of satisfactory or adequate quality which is a well-designed quasi-experimental study, it is important to use caution in interpreting the findings.

In conclusion, it appears that a limited number of publications are available on the effectiveness of OHS educational intervention in the hospitality and food retailing sectors. Many of the articles are focused on workers' views and perceptions regarding OHS training, opportunities and obstacles for improving workplace safety, and improving OHS training relevance. A number of themes have emerged from the literature and key elements of effective training relate to content, mode, management and co-worker involvement, and support, assessment and the inclusion of perspectives from participants, parents and other stakeholders. The findings, although focused on the literature in the hospitality and food retailing sectors, are likely to be applicable in other sectors of industry where young workers are employed.

## 2.4  Conclusions

There is evidence that school-based OHS educational programs have the potential to increase knowledge about safety, but it cannot be assumed that this knowledge will result in safe behaviour leading to injury reduction. Bringing together the findings from the two reviews, the general literature review and the systematic literature review, it is evident that there are gaps in knowledge, prevention and practice of OHS education for young workers in schools and industries where more attention is required. Schools should encourage parents to play an

active role in their children's employment decisions, including specific work activities and work intensity. Interventions aimed at employers, parents, and teens to reduce hazards associated with teen work can prevent work-related injuries (NIOSH, 1995; Richter & Jacobs, 1991). Thus, more focused research is needed to objectively investigate schools-based OHS education to identify components that are working towards achieving injury reduction. This should also focus on areas that need improvement including facilitating and developing good working relationships and communication between stakeholders including parents.

There appears to be a requirement for more research focused on attaining a better understanding of how school-based OHS education can be made effective in positively influencing behaviours, and on the complementary roles of industry- and school-based training. There appears to be no conceptual framework addressing the progressive development of OHS education in secondary schools and the workplace.

Thus to address the need to better understand the situation in schools and to gather stakeholder perspectives, the following research questions are proposed:

Research question 1: *What are the practices and perceptions of introductory OHS education in secondary schools of South Australia?*

This broad research question is further broken down into three specific questions as follows:

> 1.1 *What is the current practice of introductory OHS education in South Australian secondary schools?*
> 1.2 *What are the teacher perspectives on school-based OHS education?*
> 1.3 *What teaching/school factors are associated with positive learning outcomes (as perceived by the teachers)?*

Research question 2: *How do parents understand OHS education in secondary schools?*

The broad aim of this research is to investigate the practices and perceptions of introductory OHS education in secondary schools in South Australia and to develop a conceptual framework for effective OHS education for young workers.

# CHAPTER 3    A SURVEY ON INTRODUCTORY OHS EDUCATION IN SECONDARY SCHOOLS: CURRENT PRACTICES AND TEACHERS' PERSPECTIVES

## 3.1  Overview

Schools could play a vital role in the provision of OHS education by reaching young people on a large scale. This chapter reports on a survey of teachers to explore the current practice of OHS education in South Australian high schools, the perspectives of teachers and the factors associated with positive learning outcomes as perceived by the teachers.

This cross-sectional survey involved high school teachers from all public, independent and Catholic schools providing secondary education in South Australia from both metropolitan and rural areas. Bivariate and multivariate logistic regression analyses were conducted to investigate correlates of teacher perspectives on student learning and engagement, and identify important predictors of positive educational outcomes.  The survey findings revealed that the teaching methods should be engaging, interactive, and should incorporate case studies and class discussion. The content and delivery mode of OHS education should be appropriate for young workers.

## 3.2  Introduction and Research Questions

Chapter 1 and chapter 2 have identified a number of issues of concern but with the positive findings of young workers injury claims experience suggesting a decline in young workers' injury rates in recent years. However, South Australian work injury data for young workers are worse than the national average (Ministerial Press Release, 2005).

As seen in the previous chapters, schools are an ideal setting for health promotion interventions which target health risk behaviours of young people (Nutbeam, Macaskill, Smith, Simpson, & Catford, 1993). It has also been recommended (Schulte, et al., 2005) that, as workplace OHS training is often lacking, the education sector may be the only source of OHS education. Studies demonstrated that school-based OHS education programs can play a role in assisting young workers learn more about health and safety issues in the workplace, and secondary school is an appropriate setting for OHS education (Lerman, et al., 1998; Linker, et al., 2005; Wigglesworth, 1987). Despite the widespread agreement on the

importance of school-based OHS education, reviews of current practice highlight  limited student knowledge and inconsistency in OHS education delivery (Bazas, et al., 2002a). It has been found that, the quantity and quality of OHS education is largely at the judgment of the instructor and school (European Agency for Safety and Health at Work, 2009; Salminen & Palukka, 2007; Schulte, et al., 2005). This is another issue which warrants attention.

It is widely accepted as desirable to include health and safety concepts in secondary schools in order to prepare students for their future work. There is much available information on OHS in Australia, but the literature on the evaluation of efficacy and effectiveness is very limited. In South Australia, anecdotal evidence suggests that there is no standardization in terms of content and delivery methods.

There are many studies assessing the provision of health education within schools which focus their attention on different aspects of individuals' health and safety (Australian Health Promoting Schools Association, 2006; Lynagh, Schofield, & Sanson-Fisher, 1997; Marshall et al., 2000). However, there is relatively little attention paid to OHS education. Similarly, there is also limited information on teachers' understanding and approaches to OHS education. This study is specifically concerned to illustrate how a safety education strategy in a school context is implemented, what is currently going on in schools in terms of OHS delivery, the methods teachers are following and teachers' perspectives. Based on this research needs the following research questions have been formulated.

> *1.1   What is the current practice of introductory OHS education in South Australian secondary schools?*
>
> *1.2   What are the teacher perception/perspectives?*
>
> *1.3   What teaching/school factors are associated with positive learning outcomes (as perceived by the teachers)?*

These questions are addressed by means of a cross-sectional survey of teachers of secondary schools engaged in providing OHS education.

## 3.3  Methodology

A self-administered cross-sectional questionnaire survey approach was used. This research included participants from all secondary school sectors (public and private), and from both

rural and metropolitan locations. This postal survey allowed access to geographically scattered samples (Cavusgil & Elvey-Kirk, 1998; D.A. Dillman, 1978; Edirisooriya, 1997) This methodology section describes the participants, the development of the survey tools, survey implementation, data processing and management and data analysis.

### 3.3.1   Study population

The participants of this survey comprised teachers from all public, independent and Catholic schools providing secondary education in South Australia.

### 3.3.2   Development of survey tool

As there was no previously published survey instrument, it was developed from first principles. To enlighten the content and distribution of the questionnaire, two exploratory focus group discussions were conducted with relevant educators. These focus group discussions aimed to provide a wider contextual understanding of how the educators saw and practiced OHS education.  Four *School-to-Work* Advisors participated in the first focus group and five high school teachers participated in the second focus group. The teachers represented both public and private metropolitan schools and each held the role of *VET (Vocational Education and Training) Coordinator,* with responsibility for coordinating vocational education programs including work placements.

#### 3.3.2.1   Inputs from the focus group discussion in the development of the survey instrument

The main themes identified from the focus group discussion were: (1) The role of the school in providing occupational safety education, (2) The importance of occupational safety (3) Inconsistency in the provision of school-based occupational safety education, (4) Time constraints, (5) Lack of formal teacher training, and (6) The importance of making occupational safety education age-appropriate.

Both School-to-Work Advisors and high school teachers recognized the legal and moral responsibility of the school to prepare students to enter the workforce.  Teachers commented that, safety education is an important component of students' learning and development. Reflecting on their knowledge of current practice, School-to-Work Advisors commented on the large variation between schools with respect to teaching support, access to effective and engaging teaching resources, and auditing of occupational safety teaching. Teachers agreed

that the topic should be 'standardized'. School-to-Work Advisors suggested that a checklist would be useful for ensuring that students were receiving the minimum standard of education. Both groups of educators considered time constraints to be a major barrier to effective occupational safety teaching, and School-to-Work Advisors identified a need for formal teacher training. In terms of effectiveness, teachers highlighted the particular importance of making adolescents aware of the consequences of risk-taking behaviour, recognizing that this age group is more predisposed to taking risks. Real-life experiences and 'hands-on' activities were considered valuable in maintaining student engagement.

A draft questionnaire was then developed and refined with the input of advisors comprising representatives from the Department of Education and Children Services (DECS), employers, unions and the regulatory body SafeWork SA.

The areas for inclusion in the questionnaire were:

*Teachers' demography and profile*: age, gender, years of teaching, years of OHS teaching including current role, training status, and type of training.

*Resources and their use*: Information about specific resources teachers use, use of teachers' guide provided by Safe Work SA/Work Cover, web based training and video materials (Passport to Safety, Get Certified, Virtual Hotel, Smart Move or others), any text book or others, accessibility of resources, appropriateness of the resources for the developmental level and capabilities of students; provision for collecting comments and suggestions for additional teaching resources.

*Preparing the students:* information about preparing students for work experience or work placements, how OHS education is delivered with a focus on duration, approach and extent etc, number and duration of sessions provided, and the time of year (in a particular term or prior to work experience) and the assessment of OHS education (any tests or assignments).

*Student learning/participation and quality of OHS education provision*: information on students' responses, ease or difficulty to teach and the knowledge gained, level of student engagement and participation, and if they receive any feedback from parents regarding OHS issues.

*School support:* information about level of support for OHS education provided by the school management and teaching stuff, incentives and barriers and their suggestions to overcome those barriers.

In order to optimise teacher response, the following was undertaken.

- A pilot survey was conducted to make the questionnaire receptive to the local context.
- The questionnaire would be administered in first term – a relatively less busy period.
- An incentive in the form of a voucher was provided to participants.

3.3.2.2   Piloting the questionnaire

To assess comprehensibility and logical flow of the self-administered questionnaire, six teachers participated in a pilot survey.

The objectives were:

- To ensure unambiguous wording of the questions (Armitage, Berry, & Matthews, 2008)
- To assess comprehensibility and rational flow of the questionnaire
- To identify any problems in the design of the questionnaire
- To update response categories with feedback from the teachers
- To test the time required for each complete interview
- To test clarity and relevance of items (Rattray & Jones, 2007)
- To ascertain if  additional questions were needed or whether some questions should be eliminated

No major changes to the questionnaire were suggested by the participants of the pilot test. Some of the feedback and suggestion were:

- Language of the questionnaire was easy to understand, the wording was appropriate and the questions were excellent.
- The areas of focus and organization of the questionnaire was found to be quite diverse and respondents did not have to write too much in each section which was stated as an advantage.

- To avoid busy time for sending the questionnaire, for example, middle of term 2 and term 4. According to the participants of the pilot testing, the best time for receiving the survey forms was term 1 or at the beginning of the year.
- Sending the questionnaire to schools under a cover letter through the principal as it would maximise the response rate.
- As teachers tend to be overloaded with work, a small gift for each completed survey might be helpful for maximising the response rate.

A comprehensive questionnaire (Appendix 1) was finalized incorporating stakeholder input and comments from the teachers participating in the pilot survey. The questionnaire comprised 25 questions including both open and close ended response. The first eight questions were related to the demographics of the participants including their teaching experience in OHS, their current role and the type of training they received.

The question on their current role and training forms had a series of options. Participants were allowed to tick more than one response. In terms of question regarding whether OHS should be taught in secondary schools, respondents were able to provide additional written comments. The next two questions were related to the resources they use and about the usefulness, accessibility and appropriateness of the resources and all these questions were with multiple responses. The next four were open ended questions related to the current practice of OHS education. These included OHS delivery methods, time of delivery, number and duration of each session, whether there is any test or assignments or whether it is assessed or not.

Questions relating to students' learning and participation included students' response, whether concepts were easy to teach, whether students were gaining significant knowledge, and rating of level of student engagement. In responding the question on receiving OHS education, there were opportunity to explain a 'no' response and the next question on receiving any feedback from parents regarding OHS issues, there was also an option to describe.

The questionnaire had a section on support of the school regarding OHS education delivery by the teachers, and these questions had a five-point graded response scale.

The concluding section provided teachers with opportunities to provide open ended responses on (a) barriers and incentives to the effective teaching of OHS in secondary schools and (b) means for overcoming the barriers they mentioned.

### 3.3.3   Ethics approval

Ethical approval for the survey was granted by the University of Adelaide Human Research Ethics Committee (Project No. H-055-2008).   Research approval for the survey was also granted by DECS (DECS CS/08/0248.5) and by Catholic Education South Australia (Appendix 2).

### 3.3.4   Survey implementation

#### 3.3.4.1   Identification of SA schools

A list of South Australian secondary schools was generated, including Public (DECS), Catholic and Independent schools.   Public schools were selected from listings of High Schools, Area Schools and Combined Primary/Secondary Schools available on the DECS website (http://www.decs.sa.gov.au/).   Catholic Schools providing education for year levels 10, 11 or 12 were selected from a 2009 Directory provided by Catholic Education South Australia.   Independent Schools providing education for year levels 10, 11 or 12 were selected from a Member School Directory available on the Association of Independent Schools of SA website.

The table below (Table 3.1) summarises the number of schools identified in each sector.

**Table 3.1: Number of schools in each sector**

| Sector | Number of schools |
| --- | --- |
| Public | |
|    Metropolitan | 80 |
|    Rural | 51 |
| Independent | 49 |
| Catholic | 31 |
| Total | 211 |

3.3.4.2   Preparation & distribution of survey package

The questionnaires were posted in first week of March, 2009 to the Principals of all public, Catholic and independent schools. The advantages of this data collection technique are: wider distribution, less distribution bias, better likelihood of thoughtful reply, no interviewer bias, central control, time, savings, and, most importantly, cost savings (Erdos, 1974). The survey package included:

- A letter to the principal, including information about the purpose of the study, confidentiality protection and a request to forward the questionnaires to teachers who provide OHS education to prepare students for work experience or work placements (Appendix 3).
- 3 packages for teachers, each including:
  - a letter to the teacher (Appendix 4), with information about the purpose of the study, confidentiality protection and instructions for completing the questionnaire
  - a survey questionnaire (Appendix 1)
  - a reply-paid envelope
  - a coupon for requesting a lottery ticket or a coffee voucher

The letters addressed to the teachers included a deadline for return of the surveys, allowing approximately two weeks for completion.

3.3.4.3   Follow-up with schools

The survey return forms started coming back from the second week of March 2009. To increase the response rate, after 4 weeks, a reminder email was sent to the principals of non-responding schools. The cut-off period of returning the survey was end of June 2009, after one reminder.

3.3.5   Data processing and management

The responses were coded and entered into Microsoft Excel, for descriptive statistical analysis. To record the date of receipt and number of surveys received for each school, and questionnaire responses, separate databases were generated, in Microsoft Excel.

3.3.5.1   Variables created from open questions and Likert scales

The responses for some questions were transformed and coded to derive specific measures of interest. Examples are given in the Table 3.2 below.

**Table 3.2: List of recoded variables**

| Name of the variables | Detail | Coded variables | Range of scores |
|---|---|---|---|
| Time | At what time of year is instruction given? | Time 1 | 1 = Year 10-11's prior to work experience<br>2 = Beginning of year or terms<br>3 = Others. |
| Delivery | How is OHS education delivered? | Delivery 1 | 1=through PLP and Home group (Yr 10)<br>2 = within a subject (for Yr 11&12)<br>3 = Entire year level subjects<br>4 = through VET courses<br>5 = Others. |
| ManSupp | The school management is supportive of OHS education | ManSupp1 | 1 = agree<br>2 = neutral<br>3 = disagree |
| TeachSupp | The teaching staff is supportive of OHS education | TeachSupp1 | 1 = agree<br>2 = neutral<br>3 = disagree |
| Quality | The quality of OHS education is compromised due to other demands of role | Quality1 | 0 = Disagree or Neutral<br>1 = Agree |
| Barriers | Do you think there are any barriers to the effective teaching of OHS in secondary schools? | Barriers1 | 1 =Time constraints / crowded curriculum<br>2 = Issues with resources<br>3 = Teacher training<br>4 = Lack of school support/organization<br>5 = Others |
| YrTeach | Years of teaching experience | YrTeach cat (category of overall teaching exp) | 1 = <=10 year<br>2 = 11-20 yrs<br>3 = >20 yrs |
| YrOHS | Years of teaching OHS | YrOHS cat (category of OHS teaching exp) | 1 = <=10 year<br>2 = 11-20 yrs<br>3 = >20 yrs |
| Concept | Are the concepts easy/difficult to teach? | Concept1 | 0=difficult or mixed<br>1=easy |
| Response | How do students respond to OHS education? | Response 1 | 0=negative or mixed,<br>1=positive |
| Participation | How would you rate the level of student engagement/participation (1-5 is low to high ) | Participation 1 | 0=low (1,2,3)<br>1=high (4,5) |
| Knowledge | Do you think that students gain significant knowledge in OHS? | Knowledge 1 | 1=yes<br>0=no or mixed |

Data cleaning was done by careful visual inspection of both entered data and questionnaires. A random sample of 5% of questionnaires was re-entered and compared for accuracy.

## 3.3.6 Data analysis

To quantify the relationship between variables, the Statistical Package for the Social Sciences (SPSS) Version 18 was used. Bivariate logistic regression analyses were conducted to investigate correlates of perceived student learning and engagement (three variables, namely *positive student response*; *gain of knowledge by students*; and *student engagement and participation*) and whether teachers believed that the topic was easy to teach. The analysis included independent variables relating to three broad categories, i.e. teacher demographics and background (Teacher variables), teaching methods (Learning/teaching approach variables) and school environment (School environment variables). These groups of variables are discussed below:

Teacher variables: teacher demographics and background (age group, gender, role/type of teachers, types of OHS training they received, years of teaching experience and years of OHS teaching experiences)

Learning/teaching approach variables: utilization of resources (use and usefulness), students assessment, delivery methods and timing, appropriateness of resources, suggestions for improvement (includes barriers to accessibility of resources)

School environment variables: school sector (public and private),  location ( rural and metropolitan), school management's support to OHS education, teaching staff's support to OHS education, compromised quality of OHS education by other demands.

The Chi-Square test was performed to see the association between variables. Statistical significance was defined as a two-tailed p-value of 0.05 or less. For each outcome variable, the statistically significant independent variables were included in a multivariate logistic regression model to identify important predictors of positive educational outcomes. The correlates of teacher perspectives on student learning and engagement were investigated by using logistic regression model involving statistically significant independent variables to identify important predictors of positive educational outcomes. In the bivariate analyses, the

independent variables which were found to be significantly associated were included in the model.

In relation to the correlation between variables, the questionnaire assessed teacher perspectives on the outcomes relating to teaching and learning: (1) positive student response, (2) gain of knowledge by students, (3) student engagement and participation and (4) whether the concepts are easy to teach.

Significant associations were observed between positive student response and whether the concepts were easy to teach, and student acquisition of knowledge and positive student response. However, it was decided that a scale construction comprising all four single item constructs could not be justified – the constructs were not all significantly associated with each other, and amalgamation of the four constructs was not theoretically plausible. Assessment of the factor structure of the constructs was therefore not conducted.

## 3.4  Results

This section represents the results of the questionnaire survey of teachers in South Australian secondary schools. At the outset, survey response rate and descriptive statistics, including participant's demographics information, are presented. The results of analytical statistics are then presented. The findings are presented in corresponding to the specific research questions focusing on current practice of OHS education in South Australian high schools, the teachers' perspectives on the current practice, and the factors associated with positive learning outcomes as perceived by the teachers. The questions are categorised under some specific headings for presenting in this section and in doing so the questions are not in the same order they were asked in the survey.

**Response rate**

The overall school response rate was 49% (104 of 211 schools). In total, one or more teachers from 49% of the schools approached, participated in the questionnaire survey.  Response rates for public and private schools were almost similar (50% and 48%, respectively). The highest response was from catholic schools (65%). Half of the public schools and little more than one third (36%) of the Independent schools responded to the survey. These data are shown below (Table 3.3).

**Table 3.3: Survey response rate**

| School Type | Number of schools | Number of schools responded | Response rate |
|---|---|---|---|
| Public: | 131 | 66 | 50% |
|     Non-Area (Metropolitan) | 80 | 44 | 55% |
|     Area (Regional) | 51 | 22 | 43% |
| Independent | 49 | 18 | 36% |
| Catholic | 31 | 20 | 65% |
| Total | 211 | 104 | 49% |

A chi-square test revealed a borderline significant association between school type and response rate. Chi-square = 6.03, p = 0.049

### 3.4.1 Descriptive statistics

This is an overview of the descriptive information of all the variables of interest. Primarily it presents the statistics using the closed ended responses by three types of variables, namely, teacher variables including demographics and background of the respondents by their age, gender, role, OHS training, years of teaching experience and years of teaching OHS education; learning/teaching approach variables; and school environment related variables. Then it presents a summary of the responses to the open ended questions.

#### 3.4.1.1 Teacher demographics and background (Teacher variables)

The following section summarises the distribution of each variable according to the questionnaire (Question 1-6, 8). For the purposes of this research, question 17, 18 and 19 were considered as outcome variables, described elsewhere.

Table 3.4 indicates that majority of the teachers (71%) belonged to the age group of 30-55 years and one fifth was over the age of 55. The proportion of younger teachers, aged less than 30, was 9%. More than 6 out of 10 (63%) teachers who participated in the survey were female.

It was found that teachers engaged in OHS education had multiple roles. Of all the teachers providing OHS education, more than half were Vocational Education and Training (VET)

coordinators or Structured Workplace Learning (SWL) coordinators. The remaining (48%) teachers came from the pool of general teachers with additional responsibility for OHS. It was also found that 76% of OHS education providers were involved in preparing students for work experience and 54% were involved in preparing students for structured work placement.

The majority of teachers (61%) had received some kind of in-service OHS training. It is important to note that while more than half of the respondents had received in-service training in occupational safety education, 16% had no formal OHS training. A substantial proportion (35%) was dependent on their prior industry experience in the provision of OHS education. Table 3.4 shows the overall teaching and OHS related teaching experience of the teachers. More than one third had more than 30 years of teaching experience. Approximately 20% of teachers had less than 10 years of experience. Regarding OHS teaching experience, contrastingly, more than 62% had less than 10 years of experience. About 25% of teachers had 10-20 years of OHS teaching experience. The mean years of experience for overall teaching and for OHS are 21 years and 9 years respectively.

**Table 3.4: Teacher demographics and background**

| Teacher demographics and background | Number | Percent |
|---|---|---|
| Age range (n=150) | | |
| <30 | 14 | 9 |
| 30-45 | 49 | 33 |
| 46-55 | 57 | 38 |
| 56-65 | 29 | 19 |
| >65 | 1 | 1 |
| Gender (n=150) | | |
| Male | 55 | 37 |
| Female | 95 | 63 |
| Teachers by role (n=149) | | |
| Vocational/Workplace Learning Coordinators | 77 | 52 |
| Other teaching | 72 | 48 |
| Prepare students for work experience (n=156)* | 119 | 76 |
| Prepare students for structured work placements (n=156)* | 84 | 54 |
| Teachers by OHS training (n=156)) * | | |
| No formal training | 25 | 16 |
| Health & Safety representative | 26 | 17 |
| In-service | 95 | 61 |
| Industry experience | 55 | 35 |
| Other formal training | 73 | 47 |
| Years of teaching experience (n=149) | | |
| Mean (yrs) | 21 | |
| <10 | 31 | 21 |
| 10-19 | 32 | 22 |
| 20-29 | 33 | 22 |
| 30-39 | 46 | 31 |
| >40 | 6 | 4 |
| Years of teaching OHS education  (n=138) | | |
| Mean (Yrs) | 9 | |
| <10 | 86 | 62 |
| 10-19 | 34 | 25 |
| 20-29 | 10 | 7 |
| 30-39 | 7 | 5 |
| >40 | 1 | 1 |

*Multiple responses

### 3.4.1.2 Current practice of OHS

This section deals with learning and teaching approach variables such as use of resources, delivery methods, time of delivery of OHS education, total time spent teaching OHS per year and tests, assignments and students assessment to address research question focussing on current practice.

*3.4.1.2.1   Use of resources*

(Question 9)

 Table 3.5 shows that the most utilized resources were websites (80%), sharing of own experience (59%), newspaper clippings (57%), teachers' guide (48%) and case studies (46%). Other resources used included video materials (32%), guest lecturer (31%), brochures (30%), and text books (24%).

**Table 3.5: Use of resources by the teachers**

| Use of resources | Number* | Percent |
|---|---|---|
| Websites | 124 | 80 |
|     Get Certified | 85 | 55 |
|     Virtual Hotel | 67 | 43 |
|     Passport to Safety | 68 | 44 |
|     Safe@Work | 72 | 46 |
|     Smart Move | 44 | 14 |
|     Other | 21 | 14 |
| Own experience | 92 | 59 |
| Newspaper clippings | 89 | 57 |
| Teachers Guide | 74 | 48 |
| Case studies | 71 | 46 |
| Video materials | 50 | 32 |
| Guest lecturer | 49 | 31 |
| Brochures | 47 | 30 |
| Text books | 38 | 24 |
| Other | 27 | 16 |

*Multiple responses

*3.4.1.2.2 Delivery methods*

(Question 11):

Table 3.6 represents that for year 10 students, 30% of teachers indicated that OHS education was delivered through the subject PLP (Personal Learning Plan) and through the Home group. For students in years 11 and 12, OHS education was most commonly (40%) delivered within a subject. Some of the schools (15%) delivered OHS through the subjects of VET course or apprenticeship training and 13% of the teachers expressed that it is delivered with entire year level subjects.

**Table 3.6: Methods of OHS delivery by the respondents**

| Delivery methods (Multiple response) | Number (n=156) | Percent |
|---|---|---|
| Through PLP and home group (for year 10) | 46 | 30% |
| Within a subject (for year 11 & 12) | 62 | 40% |
| Entire year level subjects | 20 | 13% |
| VET courses | 22 | 15% |
| Others | 26 | 17% |

*3.4.1.2.3 Time of delivery of OHS education*

(Question 12)

The majority (68%) of the teachers indicated that their schools provide OHS education immediately prior to work placements in year 10 and year 11 (Table 3.7). More than one fifth (21%) of teachers pointed out that they provide an OHS component at the beginning of the year or term. The other responses included semester 2, prior to other studies, depends on when it fits into the program, when required, ongoing with students who seek support, integrated into the subjects, usually at the commencement of a course, term II & III, throughout the year as situation arises, throughout whole year and ongoing.

70

**Table 3.7: Time of delivery of OHS education**

| Time of OHS delivery (Multiple response) | Number (N=156) | Percent |
|---|---|---|
| Prior to work placement in Y10 & Y11 | 105 | 68% |
| Beginning of year or terms | 33 | 21% |
| Others | 46 | 30% |

*3.4.1.2.4  Total time spent in teaching OHS*

(Question 13 and 14)

The number of sessions ranged from a single session prior to a work placement, for a total of 105 sessions throughout the year (as part of the subjects *PLP* and *Studies of Society and Environment*). The total time spent teaching OHS ranged from 1 to 45 hours.  Almost 90% (n=121)  of  teachers  taught  OHS  for  less  than  10  hours  per  year  (Figure  3.1).
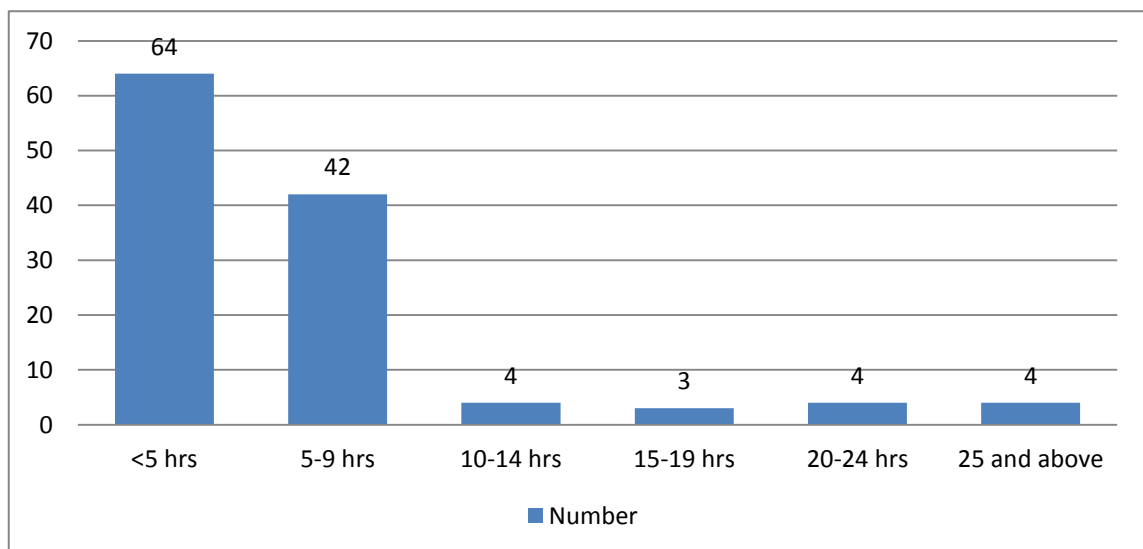


**Figure 3.1: Total time spent in teaching OHS per year**

*3.4.1.2.5  Tests, assignments and Students assessment*

(Question 15 and 16)

Following lessons on OHS, the majority of teachers (83%) gave tests and/or assignments. Assignments included written reports on OHS topics (e.g. legislation), online activities and short written assignments (e.g. questions in work books).  More than half (58%) of the respondents indicated that student achievements were assessed by various means including tests and written assignments on OHS knowledge.

3.4.1.3   Teachers' perspectives

This section deals with teachers' perceptions on importance of teaching OHS, reasons for supporting OHS teaching, usefulness of resources, accessibility, appropriateness of resources, barriers and suggestions for improvement of OHS education in secondary schools.  It also deals with teacher perceptions on student learning.

*3.4.1.3.1  Importance and reasons for supporting OHS teaching*

(Question 7)

Almost all of the teachers (97%) considered that OHS should be taught in secondary schools. Of them 72% provided the reasons for supporting this (Table 3.8). This table shows that, two third of teachers (66%) indicated that they considered OHS education an essential part of the school's role in preparing students for preventing illness and injury in the workplace and making them aware on rights and responsibilities. OHS education was considered particularly important for those newly entering the workforce, because new workers are at increased risk of injury due to inexperience and lack of awareness. Many teachers thought that the role of schools in OHS education should be to provide a basic introduction only, explaining that each job has its own specific hazards.  Thus, school-based OHS education should be complementary to, but not a replacement for, workplace training. Specifically, teachers believed that students should be aware of the reasons behind health and safety rules, i.e. the possible consequences of unsafe behaviour, before entering the workforce.

Knowledge of legislation, particularly rights and responsibilities, was considered to be important because students were thought to be not as well-protected in the workplace as they

are at schools. Students need to be aware that the workplace will be different and they will be much more responsible and accountable for their own and others' safety, they should receive this information from an independent source, not only from the employer. Many students were also employed part-time. Concerns were raised that workplaces may not provide high quality, or any OHS training. School-based OHS training would ensure that those entering the workforce had some, even if only basic, OHS knowledge.

One fourth (25%) of teachers' reasons for supporting OHS education focused only on work placements. Here OHS education was considered important either for the safety of students or as a legal requirement (Table 3.8). In addition, it was suggested that the benefits of OHS education could be applied to the home and school, encouraging students to take more responsibility for their own health and safety throughout their lives. Some teachers supported OHS education simply because it was part of the curriculum for some subjects, or because it was considered necessary for the safety of school-based activities and as a duty of care.

Other reasons for supporting OHS education included:

- adding value to apprenticeships,
- assisting with development of problem-solving skills,
- a growing emphasis on OHS, as because it is part of everyday work and to provide much greater emphasis in the society today.

**Table 3.8: Reasons for supporting OHS education in secondary schools**

| Reasons (N=112) | Number | Percent |
|---|---|---|
| Preparing students for workplace | 74 | 66 |
| For safety of students as a legal requirement | 28 | 25 |
| Others | 10 | 9 |

*Usefulness of websites (Question 9):*

Table 3.9 shows the websites, *Get Certified* (46%) and *Virtual Hotel* (45%) received the highest average ratings from teachers, followed by *Passport to Safety, Smart Move* and *safe@work.*

**Table 3.9: Usefulness of the websites resources**

| Name of web resources | Not at all useful | Not very useful | Somewhat useful | Useful | Very useful |
|---|---|---|---|---|---|
| Get Certified | 1.2% | 1.2% | 21.2% | 30.6% | 45.9% |
| Virtual Hotel | 2% | 2% | 18% | 35% | 45.1% |
| Passport to Safety | 1.5% | 1.5% | 17.6% | 38.2% | 41.2 % |
| Smart Move | 0% | 0% | 27.3% | 40.9% | 31.8% |
| Safe@Work | 0% | 0% | 19% | 52% | 29% |

(N=156)

*Usefulness of the non-websites resources (Question 9):*

Teachers were asked to rate the usefulness of resources on a 5-point scale. Table 3.10 shows the teachers' opinion about the usefulness of the non-website resources. According to the responses of the teachers using the resources, all of the resources appeared to be either 'somewhat useful', useful or very useful. Of all the resources, having a guest lecturer was endorsed as very useful by two thirds (67%) followed by sharing of their own experiences, newspaper clippings, case studies, brochures, text books, video materials, and the Teacher Guide.

**Table 3.10: Usefulness of the non-websites resources**

| Resource type | Not at all useful | Not very useful | Somewhat useful | Useful | Very useful |
|---|---|---|---|---|---|
| Guest lecturers | 0% | 0% | 6% | 28% | 67% |
| Own experience | 1% | 3% | 21% | 36% | 39% |
| Newspaper clippings | 0% | 3% | 23% | 37% | 38% |
| Case studies | 0% | 0% | 16% | 46% | 38% |
| Brochures | 0% | 7% | 24% | 39% | 30% |
| Text books | 0% | 0% | 22% | 50% | 28% |
| Video materials | 0% | 0% | 27% | 47% | 27% |
| Teacher guide | 3% | 3% | 23% | 44% | 27% |

(N=156)

*Accessibility of the resources (Question 10)*

The majority of teachers (76%) either agreed or strongly agreed that the resources were accessible as shown in Table 3.11. Fourteen percent of teachers indicated a neutral response and 10% either disagreed or strongly disagreed that the resources were accessible.

*Appropriateness of resources (Question 10)*

 Table 3.11 shows that the majority of teachers (75%) either agreed or strongly agreed that the resources were appropriate for the developmental level and capabilities of most students. Fourteen percent of teachers indicated a neutral response and 11% either disagreed or strongly disagreed that the resources were appropriate.

**Table 3.11: Teachers' perspectives on accessibility and appropriateness of OHS resources**

| Teachers' views | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Accessibility of the resources | 14% | 62% | 14% | 8% | 2% |
| Appropriateness of resources | 12% | 63% | 14% | 10% | 1% |

*Summary of the responses to the open ended questions on resources*

Teachers commented on the following resources: newspaper articles, case studies, and websites. *Get Certified* was considered "great for students" as a website resource. Some of the teachers were critical of current resources. They commented that resources are not student friendly, do not engage students, and are unsuitable for students from non-English speaking backgrounds.

*Comments/suggestions for additional teaching resources (*(Question 10)

Table 3.12 indicates that many of the respondent teachers (37%) suggested that resources should include the following characteristics: interesting and engaging, clear and concise, relevant, age-appropriate, "student-friendly". They also suggested that the resources should be developed with student input, suitable for both sexes appropriate for students with learning difficulties and easy to teach.

More than 25% of teachers commented regarding resource types. For example, the most useful resources are: case studies, monthly publication of legal cases, interactive, multimedia online resources (similar to Virtual Hotel or a SA version of safe@work, considered "excellent"), a Moodle (online course) – developed by DECS.

A number of teachers (12%) commented on availability and barriers to accessibility of resources and they found it difficult to use online resources due to limited access to computing facilities. They suggested that convenience of availability and access to resources should be improved. For example, availability of SafeWork SA DVDs should be improved, there should be a delivery service, email updates, and availability of low-cost resources.

Twenty five percent of the respondent teachers provided varieties of suggestions and comments. They suggested that there should be a formal, assessed OHS course developed for senior students. Almost 10% of them argued that more resources would be allocated if the course was formally integrated into the curriculum. In terms of content, it was suggested that examples from a broader range of industries and workplace settings should be included. Additionally they commented on financial constraints. For example, some commented that there was very limited funding available for the purchase of OHS teaching materials, suggesting that more free or low-cost resources should be made available.

**Table 3.12: Comments and suggestions for additional teaching resources**

| Comments/Suggestions | Number (N=43) | Percent |
|---|---|---|
| Interesting, engaging, and appropriate resources | 16 | 37 |
| Case studies and online resources | 11 | 26 |
| Availability of resources | 5 | 12 |
| Others | 11 | 25 |

*3.4.1.3.3  Teachers' views on OHS teaching and Student learning (Outcome Variables)*

Table 3.13 shows the teachers' view on OHS teaching and student learning. The  findings are described below in the subsequent sections.

**Table 3.13: Teachers' views on OHS teaching and student learning**

| Teachers' views | Number (n) | | Percent |
|---|---|---|---|
| Positive students response | 64 | (145) | 44 % |
| Concepts easy to teach | 77 | (123) | 63% |
| Students gain significant  OHS knowledge | 78 | (121) | 65% |
| High level of students participation | 65 | (152) | 43% |

Multiple responses

*Teachers' views on students' responses to OHS education*

(Question 17)

Teachers' views on students' responses were varied. Overall, 44% of teachers indicated that students responded positively to OHS education (Table 3.13). The remaining (56%) teachers who indicated negative or mixed responses from students reported that the responses varied based on different personal characteristics and work placements of students and according to teaching methods and materials used.

<u>*Summary of the reasons for positive student responses*</u>

Almost 30% of teachers volunteered to describe the underlying reasons behind positive student responses and listed the resource types, methods of delivery including contents to which students responded most positively. They indicated that students responded positively because the information was particularly relevant and interesting for students who were working and who had completed work experience or intended to work soon. They commented that students believed that it was relevant and useful in their lives, and that the information was necessary and important for work experience subjects or TAFE certificates. They pointed out that students undertook VET subjects as they felt it was important and relevant. The resources and method of delivery associated with positive student response were case studies – particularly high-impact or "shocking" cases, online resources, particularly those that were interactive / virtual or offer certificates. Examples of online resources included: *Virtual Hotel, Get Certified, safe@work, Passport to Safety,* SafeWork SA website, YouTube clips, practical work (engaging), delivery in short sessions and to-the-point. The other examples are:

- Engaging teaching style
- Guest speakers
- Visual materials
- Participating in discussions (particularly those students who are already working)
- DVDs
- School audits (participatory)

Among the teachers who indicated that students responded negatively or provided a mixed response, few of them volunteered some reasons for their responses. The most common response was that students find OHS education "boring", "dull" or "dry". Other descriptions of student attitudes included "unenthusiastic", "unengaged", "begrudging" and "complacent". Some of them commented that, even if students are well-informed, they are unlikely to put their knowledge into practice. Those reporting a negative response suggested that students are disinterested if already in the workforce, believing that they know enough already. Additionally, they commented that students do not see the relevance until they are in the workforce and do not take OHS seriously. It could be suggested that some students may believe that OHS education is not necessary because "the workplace will look after them". Some of the respondent teachers believed that students find OHS education repetitive because they receive the same information in various subjects and in the workplace. Content associated with negative student response are theory and legislation.

*Concepts are easy or not easy to teach*

(Question 18)

Sixty three per cent of teachers thought that the concepts of OHS education were easy to teach (Table 3.13). Some of the examples of reasons of their responses are: the concepts are 'common sense' and relevant for taking responsibility for safety in workplace hazard management. According to them, concepts focus on practical issues, explaining that the purpose is to prevent injury, and providing examples. They commented that teachers are professional, and may have adequate training and a good understanding of the concepts. Students who have chosen particular subjects (e.g. VET subjects) may be very interested and motivated as it focuses on what students really need to know, without too much detail. The other reasons are: teaching small groups facilitates interaction, use of online resources and use of case studies are also helpful.

Thirty seven percent of teachers noted that the concepts were not easy to teach or provided a mixed response. Some of these teachers qualified this response with some comments. The comments were: the information taught is general and not job-specific, it is difficult to engage students and the subject matter can be dry / boring, a more practical approach would improve

engagement, e.g. industry visits, students do not always take the subject matter seriously. The other comments were; some topics are more difficult to teach, e.g. legislation, repetition is required to 'engender culture' and care must be taken when using 'shock' tactics.

They also stated that, as the students are not interested or cannot relate to the issues due to lack of work experience, the subject matter is "not fun" / dry / boring and the issues, and language used is difficult for young people to understand. Other reasons were:

- the legislation is difficult to teach,
- students may have a perception that accidents cannot be prevented,
- too much text to read,
- lack of engagement / motivation.

Teachers commented that students only participate because it is compulsory; it is difficult for students with learning difficulties or from non-English speaking backgrounds to understand the concepts, and it is also difficult to teach large groups, with little opportunity for interaction.

*Students gain significant knowledge in OHS*

(Question 19)

Sixty five percent of teachers thought that students gained significant knowledge in OHS (Table 3.13), although many qualified this response with the following comments:

- Students receive additional training in the workplace
- Classroom teaching cannot replace on-the-job training and experience
- Students are not fully aware of the importance / implications until issues arise in the workplace
- It is important to make students aware of the importance of seeking further information from the workplace
- It is uncertain whether the knowledge is retained and applied
- The training should be repeated throughout senior years

Thirty five percent of teachers provided mixed or negative response on this. They indicated that they were unsure about the amount of knowledge gained, or that the knowledge gained

varied between students or depending on the topic, or they thought that students did not gain significant knowledge in OHS. Some of their comments within this category included:

- The extent to which the knowledge is applied in the workplace is uncertain and only limited knowledge can be gained in the classroom
- Students gain only basic knowledge and awareness; this knowledge and awareness is consistent with, and complements, on-the-job training
- Workplace training is more relevant than school-based education
- Knowledge gained depends on students' maturity levels, motivation and personal experience and students do not pay attention due to lack of maturity
- Students studying VET subjects gain more knowledge
- Only limited knowledge is required because students are not exposed to serious hazards during work placements
- Knowledge gain depends on the teacher's interest in the topic and ability to engage students
- There is insufficient time allocated to provide in-depth content
- The workplace is a more appropriate setting for OHS training, providing more specific and relevant information
- An expectation that workplaces provide the necessary training
- Students are only interested in completing the tasks required to pass subjects
- OHS education could be improved with the introduction of a standardised course offering a qualification recognised by employers

*Level of student participation*

(Question 20)

Teachers were asked to rate the level of student participation in OHS lessons, giving a number from 1 (minimum) to 5 (maximum). Forty three percent of teachers indicated students' high level of participation (Table 3.13) whereas more than half (57%) expressed negative or mixed response.

3.4.1.4   Reach of OHS education among students

(Question 21)

The majority (84%, N=131) of teachers reported that every student who participates in work placements receives OHS education, although, the quantity varies depending on the subjects through which it is delivered.   Some schools do not have compulsory work experience programs, or only provide OHS education within elective subjects.   At these schools, only students enrolled in relevant subjects receive OHS education.

Of the remaining teachers (16%, N=25) who reported that students do not receive OHS education, 23 of them provided reasons.   The common reasons included international / non-English speaking backgrounds, non-participation in work experience, not studying elective subjects with an OHS component, absence due to travel, sporting competitions, illness or absence, transferring between schools.

3.4.1.5   Feedback from parents

(Question 22)

Only 13 (8%) teachers reported having received feedback from parents. The feedback received included positive and negative comments and reports of issues encountered during work experience.   Two teachers had received enquiries about the details of OHS education provided.   One parent commented on OHS education: "it scares students". Examples of positive and negative feedback received are shown below:

*Positive feedback*

- The qualifications received make students employable, e.g. White Card (Work permit on construction sites), First Aid
- OHS is especially important for students studying VET subjects
- General support for education that prepares students for the workplace, e.g. "if it helps one it's worth it"

*Negative feedback*

- "Why was it necessary to be done?"

- It was reported that some farmers expressed negative attitudes about OHS education

3.4.1.6   Teachers' perspectives on school environment

(Question 23)

This section describes the findings related to variables on school environment. They include school management's support to OHS education, teaching staff's support to OHS education, and impact of workload on quality of OHS education. School management support:

The majority of teachers (86%) either agreed or strongly agreed that the school management is supportive of OHS education (Table 3.14). This table also shows that 13% of teachers indicated a neutral response and 1% disagreed that the school management is supportive.

Teaching staff support

Table 3.14 shows that the majority of teachers (81%) either agreed or strongly agreed that the teaching staff were supportive of OHS education. Seventeen percent of teachers indicated a neutral response and 2% disagreed or strongly disagreed that the teaching staffs were supportive.

Impact of workload

More than one third of teachers (36%) either agreed or strongly agreed that the quality of OHS education is compromised due to other demands of their role (Table 3.14). Thirty three percent disagreed or strongly disagreed with the statement and 31% indicated a neutral response.

**Table 3.14: Teachers' perspectives on school environment**

|  | Strongly agree | Agree | Neutral | Disagree | Strongly disagree |
|---|---|---|---|---|---|
| Support of school management | 49% | 37% | 13% | 1% | - |
| Support of teaching staff | 32% | 49% | 17% | 1% | 1% |
| Impact of workload* | 11% | 25% | 31% | 27% | 6% |

*(The quality of OHS education is compromised due to other demands of teachers' role)

Additional comments on support for OHS education in secondary schools

Thirty two teachers provided additional comments on school support. They commented that it was very difficult to schedule OHS requirements in the school calendar and timetable due to demands of other subject areas and time constraints. In addition, the quality of OHS education is compromised due to the lack of access to good resources. Some of the teachers commented that students are too "dangerous" to be in workshop environments. They also commented that schools and SA Government expected that OHS issues were taught in preparation for work placements. The quality of OHS education is mostly limited by difficulty in accessing relevant resources for teenage students (apart from resource websites). Some of them suggested that greater resources or low cost training of either teachers or students would be beneficial. They also suggested external or third party delivery by trained OHS specialist. Additionally they commented that sometimes it can be extremely difficult with new arrivals who have limited comprehension of English language and lifestyle with their own cultural beliefs and systems.

**Barriers to the effective OHS teaching in secondary schools**

(Question 24)

The table below (Table 3.15) represents the issues raised:

**Table 3.15: Barriers to the effective OHS teaching**

| Barriers (n=91) | Number | Percent |
| --- | --- | --- |
| Time constraints and crowded curriculum | 27 | 30 |
| Issues with resources | 24 | 26 |
| Lack of teacher training | 15 | 17 |
| Lack of school support | 11 | 12 |
| Others | 14 | 15 |

*Time constraints and crowded curriculum*

Limited time availability, usually due to the demands of a crowded curriculum, was the most commonly cited barrier by 30% of teachers. One teacher described the demands:

*"Competing interests all try to access students' education whilst they are still at school - competing for time and curriculum space. Whilst these are often worthy causes e.g. Drug education, mental health, sexual assault, driver education etc. They do place great pressure on schools to try to be all things to all students and to the community. These demands are increasing."*

Teachers agreed that the demands will only increase, particularly with the introduction of the new subject Personal Learning Plan (*PLP).* Due to these requirements, some of the teachers reported that schools were only able to provide OHS education within subjects such as *Work Education* and *Vocational Studies*. For sessions to be delivered to large groups of students, significant organisation and planning would be required to avoid timetable clashes. Given the limited time available, the requirement to teach OHS in a variety of subjects was cause for concern.

*Issues with resources*

Issues with resources, in terms of both availability and quality, were cited as barriers by more than one fourth (26%) of teachers who responded. Some teachers expressed frustration with the lack of information regarding appropriate resources, e.g.

*"My major problem was in locating relevant up-to-date materials that were appropriate to the students I taught. I was dropped into teaching Work Education and was left to flounder because there were very few resources for me to start with."*

Sometimes it is difficult for teachers to use electronic resource materials due to limited access to shared computers, DVD players or data projectors at the school. Use of online resources was also sometimes limited due to network, connectivity and access problems. Other issues with accessibility included:

- High cost and lack of funding for resources (e.g. some DVDs which were described as "prohibitively expensive")

- Need for a single package containing a variety of suitable resources; currently there is "too much information to work through"
- Difficulty in accessing SafeWork SA library resources which must be collected and returned
- Difficulty in finding particular resources, e.g. up-to-date DVDs, case studies and mock situations for training, materials relating to specific industries

Teachers commented on the lack of standardisation, suggesting that schools "should be provided with suitable resources that all schools use!" Many teachers felt uncomfortable teaching this topic because, in the absence of a formal course, expectations were unclear. It was suggested that a more coordinated approach should be taken, with the development of a standard, compulsory OHS course and set of resources to be made available to all South Australian secondary schools. Some teachers were critical of the quality of current resources, which were described as: 'not engaging for students', 'dry and boring', 'containing too much text', 'out-of-date', 'not age-appropriate', 'aimed at those already in the workforce, and 'developed for other states'. Students' characteristics and attitudes were sometimes considered as a barrier of resources that contributed to the difficulty of teaching OHS. For example, the students from non-English speaking backgrounds, limited comprehension of the language, culture and systems and difficulty in relating theory to work situations, particularly among students with no experience in a workplace who may consider OHS irrelevant. Moreover, ear year 10 students were more predisposed to risk-taking and were less likely to take OHS seriously, believing "it won't happen to me".

In terms of content, teachers expressed concern regarding inappropriateness and the excessive amount of information provided (particularly the amount of theory), leading to student inattention. They also expressed uncertainty about which aspects of OHS schools should teach (e.g. whether students should be taught about specific hazards)

*Lack of teacher training*

One in six (16%) teachers commented on the lack of teacher training in OHS, suggesting that many teachers are not well-trained or have not received any training (particularly new teachers or those who have recently commenced OHS teaching). In addition to the lack of OHS training, many teachers have limited or no experience of the workforce outside the

education system. Untrained or poorly trained teachers may be more reliant on resources such as text books, which are boring for students and often out-of-date.

Concern was expressed regarding teacher skills and attitudes. Some teachers' had limited OHS knowledge and experience or lack of commitment to health and safety. For example, some teachers lack interest in or understanding of OHS and do not feel comfortable teaching the topic; this has a negative impact on students' engagement. The quality of OHS education may be limited by the teacher's lack of experience and understanding of industry expectations. There is a general lack of support for the teaching of OHS; some teachers resent class time being allocated for this purpose.

*Lack of school support*

Many of the perceived barriers relating to school support and organisation were due to limited resources and a focus on other priorities. Examples of specific issues raised are:

- School administration focuses on minimising cost, e.g. OHS education delivered in a brief session to a large group of students,
- Lack of ownership or responsibility for work experience programs. For example, a teacher reported that there was a different Work Experience Coordinator each year, with minimal involvement of other staff and very limited resources. Consequently, no programs or procedures were produced.

Teachers reported that in some schools, there was a narrow focus on successfully completing subjects rather than preparing students for life after school. Additionally, formal OHS education was considered important only for VET studies; other OHS learning is incidental. Students were over exposed to OHS training, some students receiving similar information in multiple subjects and in the workplace. It was suggested that this had a negative impact on students' receptiveness. Schools sometimes set a poor example for students about safety, illustrated by the following comments:

*"when we talk about the work environment legal requirements it can be somewhat embarrassing. Poor ventilation, poor lighting, ill-fitting personal protective clothing & safety glasses, overcrowded rooms, no storage areas, narrow doorways, machines in workshops*

*incorrectly spaced (room to small) no lifting equipment provided for unloading trucks, lack of shelter etc. In short we teach best practice & demonstrate completely the reverse."*

*Other barriers*

Other comments on barriers included the lack of employer and parents support. Some teachers considered that the effectiveness of OHS education was limited by the lack of a strong partnership with industry. Some suggested that employers should play a greater role in encouraging schools to provide a standard generic OHS education. It was also suggested that a greater level of awareness and support from parents was required particularly those parents from non-English speaking backgrounds.

**Suggestions for improving the effectiveness of OHS education in secondary schools**

(Question 25)

Teachers were asked about ways to improve the effectiveness of OHS education in secondary schools. Teachers made suggestions relating to the following categories (Table 3.16):

**Table 3.16: Suggestions for improvement of OHS teaching**

| Suggestion categories (N=67) | Number | Percent |
|---|---|---|
| Curriculum | 17 | 25 |
| Resources and teaching methods | 29 | 43 |
| School and employer support | 20 | 30 |
| Teacher training | 8 | 12 |
| Other | 16 | 24 |

Multiple responses

Curriculum

*Setting the standard*

One fourth of the teachers (25%) expressed concern about the lack of a formal curriculum in OHS, resulting in a wide variety of delivery modes, content, resources and teaching methods.

Teachers considered that a formal, compulsory OHS module would help to ensure that all students would at least acquire a basic knowledge of important aspects of OHS, particularly if the unit was assessed.

It was suggested that this module could be delivered as either:

- A topic within the curriculum of an existing compulsory subject; or
- A component of compulsory training for all students participating in work placements

To maximise the effectiveness of such a module, employer recognition and the awarding of credit were considered important elements. Teachers made suggestions relating to the level of schooling at which OHS should be introduced, the subjects through which it should be delivered, who should provide the instruction and appropriate content.

*When should OHS education be introduced?*

Some teachers suggested that OHS education should be compulsory for year 10 students, while others suggested that years 11 or 12 would be a more appropriate stage at which to introduce the topic.

*Through which route should OHS education be delivered?*

A cross-curricular approach was advocated by a few of teachers (n=11) who teach OHS within a wider range of subjects, with content that is relevant for each subject. It was suggested that there should be a focus on subjects that include a practical component, offering an opportunity for students to receive certified OHS training that is recognised by employers. Other teachers stated that there should be a focus on delivering a generic OHS module within a compulsory subject, e.g. *PLP* or *Work Education*, or to Home / Pastoral Care groups, e.g. at the beginning of each year. This would ensure that the majority of students, regardless of subject selection, receive OHS education. In addition, it was suggested that more credit should be awarded for the subjects through which OHS education is delivered.

Resources and teaching methods

Most of the suggestions were related to resources and teaching methods. Teachers noted that the quality of OHS education could be improved with better accessibility and quality of teaching resources.

Suggestions for increasing access to resources included the distribution of high-quality resources to schools, at no cost, and raising teachers' awareness about appropriate resources currently available. Online resources were used and considered useful by the majority of teachers; however, many reported difficulties with accessing these resources. Use of websites could be facilitated by increasing access to well-maintained computer facilities and reducing barriers to website access. Some teachers suggested that electronic learning vehicles such as Moodle, Skype and Second Life could be useful tools for teaching OHS, enhancing student engagement. Teachers could initially require some assistance in the use of this learning format.

*Resource type*

Teachers identified a need for improvements in the quantity, quality and availability of the following resources:

- Online resources
- DVDs / videos
- Case studies
- Packages outlining basic required knowledge, with a list of suitable resources
- PowerPoint presentations
- Booklets

*Resource content*

Suggestions for resource content included:

- Generic information (the minimum OHS knowledge that every student should acquire). It was suggested that this should include a description of safety equipment and procedures and reporting requirements

- Case studies (e.g. newspaper articles) with
- Point-of-view of employers, employees and others affected
- Young workers
- Effects of illnesses or accidents on workers' lives
- Examples of safe and unsafe behaviour

Some teachers described current OHS education as too generic, suggesting that job-specific hazards should be addressed. Although it was acknowledged that this is primarily the responsibility of the employer, it was considered important for schools to at least raise awareness of the necessity of job-specific training in the workplace. Teachers also indicated a need for more industry-specific information, particularly for vocationally-oriented subjects with a practical focus, e.g. Agriculture.

*Improving the quality of resources*

To enhance student engagement and acquisition of knowledge, it was suggested that resources should be:

- Up-to-date
- More simple and easy to understand; suitable for all literacy levels
- Available in foreign languages
- Developed for the South Australian (or at least Australian) context
- Suitable for the work placement context
- Informal or "friendly"
- Age-appropriate
- Brief and to-the-point

*External trainers*

One respondent suggested that there should be a qualified OHS trainer for each region, available to provide OHS training to students at low or no cost.

It was also suggested that there should be an increased focus on the following:

- Highlighting the consequences of unsafe practices
- Emphasising that complying with workplace OHS requirements is a legal obligation

To make school-based education more relevant to the workplace, it was suggested that vocational education providers such as TAFE should be consulted during curriculum development.

*Teaching methods and tools*

A practical approach was identified by some teachers as the most effective method of teaching OHS. Online education was considered "good for Gen Ys", and a flexible tool, suitable for either whole-class teaching or self-directed learning (e.g. *Passport to Safety*). It was reported that students respond positively to online education since it is interactive and/or offers certification. Incorporating real-life experiences was also considered an effective approach, delivered by guest speakers or teachers/students sharing their own or others' experiences.

School and employer support

Nearly one third of teachers (30%) stated that both school management and teachers should demonstrate more support for OHS education. One teacher thought that, at the very least, schools should set a good example by maintaining high standards of on-site health and safety, suggesting that there is currently too much tolerance for unsafe behaviour. The quotation below is an example:

"Unsafe in workshop OUT!! Find another subject don't go crying to senior admin. No headphones ever!!"

*Organisation of work placement programs*

It was considered necessary to organise work placement programs more efficiently, particularly in terms of:

- Nomination of staff responsible for the program and clear definition of their roles (Work Experience Coordinators and support staff)
- More efficient planning, with sufficient time allocated
- A more consistent approach, e.g. the teacher delivering OHS training should also be responsible for visiting workplaces

*Employer support*

It was suggested that employers should provide more support for school-based OHS training, through recognition of school-based training. It was also suggested that schools should monitor the training provided to students during work placements. This could be achieved by

instructing students to complete a checklist and notify work placement supervisors if no appropriate training is received.

<u>Teachers' training</u>

Concern was expressed by 12% of the respondents regarding inadequate training for teachers who deliver OHS education. It was reported that some teachers of OHS had not received any appropriate training, for example:

*"...although I have held position of VET & Work Experience Coordinator I cannot recall receiving specific 'Professional Development information' about OHS issues."*

Other teachers, who had received some training, expressed that the amount of training was insufficient and that it should be ongoing. It was suggested that in-service training should be provided to all teachers who teach OHS such as workshop at the beginning of the year. Similarly to other training and development courses for teachers, OHS training could be offered as a Professional Development opportunity. Funding would be required to cover the teachers' normal roles during the time of the training. In addition to training courses, it was suggested that teachers' knowledge and understanding could be enhanced by attending OHS inductions in workplaces. Another suggested opportunity for teacher training would be the delivery of an OHS unit as a compulsory part of University teaching studies. Regarding the content of teacher training, some teachers suggested that the training should address the use of resources delivered through new technologies.

## 3.4.2   Analytical Statistics

### 3.4.2.1   Cross-tabulations of the factors associated with positive learning outcomes (as perceived by the teachers)

This section investigates and identifies the individual factors associated with positive learning and teaching as perceived by the teachers.

*Teachers' perception of effective learning by gender, age categories, roles and training*

Table 3.17 shows that males were more likely to report effective learning.

**Table 3.17: Teachers' perception of effective learning by gender**

| Variables | Male teachers | | Female teachers | | All teachers | |
|---|---|---|---|---|---|---|
| | % | N | % | N | % | N |
| Positive students response | 53 | 27 | 40 | 36 | 44 | 63 |
| Students gain significant OHS knowledge | 74 | 31 | 61 | 46 | 65 | 77 |
| High level of students participation | 48 | 25 | 37 | 35 | 41 | 60 |
| Concepts easy to teach | 70 | 30 | 59 | 47 | 63 | 77 |

The table below (Table 3.18) shows the perceptions of the teachers by age categories. Due to the small number of teachers belonging to individual age categories it is less descriptive of the differences, if any.

**Table 3.18: Teachers' perception of effective learning by age categories**

| Variables | Teachers' age categories | | | | | | | | | | All teachers | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | <30 | | 30-45 | | 46-55 | | 56-65 | | >65 | | | |
| | % | N | | N | % | N | % | N | % | N | % | N |
| Positive students response | 43 | 6 | 28 | 13 | 48 | 26 | 63 | 17 | 100 | 1 | 44 | 63 |
| Students gain significant OHS knowledge | 36 | 4 | 62 | 24 | 78 | 35 | 59 | 13 | 100 | 1 | 65 | 77 |
| High level of students participation | 46 | 6 | 42 | 20 | 39 | 22 | 39 | 11 | 100 | 1 | 41 | 60 |
| Concepts easy to teach | 55 | 6 | 55 | 23 | 67 | 29 | 69 | 18 | 100 | 1 | 63 | 77 |

The table below (Table 3.19) shows that VET and SWL combined did not differ much when compared to the other teachers providing OHS education.

**Table 3.19: Teachers' perception of effective learning by roles**

| Variables | Teachers by their roles | | | | All teachers | |
|---|---|---|---|---|---|---|
| | VET and SWL | | Other roles | | | |
| | % | N | % | N | % | N |
| Positive students response | 45 | 35 | 43 | 29 | 44 | 64 |
| Students gain significant OHS knowledge | 63 | 41 | 66 | 37 | 65 | 78 |
| High level of students participation | 49 | 41 | 35 | 24 | 43 | 65 |
| Concepts easy to teach | 59 | 39 | 67 | 38 | 63 | 77 |

In case of the teachers with formal training, 67% thought OHS education provided significant knowledge to the students, 61% considered OHS concepts were easy to teach. Approximately, 45% opined that OHS education generated positive student response and resulted in the high level of student participation (Table 3.20).

**Table 3.20: Perceptions of teachers with formal OHS training**

| Variables | Teachers with formal training | | All Teachers | |
|---|---|---|---|---|
| | % | N | % | N |
| Positive students response | 45 | 55 | 44 | 64 |
| Students gain significant OHS knowledge | 67 | 69 | 65 | 78 |
| High level of students participation | 43 | 55 | 43 | 65 |
| Concepts easy to teach | 61 | 64 | 63 | 77 |

Supplementary data on correlations between variables are given in Appendix 5.

3.4.2.2  Analysis of the factors associated with effective learning and teaching (Bivariate analysis)

It is important to investigate teachers' perspective on student response, knowledge gained by students, engagement and participation by students in the learning process and how easily students grab the concepts of OHS education. In order to understand these and their inter-relationships a range of bivariate analyses were undertaken. Table 3.21 presents these analyses of the factors associated with positive aspects of learning and teaching mentioned above based on the reports by the responding teachers.  The data presented in the table reveal that age of teachers (>45 years), years of overall teaching and years of teaching occupational safety were significantly associated with positive student response. When it comes to use of resources by teachers for teaching OHS, it was found that there were significant associations between (i) use of videos and students' knowledge gain; (ii) use of case studies and student engagement and participation (in public schools only) and  (iii) years of overall teaching and teachers reporting the concepts as easy to teach. On the other hand, surprisingly, sharing own experience (OR = 0.45) was negatively associated with positive student response.

**Table 3.21: Factors associated with effective learning and teaching - bivariate**

| | STUDENT LEARNING | | | | | | TEACHING | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | Positive student response | | Gain of knowledge by students | | Student engagement and participation | | Teachers find the concepts easy to teach | |
| | OR | 95% CI | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| **Teacher demographics and background** | | | | | | | | |
| Age group (<46 years) | 0.40* | 0.20 – 0.80* | 0.49 | 0.23 – 1.07 | 1.11 | 0.57 – 2.17 | 0.55 | 0.26 – 1.16 |
| Gender (being male) | 1.72 | 0.86 – 3.43 | 1.84 | 0.80 – 4.20 | 1.56 | 0.79 – 3.10 | 1.62 | 0.74 – 3.57 |
| Years of teaching (>20 years) | 3.89* | 1.90 – 7.96* | 2.05 | 0.95 – 4.43 | 1.21 | 0.62 – 2.36 | 2.30* | 1.09 – 4.86* |
| Years of teaching Occupational Safety | 1.06* | 1.01 – 1.11* | 1.04 | 0.99 – 1.10 | 0.99 | 0.95 – 1.03 | 1.04 | 0.98 – 1.10 |
| No formal training | 0.78 | 0.32 – 1.95 | 0.49 | 0.18 – 1.35 | 1.04 | 0.42 – 2.53 | 1.67 | 0.55 – 5.02 |
| Role of Vocational / Workplace Learning Coordinator | 1.69 | 0.86 – 3.30 | 0.91 | 0.43 – 1.95 | 1.69 | 0.86 - 3.30 | 0.75 | 0.36 – 1.57 |
| **School environment** | | | | | | | | |
| Public sector | 0.84 | 0.42 – 1.68 | 1.31 | 0.61 – 2.83 | 2.16* | 1.07 – 4.39* | 0.72 | 0.33 – 1.58 |
| Metropolitan location | 1.25 | 0.63 – 2.47 | 1.19 | 0.55 – 2.58 | 0.70 | 0.36 – 1.37 | 2.10 | 0.98 – 4.50 |
| Quality of education compromised due to other demands | 1.82 | 0.91 – 3.64 | 1.58 | 0.72 – 3.45 | 0.66 | 0.33 – 1.32 | 0.64 | 0.29 – 1.40 |
| **Teaching approach / methods used** | | | | | | | | |
| Use newspaper clippings | 0.63 | 0.32 – 1.23 | 1.03 | 0.48 – 2.17 | 0.98 | 0.51 – 1.87 | 0.62 | 0.28 – 1.34 |
| Share own experience | 0.45* | 0.23 – 0.88* | 1.50 | 0.70 – 3.20 | 1.24 | 0.64 – 2.39 | 0.58 | 0.27 - 1.26 |
| Use video materials | 1.30 | 0.66 – 2.55 | 3.08* | 1.30 – 7.26* | 0.92 | 0.47 – 1.82 | 1.09 | 0.51 – 2.31 |
| Use case studies | 1.27 | 0.65 – 2.46 | 0.98 | 0.46 – 2.07 | 1.94* | 1.00 – 3.75* | 1.08 | 0.52 – 2.26 |

*=Significant, P<0.05.

3.4.2.3 Multivariate logistic regression analysis of the factors associated with effective learning and teaching

The next important step was to explore the possibility of developing a model to predict effective teaching and student learning. In this respect, Table 3.22 presents the results of multivariate analyses involving the above mentioned outcomes relating to effective learning and teaching. Logistic regression analyses were conducted to investigate correlates of teacher perspectives on student learning and engagement. For each outcome variable, the statistically significant independent variables were included in a multivariate logistic regression model to identify important predictors of positive educational outcomes. Independent variables found to be significantly associated in the bivariate analyses were included in the model and statistical significance was defined as a two-tailed p-value of 0.2 or less.

The findings reveal that there were significant association between use of videos and gain of knowledge by students (adjusted odds ratio, 2.94); public sector school (AOR, 2.60) and use of case studies (AOR, 2.17) with student engagement and participation. There were also strong associations, though not statistically significant, between years of teaching experience of more than 20 years (AOR, 3.04) and positive student response. As indicated in the bivariate analysis, there was a negative association between sharing own experience (AOR, 0.43) and positive student response. Positive associations were also evident for gender (being male) (AOR, 2.26) and knowledge gained by students; and more than 20 years of overall teaching experience (AOR, 2.04) and teachers finding the concepts easy to teach.

**Table 3.22: Factors associated with effective learning and teaching - multivariate**

| | Positive student response | | Gain of knowledge by students | | Student engagement and participation | | Teachers find the concepts easy to teach | |
|---|---|---|---|---|---|---|---|---|
| | Adjusted OR | 95% CI | Adjusted OR | 95% CI | Adjusted OR | 95% CI | Adjusted OR | 95% CI |
| Teacher demographics and background | | | | | | | | |
| Age group (<46 years) | 0.90 | 0.30 – 2.70 | 0.60 | 0.18 – 1.96 | | | 0.89 | 0.31 – 2.55 |
| Gender (being male) | 1.20 | 0.51 – 2.81 | 2.26 | 0.87 – 5.85 | | | | |
| Years of teaching (>20 years) | 3.04 | 0.97 – 9.54 | 0.82 | 0.23 – 2.94 | | | 2.04 | 0.65 – 6.39 |
| Years of teaching Occupational Safety | 1.02 | 0.96 – 1.08 | 1.04 | 0.95 – 1.08 | | | 1.01 | 0.95 – 1.08 |
| No formal training | | | 0.63 | 0.19 – 2.13 | | | | |
| Role of Vocational / Workplace Learning Coordinator | | | | | 1.97 | 0.97 – 4.04 | | |
| School environment | | | | | | | | |
| Public sector | | | | | 2.60* | 1.18 – 5.70* | | |
| Metropolitan location | | | | | | | 2.08 | 0.92 – 4.71 |
| Quality of education compromised due to other demands | 1.33 | 0.59 – 3.00 | | | | | | |
| Teaching approach / methods used | | | | | | | | |
| Share own experience | 0.43 | 0.18 – 1.01 | | | | | 0.56 | 0.24 – 1.32 |
| Use video materials | | | 2.94* | 1.13 – 7.63* | | | | |
| Use case studies | | | | | 2.17* | 1.08 – 4.37* | | |

*=Significant, P<0.05.     Missing data indicate bivariate associations were not significant

## 3.5 Discussion

Teachers are key informants of the current OHS teaching situation in Australian high schools but have received little attention in the literature. This study, which is based on the teachers' survey, systematically assesses teachers' backgrounds and their approaches and attitudes towards school-based OHS education. It also identifies teachers' attributes, school characteristics and teaching methods that are conducive to effective learning.

### 3.5.1 Rationale and importance of the survey

The inclusion of health and safety concepts in secondary school education is widely promoted and adopted to prepare students for the workplace. To complement this, a considerable quantity of OHS information and resources are made available, but there is limited evidence for the effectiveness of these resources or educational programs in general.

The support and enthusiasm of teachers is of paramount importance in the continuation and improvement in OHS educational interventions targeted at young workers. Therefore, it is important to recognize and address the challenges and difficulties which teachers face in the real-life delivery of OHS programs, which in turn may facilitate a more effective school-based OHS education approach.

This survey ensured participants from all school sectors and from both rural and metropolitan locations which allowed access to widely scattered samples across all schools with a minimum uses of resources (Cavusgil & Elvey-Kirk, 1998; Dillman, 1978 ; Edirisooriya, 1997).

The statistical analysis of the questionnaire data dealt with correlates of teacher-derived indicators of effective OHS learning including two important aspects of learning- acquisition of knowledge and engagement of students. The correlates were categorised under three broad headings, namely teacher characteristics, methods (OHS teaching and delivery) and context (school environment). This appears to be a relevant way to explore OHS education in schools, and it provides an opportunity to analyse existing situations and to make recommendations.

### 3.5.2 Choice, development and implementation of method

It is evident from the literature review (Chapter 2) that, in Australia, OHS education is delivered to secondary students either within a subject (as a topic or to prepare students for subject-related work placements) or to prepare students for work experience programs in which the majority of students participate. In South Australia, various teaching resources are made available to schools, including *Passport to Safety*, a Canadian-developed online course, and *Workplace Learning Guidelines* published by The Department of Education and Children's Services (DECS 2008). Since there was no previously published survey instrument, the questionnaire was developed from first principles with the advice of an advisory committee and exploratory focus group discussions. The advantages of this mail-out questionnaire data collection technique are: wider distribution, less distribution bias, better likelihood of thoughtful reply, no interviewer bias, central control, time, savings, and, most importantly, cost savings (Erdos, 1974).

As the anonymous questionnaire includes some sensitive questions (especially questions related to school support, eg: school management support, teaching stuff support and the quality of education is compromised due to other demands), this mail survey is expected to have performed better than face to face interviews (Leeuw, 1992).

There was an overall response rate of about 50%. Response rates from different types of school had borderline differences reflecting varied levels of participation. The response rate for area schools was substantially lower than that for other sectors/locations. A possible explanation is that some of these schools do not have work experience programs, due to their remote locations. Some schools advised that their students did not have to participate in work experience. This suggests that some students may not have received any OHS training at school. Some of the subjects such as Work Education and VET courses are not compulsory, and the Workplace Learning Guidelines only require OHS education for students participating in work experience.

### 3.5.3 Discussion of main findings

#### 3.5.3.1 Teacher demographics, experience and training

Teachers had a variety of backgrounds and experiences with an average of 21 years of teaching experience and 9 years of experience teaching OHS. They also taught subjects from all areas of the curriculum. Almost half (48%) of the teachers came from the pool of general teachers having multiple teaching responsibilities. Unsurprisingly, various roles of teachers exacerbated problems of time and resource (Andreasen, 2009) resulting in possible undermining the importance of OHS education. Teachers argued the importance of adequate provision of time for OHS education by properly trained teachers.

When the findings on training status of teachers are reviewed, it is surprising that one in every six teachers (16%) providing OHS education had not been trained. This warrants early intervention to build confidence and quality. Salminen & Palukka (2007) also reported that almost three out of ten teachers (28%) in Finland teach OHS without having any formal education in the subject. However, the Finnish data did not report any variation by age or gender. Schulte (2005) has also mentioned about similar lack of training of teachers providing OHS education. This need for training is also supported by the European Agency for Safety and Health at Work (2007).

#### 3.5.3.2 Current practice

##### 3.5.3.2.1 Use of resources

In terms of use of resources, websites were the most commonly (80%) used resources for teaching OHS, suggesting that teachers are moving away from more traditional teaching methods and embracing new technology. However available data from Finland shows that only 14% teachers used web based material despite good access to internet (Salminen & Palukka, 2007). For traditional materials, South Australian teachers were less dependent on text books compared to Finnish teachers (29% vs. 36%). However, attention should be paid as to how materials are made available to teachers and in what format.

There is evidence for the use of real life experience in the provision of OHS by teachers, though female teachers use this experience less than the males. This may be due to female workers' narrower or lower participation in the workforce (Australian Bureau of Statistics, 2010-2011). Salminen and Palukka (2007) also found that most of the teachers taught OHS based on their own work experiences. Other important resources were newspapers clippings and guest lecturers. These variations and preference for different resources warrant further consideration in order to provide appropriate feedback in the preparation and design of acceptable materials for education providers.

Case studies and websites were registered as high usefulness and this suggests the preference for resources that rely on current technology and provide examples from real life situations. The majority (75%) of teachers considered the available resources to be both accessible and appropriate for the developmental level and capabilities of most students.  This suggests that in terms of developing the resources, the issue of actual use and perceived usefulness needs to be balanced with caution.

### 3.5.3.2.2  *Delivery methods*

Different ways have been adopted in the delivery of OHS in secondary schools of SA such as subject based learning and preparation for work experience. OHS education was commonly delivered in years 11 and 12 through the subject Work education or through VET subjects or apprenticeship training. It was also delivered to year 10 students through the home group subjects or through the subject PLP. Work experience was usually undertaken by all students during one or more years of senior schooling. According to the *Workplace Learning Guidelines (DECS 2008)*, work placements provided students with worksite experience without direct supervision by a teacher.  Prior to students' first work placements, these guidelines recommended that schools provide a minimum of 3-4 hour of training, making students aware of the rights and responsibilities and other important occupational health and safety issues.

OHS is usually delivered prior to work placements, during introduction to a subject, or at the beginning of the year or term. Of these, approximately 70% of teachers were in favour of providing OHS education within the introduction to a subject, or at the beginning of the year or term. Some schools provided OHS education throughout the year. Similar pictures were

also presented in some of other international literature (European Agency for Safety and Health at Work, 2007; Salminen & Palukka, 2007; Schulte, et al., 2005; Shearn, 2006).

Teachers' time dedicated to teaching OHS varied considerably. The total time spent teaching OHS ranged from 1 to 45 hours and almost 90% of teachers taught OHS for less than 10 hours per year. Salminen and Palukka (2007) found that in secondary schools, the teachers spoke about occupational safety for 2 hours per term. This survey found that the number of lessons provided ranged from a single session prior to a work placement, to 105 sessions throughout the year. These findings suggest that there is a need for review of the contents and duration to make best use of the time allocated for OHS education in schools.

3.5.3.3   Teacher perspectives

*3.5.3.3.1   Content, usefulness of the resources, accessibility and appropriateness*

In terms of contents, the survey findings suggest that the majority of teachers surveyed (75%) considered the contents both accessible and appropriate for the developmental level and capabilities of most students. Some of the respondents commented that teaching materials often contained too much information specifically related to theory and legislation, resulting in poor student response and are consistent with other general OHS training standards (Goldenhar & Schulte, 1996; NIOSH, 2004). An evaluation of a health and safety awareness program conducted in the USA suggests that hands-on activities were highly rated by teachers and ready-to-use lesson plans are well accepted by teachers (Linker, et al., 2005).

Overall, the evidence suggests that learning should be an interactive process between the teacher and students, using class discussion, case studies and age-appropriate interactive resources. The majority (83%) of teachers gave tests or assignments for which successful completion was required prior to work placements. This is an important component of OHS education. Evidence also suggests that assessments should be incorporated in safety education programs (Wallerstein & Weinger, 1992). According to Thamrin (2010) students who were assessed following OHS training were more likely to feel strongly about safety issues and believe that they had the skills and confidence to discuss these issues.

Guest lecturers were given the highest rating. This is perhaps understandable as the schools select persons who are specialised in the field and suitable for and acceptable to the students.

*3.5.3.3.2  Engaging students and changing attitudes/beliefs*

More than half of the teachers (56%) indicated negative or mixed responses from students. The most common reason for these responses was that students find OHS education "boring", "dull" or "dry". Commenting on current resources, the respondents suggested that teaching materials often contained too much information and text particularly relating to theory and legislation, and that these aspects were most associated with poor student responses. Teachers reported that student responses varied, based on different personal characteristics and work placements of students and according to teaching methods and materials used.  Teachers expressed concern regarding inappropriateness and the excessive amount of information provided, leading to student inattention. In addition, repetition due to the delivery of OHS education within a variety of subjects and programs was cited as a reason for students' disinterest. To be most effective, programs and resources must be tailored to this specific target group- the students, taking their unique views and characteristics into account (Bazas 2002; Linker 2005; Pragel 2007; Zakocs 1998).

*3.5.3.3.3  Barriers and suggestions for improvement of OHS teaching*

*(Crowded curriculum, issues with resources, inconsistency, teacher training and school support)*

Limited time availability due to the demands of a 'crowded curriculum' was the barrier most commonly cited by one third of the survey participants.  While support among teachers for OHS education was strong, concern was expressed regarding pressure to find curriculum space for an ever-increasing number of public health topics. This is consistent with other study findings (Linker, et al., 2005; Shearn, 2006). For sessions to be delivered to large groups of students, significant organisation and planning would be required to avoid timetable clashes. Given the limited time available, the requirement to teach OHS in a variety of subjects was cause for concern.

Resource issues were commonly cited by survey respondents as barriers to effective OHS education in terms of both availability and quality. This perception exists despite the availability of a vast quantity of OHS educational resources, including many that are specifically designed for secondary school students and the South Australian context, in a variety of formats. Teachers' concerns about the quality of resources may reflect a need to

improve existing resources, a lack of awareness of the resources available, or problems with accessibility.

Another issue of concern for the survey participants is the lack of consistency in school-based OHS education. As discussed earlier, this survey found that OHS education is currently delivered through various subjects and programs and with considerable variation in terms of the amount of time allocated, timing of the sessions, class sizes and resources used. A lack of consistency also appears to be of concern internationally. A report by the European Agency for Safety and Health at Work (2009b ), which found a diversity of approaches between Member States, identified a need for more formal integration of OHS in the curriculum. Similarly, it has been argued that due to the lack of consistency in OHS education, in both Europe and the USA, the quantity and quality of OHS education is largely at the judgment of the instructor and school (European Agency for Safety and Health at Work, 2009b ; Salminen & Palukka, 2007; Schulte, et al., 2005). It can be suggested that, as the teaching of OHS is largely dependent on the initiative of the teachers, OHS training would be improved with the introduction of a compulsory course.

Additionally, it was found that some schools do not offer school-wide work experience programs, and that there is no requirement to teach occupational safety in compulsory subjects. As a result, some senior secondary students, particularly those focusing on entry to higher education, do not receive any school-based OHS education. Although the Workplace Learning Guidelines suggest that schools provide a minimum of 3-4 hours of training prior to the first work placement, implementation is not monitored. All of the surveyed schools provided some occupational safety education to prepare students for work placements, but many provided less than the recommended 3-4 hours. The limited international literature available shows a similar picture. Among European Union member states,  approaches to school-based occupational safety education are characterised by a lack of formal integration in the curriculum; where occupational safety content is found within relevant subjects there is usually considerable flexibility in terms of content and delivery (European Agency for Safety and Health at Work, 2009b ). Therefore, to address these concerns, OHS education should be based on a prescribed standard and delivered to all secondary school students.

The scarcity of similar research focusing on school-based OHS education prohibits an extensive comparison of results. It is concerning that one in six teachers providing

occupational safety education had not received any training in this area. In addition, some teachers have little or no experience in wider industry, and having commenced teaching careers following secondary and tertiary education, their experience may be limited to the education sector. This survey highlighted a need for the routine provision of formal teacher training. In support of this, it has been recognized that teachers need training on delivery of OHS education, and if they do not have such training they may be unenthusiastic to teach it, particularly if it is not a compulsory topic (European Agency for Safety and Health at Work, 2009). Not surprisingly, this survey revealed that more experienced teachers were most likely to report a positive student response, with less experienced teachers likely to have less knowledge and confidence in teaching the topic.

While the three quarter of teachers (75%) agreed that the resources were accessible and appropriate, when suggestions were sought for improving the quality of OHS education, 43% of the suggestions were related to the improvement of accessibility and resources. Additionally, nearly one third of the teachers (30%) believed that both school management and teachers should demonstrate more support for OHS education. It is important to take all these suggestions into consideration as these came from the most crucial stakeholders in the provision of OHS education to the students.

### 3.5.4 Discussion on findings of analytical statistics

The level of association between different variables was examined initially by cross-tabulations. The variables of interest were teachers' age, gender, role, training and use of resources. The findings suggest that there is a significant relationship between their age, training and use of resources. The younger age group were twice as likely as older teachers to have had no formal training (24% and 12%, respectively) as shown in Table A.5.10 in Appendix 5. This may be due to delayed initiation of training after starting as school teachers, but this needs further investigation.

When training status was investigated for school sectors, it was found that there was no difference between rural and metro teachers in terms of being without any kind of OHS training. When asked if work load compromised the quality of OHS education, teachers from both public and private schools gave almost similar responses (Table A.5.10 in Appendix 5). However, when compared by location of schools, a larger proportion (76%) of teachers from

rural school indicated that workload did not compromise the teaching quality (Table A.5.11 in Appendix 5).

*Predictors of effective OHS education*

As mentioned earlier, identification of potential predictors was a primary focus of this research. The quantitative analysis led to a small number of variables related to perceived effectiveness of OHS training. These findings are consistent with the findings of literature search presented elsewhere in this thesis. The use of videos was significantly associated with a teacher-reported gain in knowledge by students, suggesting that this is an appropriate vehicle for the information component. Male teachers were more than twice as likely to report knowledge gain, perhaps because they were able to draw on wider industry experience. Similarly, experienced teachers, presumably because they have more knowledge and confidence in teaching the topic, were more likely to find the concepts easy to teach and to report that students responded positively. Improved access and quality of teacher training is suggested as a way to address gaps in knowledge.

The use of case studies and teaching in public schools was associated with reporting high levels of student participation and engagement. Case studies have the potential to raise awareness of potential consequences of unsafe behaviour in a way that students can relate to, thereby promoting engagement and potentially changing attitudes and beliefs. Students in public schools may be more likely to be engaged due to higher levels of workplace experience, again highlighting the importance of relevance. Employing class discussion is suggested as a way of drawing on the knowledge and first-hand experience of these students.

Teachers in metropolitan locations were almost twice as likely to find the concepts easy to teach. This suggests a remedial approach to the particular challenges faced by rural teachers. This is also suggestive that teachers from rural schools, some of which are very small and remotely located, have less access to resources, training opportunities and teaching support.

3.5.5   Strengths and weaknesses

This was a moderate size survey with 156 respondents from all school sectors (Government, Independent and Catholic) and both rural and metropolitan locations. The survey achieved a broad representation of all categories of South Australian schools. Advisors from employers,

government and union were ensured in the design phase. The response rate by schools was good, but it was not possible to determine the response rate of individual OHS teachers, because no information was available on the number of teachers who teach the topic. As it was not known how many, or who, taught OHS in each school, the principals were requested to distribute the questionnaire to the relevant 3-5 teachers per school.

Based on focus group discussion, the respondents were likely to be representative of all teachers, but those responding teachers may be more likely to be supportive of OHS education. This phenomenon appeared to be unavoidable in a voluntary survey, but seeking reasons for non-response was impractical.

In this survey 44% of teachers indicated that students responded positively to OHS education and this is expected to result in positive change in safety behaviours. However, this needs further efforts to validate through direct investigation with the students and carefully design research to understand the effect of the OHS education on the students' actual OHS practices in workplace situations.

## 3.6   Conclusions

The data from teachers' survey suggest that the teaching methods should be engaging and interactive. In the face-to-face component, teachers should incorporate case studies and class discussion. They also identified that there is a lack of consistency in the delivery of OHS education and some schools do not offer work experience program. The teachers also pointed out some challenges including time constraints of the teachers and lack of standardization in the provision of the OHS education. In particular, it was mentioned by the teachers that generic topic such as legislation are difficult to communicate and it is also difficult to make it an engaging experience for the students. To improve the teaching in these topic areas it was suggested by the teachers that the presentation needed to be relevant and be able to highlight examples from real life situations. These findings are generally consistent with other literature.

# CHAPTER 4    PARENTS' PERSPECTIVES ON SCHOOL-BASED OHS EDUCATION[1]

## 4.1  Introduction

Parents are potentially important providers of OHS advice, and can shape OHS risk perception of their children. This chapter reports on interviews involving parents of senior secondary students to explore parents' understanding of school-based OHS education. A qualitative research approach is adopted, and a narrative style is utilised.

In this chapter, I critically examine OHS from a parent's point of view.  I present my findings on how OHS is defined by parents and what they think is important. I show that there is a mismatch between parents' views and those of other stakeholders and that this has implications for what we should do about how OHS education is delivered. The results section demonstrates parents' perspectives on OHS education, both generally and school-based. The chapter concludes with a discussion of the implications and importance of these findings in relation to school-based OHS education conducted in Australia.

## 4.2  Background

Parental involvement is an important contribution to school life, indirectly improving the quality of education children receive (Baker, 1997 ; Comer & Haynes, 1991). Bronfenbrenner (1974, 1979) and Lightfoot (1978), described the relationship between home and school, and suggested that a partnership between schools and families is a huge advantage for healthy development of children. There is strong evidence to support that parental involvement is beneficial for children's success in school (Chavkin, 1993; Eccles & Harold, 1993; Epstein & Hollifield, 1996; Hoover-Dempsey, Bassler, & Brissie, 1987).

The literature on parental involvement in child and adolescent education is abundant (Bogenschneider, 1997; Hoover-Dempsey & Sander, 1995; Hoover-Dempsey, et al., 1987; Moon & Ivins, 2004; Wanke, 2008). However, there is little consensus about what constitutes effective parental involvement. More specifically, there is inadequate research on parents'

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[1] To be consistent with the accepted norm and practice in qualitative research, I am using first person in this chapter. The use of 'I' and 'me' is particularly helpful in positioning myself in the research and presenting the reflexivity component.

knowledge of and involvement in the provision of health and safety education through schools. The literature does not convincingly show that parents can assist with OHS awareness and education.

A number of studies suggest that parental beliefs influence children's preventive behaviours. Erel & Burman (1995) described how youths' perceptions about their parents' risk taking are expected to influence their own tendencies for risk taking. Westaby and Lowe (2005) also found that reducing parents' high-risk behaviours would mitigate their children's tendencies for risk taking. This concept was supported by other authors (Castillo, 2011; Peterson, Farmer, & Kashani, 1990; Rivara & Mueller, 1987). Piotrkowski and Stark (1987) noted that adolescents are cognitively aware of their parents' beliefs and attitudes, and adolescents can accurately describe their parents' perceptions concerning work-related issues.

A reduction in occupational injuries among young workers may require multi-sectoral involvement including employers, schools and other important stakeholder such as parents. Runyan (2011) argues that parents are a potential resource for encouraging safety practices among young people because they are already engaged with their children in addressing work-related issues. Parent-child communication about safety issues needs to be improved and future research should examine the methods to enhance parental involvement to help their teenagers address safety concerns at work more effectively.

Among the few studies about parental involvement regarding safety issues for their child, Runyan (2009) stated that parents of working teens support adolescents working, but they express concerns about a number of aspects of work. For example, they are concerned about fatigue (48%), problems completing schoolwork (33%), and problems with spending time with families (35%). Despite this, parents may not be aware of specific work related hazards, or of school-based occupational health and safety education.

In a study by Linker (2005), it was suggested that schools can play a crucial role in making workplace safe through influencing parents. This study revealed that schools have roles in providing age-appropriate guidance to working teens and their parents during regular health visits or through health clinics at high schools. Additionally, this study recommended that schools should encourage parents to play an active role in their children's employment decisions, including specific work activities and work intensity. Parental lack of awareness of work related hazards and occupational health and safety education are also mentioned by

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Runyan and Schulman (2011). Their study recommended that more research is needed to explore how to enhance parents' success in making work safe for teens. Richter and Jacobs (1991) also suggested that interventions aimed at parents and teens to reduce hazards associated with teen work can also prevent work-related injuries. Another study investigating the associations between parenting styles with teen driving and their safety-related behaviours and attitudes conveyed a clear, actionable message for parents that to protect teens from crashes, parents should set rules and effectively monitor their child's safety behaviours (Ginsburg, Durbin, Garcia-Espana, Kalicka, & Winston, 2009).

While much attention has been given to the benefits of parental involvements in children's safety, less attention has been paid to directly exploring parents' understanding about OHS and their involvement in increasing safe practices.

The above account establishes that parents' views have been neglected in studies and there are limited data on parents' understanding of and approaches to school-based OHS education. What is lacking is an in-depth understanding of parents' views and perceptions regarding OHS education. An appropriate way to address this lack is using qualitative methods as they are particularly well-suited to an exploratory study (Strauss & Corbin, 1998) and to understanding the deeper meaning of OHS to parents (Creswell, Plano Clark, Gutmann, & Hanson, 2003). According to Rodriguez (2005), in an exploratory and descriptive study where the researcher is interested in the meaning gained by the investigation and words, and where the researcher is the primary instrument for data collection and analysis, the research method should be qualitative. As there is little research in Australia on OHS educational interventions in general and parental perspectives about school-based OHS education in particular, qualitative methods are particularly suitable in this case (Ritchie & Spencer, 2002).

Based on the preceding discussion, the research question that emerges is: *How do parents understand OHS education in schools*?

## 4.3 Methodology

### 4.3.1 Introduction

This section describes the methods that were used to explore parents' understanding of school-based OHS education. I begin with an account of how I developed my research

question, a description of the research participants and the procedure of research including the sampling strategy used and the research instrument. This is followed by the procedure of data collection and data analysis including ethical considerations.

## 4.3.2 Birth of research question

I have a background in quantitative research and initially I did not consider anything beyond this in terms of research methodology for my study. Through a systematic literature review I have explored the essential elements of an effective OHS educational intervention in the hospitality and food retailing sector. Then the current practice and perceptions of the teachers regarding the school-based OHS education in South Australian secondary schools were explored with a survey. Apart from focus groups informing the survey, there was little consideration of qualitative input initially to focus on any of my research components. However, as I became more and more involved and kept thinking about the research questions and the methods, things changed and evolved. The positive approaches which governed the whole process of my research were my openness to ideas and ability to accept the challenges. I let the whole process develop and take its own course with my ability to be flexible within the scope of my research.

In the process of finalising my methods, among others, constructive criticism from my supervisors and peers played a crucial role. The initial thought was to understand stakeholders' attitude, beliefs and perception, incentives and barriers, experiences, views and ideas regarding OHS education through consultation with them. I thought that it would be improper to do this without knowing the level of understanding of important stakeholders like parents. I was occupied by the thought that application of a poorly developed concept in the research process could become "a source of invalidity" (Morse, Hupcey, Mitcham, & Lenz, 1996). After discussing these issues with my supervisors, I believed that the best solution would be to learn from parents what OHS meant to them. I concluded that qualitative methods of enquiry would be the most appropriate for the exploration and the development of the concept (Hupcey, 1998; Morse, et al., 1996). And thus, a new research question **'how do parents understand OHS education in schools?'** was revealed and found its place in my research. This is an account of how my research question evolved and was modified to be more truthful to my research.

### 4.3.3 Participants

Interviews were conducted with parents of year 11 students from public, independent and catholic schools with recruitment via information in school newsletters.

As mentioned in earlier chapters, in South Australian high schools, OHS education is introduced in year 10. However, it is not consistent in terms of timing of delivery; in some schools it is provided in the beginning of the year, in some at the middle of the year. I interviewed the parents of year 11 rather than year 10 students to ensure that the OHS education program in the school had been completed before the interview took place. After receiving OHS education, the students may have interactions with their parents and in this way parents may develop some idea and perceptions about school-based OHS education.

### 4.3.4 Procedure

#### 4.3.4.1 Choice of telephone interview

In this study, I explored parents' understanding of their child's attitudes and perceptions, their views and opinions about schools and teachers regarding OHS education, and also their expectations from schools. To achieve this, individual interviews were an appropriate choice as they ensure independent responses without others' influence or assistance (Bailey, 1987; H. W. Smith, 1981). I chose interviews with the parents rather than focus group discussions for practical reasons surrounding parents' availability to attend, travel by participants and other logistics and cost related to organising and implementation.

Parents were invited to participate in a 20-30 minute telephone interview about their perceptions of the teaching of OHS education in schools, including barriers to effective practices and suggestions for improvement. Telephone interviews were used as a method of data collection, as they were simple to arrange and less time consuming. Also, this method was very suitable for participants in rural and remote areas (Sturges & Hanrahan, 2004)

Furthermore, studies which directly compare telephone and face-to-face interview conclude that telephone interviews can produce data of comparable quality and are appropriate for smaller-scale qualitative research (Carr & Worth, 2001).

Telephone interviews share many advantages compared to face to face interviews, including higher participation, and lower costs in terms of time, effort and money (Carr & Worth, 2001; Robson, 2005).

### 4.3.4.2   Sampling strategy, sample size and research instrument

To assist in identifying parents interested in participating in the study, a request letter was sent to the principals of the selected schools (Appendix 6). My initial plan was to randomly select 20% of schools from the list of all schools (including rural and remote schools). But to maximise the participation rate, it was sent to all secondary schools (n=211) in South Australia in early June, 2010. These requests were made by e-mail and follow-up phone calls to improve the participation rate (Lavack, Magnuson, Deshpande, Basil, & Basil, 2006 ). The letter was attached with a flyer (Appendix 7) containing brief information about the research, duration of the interview, contact details of the researcher and the information about a small amount of gift voucher for their participation (National Health and Medical Research Council, 2007). The letter also included the interview schedule for the parents (Appendix 8). The school principal was requested to place the flyer in the School Newsletter as this is the official communication channel of the schools with the parents.

Parents started responding within 2 weeks of sending the letters to principals. After having responses from only 8 parents, I sent a reminder email to the non-responding schools. Of them 'Undelivered Mail Returned' were received from 12 schools of which, eight (8) schools were reminded through telephone.  This resulted in 5 new responses from parents. Of this total 13, one declined to participate and one did not reply to emails and telephone messages. Finally 11 parents, of whom 10 were female and one male, were interviewed with a semi-structured interview schedule. The details on the interview schedule are given below. When the parents responded to me either by email or by telephone, a convenient time was set for the interview.

### 4.3.4.3   Developing interview schedule

The participants were invited to respond to a series of semi-structured questions relating to parents' perceptions, opinions, views and expectations on the OHS education provided by their child's school (Barriball & While, 1994). Obtaining data in a semi-structured format has the advantage of encouraging a freely associative interaction, allowing respondents to

emphasise and articulate the issues they consider important, and it is widely demonstrated as offering a potentially rich and valuable insight into individuals' experiences and their opinions (Shearn, 2006). As Shearn (2006) expressed:

*"Eliciting data in a semi-structured format has the advantage of encouraging a freely associative interaction, allowing respondents to emphasise and articulate the issues they consider important, while at the same time providing a degree of commonality to the issues addressed, such that comparisons and contrasts can be drawn between respondents. This approach to data elicitation has been widely demonstrated as offering a potentially rich and valuable insight into individuals' experiences and their opinions. It allows the researcher to explore issues about which little is already known, whilst maintaining a desirable level of consistency between interview discussions, thereby allowing comparability between responses"*

Semi-structured interviews allow all participants to be asked the same questions within a flexible framework and have the advantage of maintaining flexibility for exploring issues which spontaneously arise during the course of the interview process (Dearnley, 2005). In this study, semi-structured interviews were selected as the means of data collection because they were well suited for the exploration of the perceptions and opinions of parents regarding complex and sometimes sensitive issues and enable probing for more information and clarification of answers (Barriball & While, 1994; Hutchinson & Skodol-Wilson, 1992). Additionally, the semi-structured interview allowed me optimum use of time available in an interview situation, and made the interview more systematic and comprehensive by outlining the issues to be discussed in advance (Patton, 2002). It also helped to elicit valuable and complete information and enabled me to explore and identify inconsistencies within respondents' accounts and can help respondents recall information for questions involving memory (Bailey, 1987; Gorden, 1975; Smith, 1995).

Parents were asked about their experiences of their child's preparation for work related hazards, their understanding of their child's attitudes and perceptions regarding OHS education. The questions also included their understanding of current practice on OHS education in their child's schools, barriers of school OHS education and their suggestions to improve these barriers. The interview schedule also included questions regarding their child's

compliance to school OHS education and the quality of the education provided by the schools. The interviews varied in length between 20-30 minutes.

4.3.4.4   Piloting the interview schedule

The first draft of the interview schedule was piloted on two of my colleagues who have year 11 children. By doing this, ambiguities, leading questions and general criticisms were discussed and corrected (Mann, 1985). The pilot testing also helped me to assess whether the interview schedule could obtain respondents' answers to questions asked during the course of the interview and my performance as an interviewer in real interview situations (Barriball & While, 1994).

4.3.4.5   Data Collection

Data were collected through telephone interview with consenting parents. I provided a summary and the objectives of the research prior to the commencement of interviews and then asked for verbal consent to continue the interview. Participants were reassured that their answers would be anonymous and their name and the name of their child and child's school would not be disclosed and would not be used when the results of these interviews were summarised. The interview was audio recorded with their permission and a contact telephone number was also given for enquiries. The details are provided in the 'Ethical Considerations' section.

Interview notes

All of the parents gave their permission for interviews to be tape-recorded. This enabled me to devote full attention to their responses, constructing relevant follow up prompts during the course of the interview. Two participants did not want to take the gift voucher valued at $20 and instead suggested it be used for this research or donated to charity. The following email is an example of such intention of a participant.

July 1, 2010: Email from a participant following interview

Re: Interview 4

Hi Nasreen,

I would love to participate in your research project. Please put the $20 back into your research too, I don't need the voucher. I am home most evenings after 5 pm. Let me know if you need to do it in working hours as I am home some days during the week.

Kind Regards,

Gabi (pseudonym)

**Data saturation**

In this study, one of the methodological notions relevant to the sampling was theoretical saturation. Time and resource made available for this research possibly did not allow reaching optimum data saturation. Although, theoretical saturation is meant to signal the end of data collection for the inductive approach (Strauss & Corbin, 1998) that was used in my research, Morse (1996) argues that 'saturation' is a rather elastic term. I tried to capture as much data as practically possible through the interviews as the idea of saturation is helpful at the conceptual level, it provides little practical guidance for estimating optimal sample sizes (Guest, 2006).

Due to the tight time frame of research and limited resources, I stopped reminders after one month, and had to be content with what I achieved in terms of number of interviews. In an effort to account for this, I spent more time in analysing parents' views and perspectives and constructing the themes and describing the contexts related to understanding of the parents' OHS education concepts. This revealed to me a deeper understanding of parents' thought on school-based OHS education.

4.3.4.6   Data analysis

The data obtained from interviewing were analysed qualitatively to identify themes, patterns and content (Miles & Huberman, 1994). The interviews were audio taped and subjected to thematic analysis with the assistance of NVivo.

I have drawn thematic analysis in developing my analytical approach. This method emphasizes organization and rich description of my data set. Coding was the primary process for developing themes within my raw data and the analysis was data-driven inductive approach (Braun & Clarke, 2006; Patton, 2002).

The phases of analysis were: familiarisation with the data including transcribing, reading and re-reading the data, generating initial codes, collating codes in potential themes, defining and naming the themes (Braun & Clarke, 2006).

After transcribing the interviews, I coded all the interviews. Initially my inexperience and fear of losing important themes gave rise to a huge number of free nodes. In practical terms, every word was coded from my first transcript. I had 184 free nodes just from my first interview transcript. After having generated 184 free nodes, I felt the list of free nodes was getting too long to manage! I thought that I should start organizing them into tree nodes. With the help of my supervisor, I organized the free nodes into tree nodes.

I spent a long time on that first transcript. Even then, I became flooded by the data and the mass of codes and by the variety of stories other students told me. On the advice of my supervisor, I reapproached the data and analysed it in thematic sections. Analysis of subsequent transcripts was made easier because of this investment. In this way, my next step was that I had created 32 tree nodes (Appendix 9). At each level of coding I searched for structure (that is, what is OHS for parents) and the process (that is, what is their understanding about school-based OHS education?). This was done through the constant comparison of data and categories (Stern, 1980; Strauss & Corbin, 1998).

As I gained experience I was more able to recognise the shared attributes of discrete bits of data and rather than assigning different codes for all of these, I came up with a single code to bracket them all together. For example, instead of coding every form of occupational health and safety such as, 'current practice in OHS education', 'parents' knowledge on school-based OHS education', 'protective equipment as meaning of school OHS education', 'reasons for parents understanding on meaning of OHS', I started using the conceptualised category of 'what is OHS'. Similarly, 'child compliance', 'child learning', 'child OHS attitude', 'child safety activities', 'OHS learning from common sense', 'preparation for work' were merged to form a new category 'thoughts of parents about their child'. In this way, I became aware of some of the characteristics of categories, having developed them inductively, and the process

generated questions to learn more about the categories, for example, how do parents understand OHS education in schools. Categorising was brought together into units that would relate to the same theme or issue. The themes were coded as an overarching theme containing sub-themes and the analysis was data-driven inductive approach (Braun & Clarke, 2006; Patton, 2002).

As I progressed with coding, I started gaining an understanding of the data I had collected and I also began to trust my insight and intuition more. I read a number of books and articles on qualitative data analysis to get some ideas and this enhanced my knowledge, and level of confidence. For example, "Qualitative Research and Evaluation Methods" by Michael Quinn Patton (2002), "Qualitative Research Methods" by Pranee Liamputtong and Douglas Ezzy (2005), "Strategies of Social Research" by H. W. Smith (1981) and "Methods of Social Research" by Kenneth D. Baily (1987). At a stage of analysis I learned of an exciting consequence: my interview had triggered positive interaction regarding OHS between a parent and her child. There was a need for more information so that this parent could think and act towards ensuring her children's safety. The following interaction with a participant is an example of such crucial interaction.

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July 2, 2010: Note about interaction with a participant.

Re: Interview-4

P: I do think it's very important. And probably, I haven't even thought about it before, because really, I thought probably that people only get to know about occupational health and safety when they started at a workplace. Um, possibly because it's only come up at, you know, at my workplace in the last probably ten years, I suppose, ten or fifteen years, that people started to talk about occupational health and safety.

Oh, I might have to email you on this one, when she returns from school to see if they have had some, because I can't really answer that one.

I: It's okay.

P: I can email you, though, just email. I'll ask her on the way from school this afternoon and I'll just let you know exactly whether they have had some education on that.

She sent me following email after interview after discussing with her daughter.

Hi Nasreen,
Stella's (pseudonym ) school is Crofton House School (pseudonym) . Yes, Stella had two lessons on OH&S prior to doing work experience. Stella thinks the two people giving the lessons were from TAFE. Interesting, the main thing that remained in her mind after the lessons was not to receive gifts from the workplace. They were shown a video on dangers in the workplace, and

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'their rights', and told not to do anything that they deemed as dangerous,
and they were talked to about workplace bullying.
I am glad that they did have these lessons prior to their work experience!
I hope you find this helpful!

Kind Regards,
Gabi (pseudonym)

In chapter 3 of this thesis, teachers suggested formal integration of OHS education into the main curriculum. I realised that parents had mixed opinions on this. The thoughts of parents, as revealed in the interviews, were quite different and did not match with the teachers. This led me to look for deeper, more meaningful, analysis to reveal the inner meaning and, in this way, using my anchoring idea, I then developed a much more interesting story to tell. This allowed me to write an account which is very different from other stakeholders such as the teachers' views.

Figure 4.1 below illustrates the superordinated and subordinate questions arising from the data.
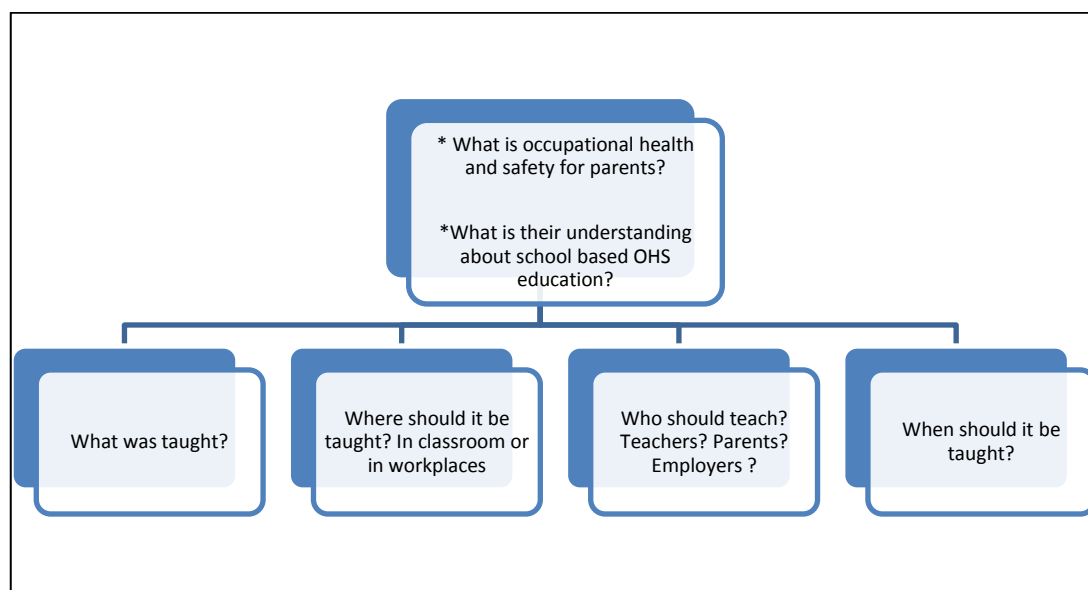


**Figure 4.1: Data Analysis Framework**

4.3.4.7   Reflexivity

Being an overseas student, from the very outset of this research process I had a feeling of uncertainty and about my acceptance to and perceived position as an 'outsider' in relation to

the native Australian students. I am not a native English speaker, nor am I someone who has conducted telephone interviews before, nor am I someone who conducted qualitative research before. The planning, conceptualization and implementation of this research received a serious consideration around these factors.

This perception of being an 'outsider' was often in the forefront of my consciousness throughout the study. Such feelings of 'outsiderness' were particularly exacerbated whilst attending the group meetings of the students' special interest group on qualitative research, which was initially formed by qualitative experts and staff with few students and it seemed that, unlike me, everyone was a native English speaker. After 2 or 3 meetings of this qualitative research group, many international and national students joined and I felt comfortable as I found I was not alone in this intellectual journey and realised with confidence that there were ways to overcome these problems. At the same time, a conversation with my supervisors helped me to realise that it is not always the case that the issues of 'insiders' are best researched by 'insiders'. I recognised that a researcher does not necessarily have to be experienced in fieldwork, nor do they have to be of the same cultural background as their participants. However, a researcher needs to be open and receptive to their participants (Collet, 2008).

I generally felt uncomfortable and nervous in first pilot interviewing. My anxiety had diminished my ability to follow up emergent ideas in the way that I had done in other interviews in later times. Reflecting upon my experiences as I conducted more and more interviews, I also found that this challenge had turned into achievement, as in the real interview situation I was very careful and aware of the possible problems which may emerge in situations where natives and non-natives are involved. As a result, the interviews and interactions were really comfortable and the participants were very co-operative, and all the interviews went well.

All of the participants of this study were female except one male. Williams and Heikes (1993) suggest that "men who study women using qualitative interviews may confront more formidable obstacles to rapport" (pg 289) than women interviewing men. In my case, it was a relief that there were no gender issues in terms of rapport building and setting the ground for interviews.

In determining my role and place in the overall research process, I found that reflexivity had an important and crucial positive effect. To foster greater reflexivity I examined my past experiences as a researcher, my reviews of interaction with the participants during interviews on a continuous basis, my thoughts and concerns about decisions regarding the collection and analysis of data. I also developed my reflexivity by transcribing meetings with supervisors and recording my reflections on what was discussed in the supervisory and other meetings. I acknowledge that these means and the written account had become a part of my research process and findings (Schwandt, 2001).

### 4.3.4.8   Ethical Considerations

The project has used all possible measures to ensure protection of the welfare and rights of the participants. The participants' well-being was the primary consideration over the potential for generating beneficial knowledge through the research (Kvale, 1996).  It was vital to assure them that their answers would be anonymous, that  the participants would not be harmed through their involvement in the research and that they were free to withdraw at any time (Oliver & Ebrary, 2003).

To address these issues, I first obtained ethical approval for this study from the University of Adelaide Human Research Ethics Committee (Project No. H-055-2008), and from the Department of Education and Children Services (DECS CS/08/0248.5). Approval was also obtained from Catholic Education South Australia (Appendix 2).

For recruitment of the participants, a request letter was sent to the principals of the selected schools (Appendix 6) which included the interview schedule for the parents (Appendix 8) and a flyer  (Appendix 7) requesting to place in the school newsletter. Verbal consent from the interested parents to be interviewed was sought before the commencement of interviews. I also sought their permission for audio recording our interview as it would assist in the analysis. An electronic version of all information collected was stored in a password protected computer. Hard copies were kept in a locked file cabinet to ensure confidentiality is maintained. This way, all information regarding recruitment of participants and related documents was kept confidential (Oliver & Ebrary, 2003).

In the interview schedule, I assured them that their answers would be anonymous, their name and the name of their son/daughter and name of their child's school would not be disclosed

and would not be used when I summarised the results of these interviews. I also assured them that no one would be identified in the report and the information would be kept confidential and anonymous. I guaranteed the participants that they were free to withdraw at any time.

In addition, participants were provided the contact details of my supervisor and relevant ethics committee liaison personnel in case they had any questions, concerns or complaints during the study. The participants were provided with a small amount of money as gift voucher for their participation (National Health and Medical Research Council, 2007).

## 4.4 Results

In this section I present the general perspective of parents on OHS and how this perspective contributes to understanding what school-based OHS education means to them. The findings are grouped and organised under thematic clusters and described accordingly. The themes are grouped under thematic clusters and they relate to the parents' perceptions of OHS, and school-based OHS education. In this section, I argue that, on the basis of my quotations and data, parents had a very narrow and common-sense view of what occupational health and safety was which did not accord with the view of teachers and other stakeholders. Furthermore, parents showed little interest in OHS education in schools. They did care about their child's safety at school, both in the class room in relevant subjects, and on school premises (wearing appropriate uniform, goggles, hats, etc), and in workplaces.

### 4.4.1 What is Occupational Health and Safety for parents?

Parents did not define OHS directly during the interviews. They also admitted that they knew very little about their child's school's OHS initiatives. However, some important insights were shared through the interaction that went on during the interview. Their understanding of what OHS means in general is organised under the following categories:

#### 4.4.1.1 Common sense and safe work practices

Parents' views about OHS focused on common sense and safe work practices. Many of the respondents indicated that whatever OHS skills their children apply was the result of 'common sense'. They seemed to be unsure if the present school OHS education had any effect on their acquiring knowledge and skills for safety in work settings.

*"I wouldn't think so. Probably the only thing I would say is if it, it is common sense and pretty basic. As with most things, if you tell kids things they already know, or they think they know, they tend to dismiss it and write you off, don't they? But I think most of them would be receptive. If they're in a new environment and they want to be there, and they're doing work experience in a field that they're keen to get, they'll take it all on board I'm sure."* (Interview 1)

*"Well once again, common sense. She understands that if you need to wear a hat on an excursion. I think when they went somewhere they had to, they went to a mine for an excursion, they had to wear hard hats, and they had to have enclosed shoes. So she certainly understands there's reason for it. Yeah. I mean I'm lucky. My child's got her head on her shoulders and uses a lot of common sense, so she just gets it."* (Interview 1)

*"Ah, I think it's fairly important because it is common sense but at the same time common sense isn't always so common to everybody. So I think it does need to be taught to people that an awareness, you know, don't leave an electric cord trailing across the pathway and you know, hand washing and food handling techniques. Yeah I think it's important".* (Interview8)

*"Um, well a small part cause I think um, they shouldn't be spending hours on something like this. I think these things are common sense but not everybody has common sense. I think it's valuable but only in a small way as part of their subjects. There are other more important things."* (Interview8)

Some of the parents' understandings of OHS included safe work practices for manual handling, dangers or first aid at schools and in workplaces. Their OHS concerns were based on the immediate safety and protective actions of their children including wearing appropriate footwear, school uniform, goggles, hat, clothing and other personal protective equipment (PPE). In their views, the centre of attention of school-based OHS education should be making their children aware of any dangers in the workplace, explaining employer's and the employee's rights and responsibilities and safety requirements for jobs that involved manual handling. For example, parents explained:

*"I think there should be something done at school in their physical education*

*program, and it may have been, but my son doesn't really tell me everything that happens. But yeah, because I am a nurse, so I am very much into manual handling, training and learning how to lift properly, and all these school kids will go on to the part time jobs, you know, lifting and hard work, which I think they should at least know how to lift." (Interview 3)*

*"Well she has done work experience with coaching and supervising young children in sports. And as part of that I believe they did an occupational health and safety part in that. And just from experience. She's a gymnast and a dancer, and I guess she's experienced and had to deal with sports related injuries. [Laughing] So we know first aid training that she's had. She's been able to deal with any small injuries we have had at that activity." (Interview 1)*

*"Well I think that's important because they're in a different environment. After four years she's a fairly comfortable with knowing her environment at school and knowing when she needs to be safe or put procedures in place to be safe, but if you work into a totally new business, and it's different to what you've experienced, then they quite clearly need to be told where first aid kits are, what to do if this happens, and spend some time on that. But I believe the employers do have a legal responsibility to do that, but whether they actually do it or not." (Interview 1)*

### 4.4.1.2   Using protective equipment

It is important to recognise that parents' OHS concerns are around the immediate safety and protective actions when their children are at schools and workplaces. Parents thought OHS meant wearing appropriate footwear, school uniform, goggles, hat, clothing and other PPE. Some of their responses were:

*"......things like uniform. In the last couple of years they've revised that to include shoes to make sure they're appropriate for whatever they're learning that day. Because of occupational health requirements, if they're doing science or carpentry or whatever, they have to wear shoes that are appropriate to whatever they're doing." (Interview 1)*

When they were asked how well their child follows school OHS education, the responses tended to reinforce the afore-mentioned statements regarding the notion of the parents on OHS and its concepts.

*"Oh very well, my child actually wears the appropriate footwear (Interview 10)"*

*"....Simple things like you know, wearing your hat when you're handling food and hand washing and you, just let me know that he has some awareness about Health and Safety. (Interview 8)*

*"Yes he does, but he also helps his dad out a lot too. We have an industrial workshop so as a family we know how important it is with Occ Health and Safety. Josh (pseudonym) and his brother David (pseudonym) also helps; they help their dad a lot too in the workshop, and they've also got to wear safety glasses, proper clothing, proper footwear, ear plugs". (Interview 11)*

### 4.4.1.3 Awareness about safety policies in school and workplaces

Parents indicated their concerns about their child's safety by making their children aware of the policies of schools and workplaces. In their view, school-based OHS education should be focused on making children aware of any dangers in the workplace, explaining employer's and employee's rights and responsibilities and the safety requirements for jobs.

*"I know that they are committed to occ health and safety, but I am not aware of the education of it.  So I guess by having rules within the school about running and, you know, safety things around the school, that in itself is a type of education, but I'm not aware of any formal structured education in occ health and safety." (Interview 6)*

*"Okay, so like I said, I think the school needs to raise awareness of the fact that each part, that the, the employer and the employee both have responsibilities, and I think the school should be letting the kids know what those responsibilities are, but I think the actual specifics of it should be left to the employers." (Interview-2)*

Parents' focus was on occupational safety, and occupational health was not part of the discussion at all. In general, parents knew very little about OHS education, and they assumed that it was mainly a matter of common sense and safe work practices. If parents think this

way, then it is not surprising that they did not know anything about school-based programs or that they thought school-based programs do not matter.

## 4.4.2 What do they know about school-based OHS education?

Parents, in general, were aware of safety education as part of the relevant subjects in schools, but they did not know about any school-based preparatory OHS program. Almost all of them expressed their lack of awareness about any safety educational approach in their child's schools, and some mentioned that they know 'very little' about these school-based OHS educational initiatives.

> I: *"Okay. So what do you know about any training or intervention on work safety education provided by your child's school?"*
>
> P: *"Very little. Say high school, parents are only sort of told what the kids what to tell you. The only thing I'd be aware of is what comes home in the high school newsletters, and I am aware that the high school policies include it. Things like uniform. In the last couple of years they've revised that to include shoes to make sure they're appropriate for whatever they're learning that day, because of occupational health requirements. If they're doing science or carpentry or whatever, they have to wear shoes that are appropriate to whatever they're doing same. I think they're not allowed to wear excess jewellery and facial piercings and things, because of the occupational health hazards if they're playing sport or whatever they're doing with those bits and pieces"* (Interview 1)
>
> I: *"Okay. So there may be hazards associated with works, has your child ever had any preparation for this work related hazards"?*
>
> P: *"Has he had it? I think he had some in school you know, when he took home economics and food handling. I'm just guessing as part of his Home Economics class he had food handling. I'm just guessing. I don't know."* (Interview-8)
>
> I: *"Okay. So what is your understanding of current practice in occupational health and safety education in your child's school?"*

P:      *"Um, that it's been taught?"*

I:      *"Yes".*

P:      *"Well, I don't even know that it is being taught."*

I:      *"Okay.  So I just wanted to ask if there is any assignment, homework or practice given...?"*

P:      *"I am not aware of any".*

I:      *"Okay, it's all right".*

P:      *"It might have occurred, but I am not aware of it."*

*(Interview 3)*

When they were asked how well their child's school addressed the needs of their child regarding safety education, they expressed that OHS was not addressed very well at all. The following quotations support this:

*"They, yeah, it's not something that's in your face all your time.  The first, this is the first time I've noticed in the news about any specific discussion about it, but I am aware that from time to time things are put in there about policies and things that need to be done or not done at school because of health and safety issues.  So I think they're aware of it.  I assume if we are being told as parents in newsletters at the numerous assemblies and things, and home groups they have, that they're reinforced to them then too.  I guess it's just a matter of whether they're paying attention."(Interview 1)*

*"To my knowledge, I don't think that side is addressed very well at all.  They look at academic side of things, but they don't look at the actual practicalities of working." (Interview 3)*

*"I don't know whether they do much about it at all.  They certainly are a very good school, they do everything else, but I'm not sure whether there's been any occupational health and safety education.  I would hope that in their health lessons they would have spoken about it, but I'm not sure".(Interview 4)*

*"I know that they are committed to occupational health and safety, but I am not aware of the education of it. So I guess by having rules within the school about running and, you know, safety things around the school, that in itself is a type of education, but I'm not aware of any formal structured education in occupational health and safety." (Interview 6)*

I:    *"Okay, so how well does the school address the needs of your child in regarding occupational health and safety education?"*

P:    *"For the purpose of going to school they try very hard, they are particularly strict about shoes, footwear and they are constantly monitoring that and it's an uphill battle because a lot of the children don't comply but they really do try very hard to get the children to wear, you know lace up shoes that are strong and safe."*

*"And they talk about them you know, going up stairs and things like that and that's very important so as far as being in the school grounds, I think they are very committed but I'm not – I haven't been exposed to somebody, like I know some of the students do work so many days a week and then come to school so many days a week."*

*"I haven't had that with my children, so I don't know what they provide for children who are going out into the workplace but I do know that yeah, when they're in school they do try to teach them to you know, wear appropriate clothing and footwear." (Interview 10)*

I:    *"How well does the school address the needs of your child regarding this education?"*

P:    *"I don't think they do" (Interview 11)*

### 4.4.3   How did parents' OHS definition shape parents' views about OHS education?

The respondents were not asked directly to define OHS, nor did they spontaneously put in any effort to define the concept, but their understandings were spread throughout the conversations during the interviews. There were views about what parents think OHS is in a general way and what parents think OHS education at schools is. Presented in this section are

parents' views about what should be done in OHS education in schools, where they think it should happen, who they think should do it and when it should be done? These findings are significant because they indicate how parents make meaning of OHS and how this meaning helps to shape their thoughts and opinions about school-based OHS education.

4.4.3.1   What should be done?

Findings generated from the interviews with parents suggest that they were not familiar with any formal school-based approach to OHS education.   Instead, they were concerned about more practical matters, such as the safety of their child in workplaces, rather than the process of making their child knowledgeable about OHS issues and remedies.

Although, they had a very superficial view of school OHS education, some of the respondents wanted to have OHS education as a compulsory and integrated element in the school's educational approach. The following extract expresses this view:

> I:      *"Okay.  So do you think this training should be a part of the curriculum?"*
>
> P:     *"Yes, yes I do."*
>
> I:      *"Why do you think so?"*
>
> P:     *"Because most, well, you would think that all of the children would be going out into the workplace somewhere, and I do know that some of the parents have been quite horrified at the dangers that their children have been put in working in part time jobs.  And whether it's, I know one of the ladies' son has got, has burns from the-----off some wood, they were doing a fencing job.  And he has resigned.  But he had quite severe facial and hand burns from the poison that was on the wood, and he just kept on working.  Yeah.  So you know, they did something, if something in them, especially I suppose when they do start to work their part time jobs, which is probably years 10, 11, 12.  Yes."*
>
> I:      *"Okay.  So in your view, how much is your child's school committed to occupational health and safety education?"*
>
> P:     *"I would hope that they would be thinking about putting it into their curriculum, but I'm   not sure whether they have discussed it at all.  No, I'm not sure whether*

*they have thought about having it in the curriculum or, or having it at school."*
*(Interview 4)*

A few parents said that to incorporate OHS into the curriculum is important, but it should be precise and specific, so that their children need not spend a lot of time on this, and that it does not detract from their primary objective of having effective mainstream education.

*"Just a small part not you know, not weeks and weeks or months and months, I think if they had a talk on it or it was brought up in a friendly or you know if it was, it definitely is something very worthwhile thinking about but not something to take away from the academic side that is fairly busy at this stage you know, but they but they do need to know about it at some point yes." (Interview 10)*

I:  *"Then do you think this training should be a part of the curriculum?"*

P:  *"I do not think there needs to be a whole curriculum area, I think, you know, kind of like one or two sessions would cover what I think should be included at school."*

I:  *"Okay. Then what are those areas, why do you think so?"*

P:  *"Pardon?"*

I:  *"What are those areas and why do you think so?"*

P:  *"Why do I think so? Because I believe that a lot of the health and safety is very specific. I think, you know, if you are going to be, um, an office worker, you don't need to hear the health and safety issues in a factory, for instance." (Interview 2)*

4.4.3.2   Where do they think OHS should be delivered?

Parents were concerned about basic safety of their children and their thoughts did not specifically include separate OHS issues. So their concepts were directed towards generic safety concerns around school and workplace.

**Parents are concerned about classroom safety**

Classroom safety emerged as an issue of concern for some parents. Parents believed that this education should be delivered through relevant subjects. In relation to this, some parents added that there should be specific rules and guidelines for subject related safety, as in the case of laboratory based practical sessions. The quotation below expressing their concern about classroom safety also specifically suggests that a simplified presentation of the rules and procedure would be useful. Parents did not mention the need for any integrated program. They want good OHS practices in the classroom, but it was not about education, it was about making sure that the teaching environment was safe.

> I: *"And what is your expectation about the OHS education that your child is receiving from the school?"*
>
> P: *"Well I would expect, doing subjects that could have I guess harm come to her, that they would put procedures and rules in place to protect them from that. Once again, it comes down to, I mean the only one I can think of in her case is chemistry. If she's doing experiments and bits and pieces, that there are rules and they're probably expected to wear goggles and smocks and whatever, and that they follow it ...." (Interview 1)*

**Parents are concerned about workplace safety**

Parents also expressed concern about their child's protection from workplace injuries and illnesses. Respondents emphasized the need for making their child aware of dangers, rights and responsibilities before getting involved in a workplace. In response to a question about the importance of school OHS training, parents said:

> *"Well you know young people need to be shown the dangers because more often than not with their limited experience, they don't know of things you know that they could get their hair caught in machines or they could drop something on their foot or you know they, they just aren't aware, they live their life on a different level to adults who have had those experiences and it probably is very important that they are pointed out to them when you know, before they really get involved in the workplace." (Interview 10)*

*"I guess when she did start something there would be some kind of induction where they would talk to them about you know, appropriate footwear or having their hair tied back or those sorts of things, I would imagine that that would happen when you know, when you actually had accepted a job and you were starting work." (Interview 10)*

*"....well talked about because he's on a ride on lawn mower and he also vacuums a big car park area, so we had talked to him about wearing masks, a mask over his face to prevent him breathing in all the dust so we have told him how important it is and he also needs to wear earplugs because of the noise of the lawn mower and noise of the vacuum so they're probably the main things. He also has to wear proper clothes; footwear and jeans because it flicks up so many stones and things like that. So he understands that these are things he must do to prevent any injury." (Interview 11)*

### 4.4.3.3   Who do they think should do it?

From parents' perspectives, the people who are in best place to provide OHS education were not necessarily teachers. They considered that parents and employers were very important to this process and this was not something for the general teachers to teach. Rather, it should be provided by parents and employers in their workplace because they are the people who know about it. However, they acknowledged that teachers could be the providers if they had the required knowledge and training.

When the parents were asked whether children received any pre-work preparation or OHS education through schools, most of them said that their children did not receive any education or preparation from schools, but that instead they received some OHS education from their parents, work experience, or on the job training. Both the quotations below here contain the additional element of "we teach him at home" which is very important to learn about their role in making their children safe in the workplace.

*"Any occupational health and safety we do, I teach him, at home. I am not aware of him having any knowledge from school. So he does what we teach him at home. Okay, when they are working in the, if they are working in the tech services, like doing woodwork and stuff like that, they do have to wear goggles and they do have, yes, safety in that respect." (Interview 3)*

*"Well, again, I am not aware that he is doing it. But I know that he does follow occ health and safety rules in the workplace, and I have also been educating him since he was a small child on safety. So he follows the rules." (Interview 6)*

From the parents' points of view, as they expressed earlier, they were more concerned about their child's safety, and protective equipment for their daily life activities which they could get from workplace and home.

*"I know that he did a Health subject and ah, even as part of work experience took him through Occupational Health and Safety at work experience. The school didn't provide that. ....I don't know if he does any at his current school. I think he has done some as part of his um, Health course that he's done, it's like a TAFE component." (Interview 8)*

Parents were quite aware of teachers' lack of background to teach OHS education. The interviews highlighted a need for the routine provision of formal teacher training. Concerns were expressed regarding inadequate training of teachers who deliver OHS education in their child's school. Some parents had confidence that teachers were quite capable of teaching OHS education if they have proper direction. The following quotations support this view that the appropriately qualified people should deliver this education.

*"As long as they are educated fully in teaching it, you can't teach something that you are not yourself educated in. So if they are properly prepared and educated, I would be very happy. Not that someone is just making things up as they go, or trying to figure it out themselves as they teach it" (Interview 6):*

*"I think they would have to be taught it first." (Interview 3)*

*"I guess it would be a cost thing, getting other people to come into the school. But I guess the other option would be for someone to train the actual teachers, or give them information booklets on how they can explain to the kids what the hazards are, or what the implications can be. So I guess that would be another option to, yeah, make an implementation pack for teachers to present to their classes, rather than getting someone else, an expert to come in. It would probably be fine." (Interview 5)*

The following quotation is interesting because it reinforces the notion that OHS is mainly about workplace safety and that the only way to learn this is through industry exposure.

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*"Oh, they need to be aware of it themselves. If they've gone through school, and then university and then straight back to education, they've probably not been involved in occupational safety for manual labour type of work perspective. So I could imagine that that knowledge wouldn't be there, and if they don't know, they won't teach it."* *(Interview 3)*

### 4.4.3.4 When should it be done?

Parents' suggestions about the time of delivery of OHS is mainly related to their children's age and delivering the education before their work placement and commencing their actual work, but they were not concerned about the timing related to the curriculum (as teachers said in Chapter 3), for example, whether it should be done before term 1 or in between two terms.

Major concerns were their children's immaturity, lack of experience and understanding of OHS issues, and unfamiliarity with safe operating procedures. Therefore, some of the parents were in favour of introducing OHS education earlier than year 10. According to them, one session was enough for this, instead of a large educational program.

> I:     *"How important do you think this safety training is?"*
>
> P:     *"Extremely important"*.
>
> I:      *"So why do you think so?"*
>
> P:     *"Because you've got to look after your back and your health for your future. All these kids are going to do part time work, and often manual labour, you know, lifting and such, for any job, you need to look out, know how to do it right from the beginning. Otherwise you might do it wrong, and then you do the injury, and that's it for the rest of your life."*
>
> I:      *"So then, what should be the school's role in work health and safety education training?"*
>
> P: *"It should be done in year 8 I think, in PE. You only need one session."*

*(Interview 3)*

*"Um, I believe in educating people early, so that they can become conditioned by habit to undertake safe procedures, to use safe habits. And I think the earlier the better."* (Interview 6)

*"Because most of them have got part time jobs and you know sometimes they're starting at Year 9 having part time jobs, so it's like about 14. So the earlier in a way the better, so you know I mean senior school students should have it as well, but maybe you should look at it in earlier school levels".* (Interview 9)

They also focused on safety and injury prevention but said nothing about 'health' as the broader perspectives and components of OHS. The main reasons for their inadequate understanding of OHS may be: 1) they are not getting any ideas from their children's schools; 2) parents had not considered OHS education as being important until they had been asked.

4.4.3.5   How parents construct their ideas about OHS

Overall, parents had little idea of what is going on schools concerning OHS and OHS education. According to the International Labour Organisation and the World Health Organisation (ILO/WHO, 1995), occupational health should aim at the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations. Parents stated that they had no knowledge about OHS at schools, and, to the degree that they could not readily identify the broader perspectives and components of OHS as defined by the International Labour Organization and World Health Organisation, this is probably true. Although parents possessed no knowledge of school-based OHS education, they did have a wealth of unrecognised and undocumented knowledge and ideas about OHS education gained through their own life experiences.

Parents had clear ideas about safety for their children in the workplace. When they were asked about school OHS education, they focused on what could be learnt about OHS from their job, life experience, from school newsletters, school enrolment packs and from the real life experience of others. Another important finding is that they applied their common sense to tackle OHS issues and many of them indicated that their children used 'common sense' in doing their jobs at schools and workplaces. In this way, parents could have a significant influence on their children's understanding of OHS.

The social, physical and mental wellbeing of school students is a major concern for teachers and parents, and is probably addressed elsewhere at multiple points in the school curriculum, school structure, and student experience, even though it is not seen as anything to do with OHS. This is evident in the curriculum description of South Australian Certificate of Education (SACE). For example, curriculum statements suggest that selection of optional topics should be based on "student interest, and teacher experience" (SACE Board of SA, 2010). In addition to OHS-related topics within subject curricula, classroom safety considerations are explicit for subjects that include practical components. However, despite the potential for students to receive cross-curricular OHS education, OHS is not an explicit component of any compulsory subject (Australian Curriculum Assessment and Reporting Authority, 2011; SACE Board of SA, 2010). This suggests that exposure to OHS, within subjects, is dependent upon both the student's subject selection and the teacher's initiative.

**What could be done?**

Addressing parents' understanding is an important aspect of effective learning for students. Parents' knowledge and understanding about school-based OHS education needs to be enhanced. A second important aspect is the current target audience of OHS education are the students and this needs to be extended so that parents are also included and targeted. This will need a shift from the current student centred approach to a 'Student and Parent Centred' approach which will help reinforcement of the OHS education approach in high schools.

In addition, to make OHS education more effective and acceptable, parents suggested using real-life experienced speakers as guest lecturers would be very effective. This approach was also suggested by teachers and other stakeholders. The following excerpts are relevant in this respect:

> *"Yes, I just think they need a, a talk on it or if they have guest speakers come to the school and they'll tell them about something or rather, it should be in that kind of way that they have a talk or they have several talks in case for students that are away that miss it you know." (Interview 10)*

> *"Probably teachers may not be the best person to do it, maybe an outside person or guest lecturer who is more experienced in that area could just come in and give a seminar on it." (Interview 5)*

*"Have some professionals like ambulance people or fire people or hospital staff come in and just talk to people about, you know, the worst case scenarios that could happen, or simple things that could happen. Yeah, just get guest speakers, and show some videos. Or, you know, film clips, or something." (Interview 6)*

*"Yeah once again it fits, the key is to get the right people to deliver the training. Whether it's external from teachers is probably the best way but it's having the right people". (Interview 7)*

Parents need to be more familiar with their children's school information. Their lack of awareness about the schools' OHS educational initiatives suggested that they need more information on OHS and they should have access to the school-based OHS education information.

*"I don't know whether they do much about it at all. They certainly are a very good school, they do everything else, but I'm not sure whether there's been any occupational health and safety education. I would hope that in their health lessons they would have spoken about it, but I'm not sure." (Interview 4)*

*"I assume if we are being told as parents in newsletters at the numerous assemblies and things, and home groups they have, that they're reinforced to them then too. I guess it's just a matter of whether they're paying attention." (Interview 1)*

## 4.5 Discussion

The results show that parents are providing quite a different view about OHS from the view of the school. I found that the parents actually have no or very little idea about what is going on and they have a very superficial understanding of the school's efforts in OHS education. Nonetheless, parents have an important influence on their children's learning experience and they are the dominant force in the lives of these children as they prepare for future work.

The research findings have implications with respect to the way OHS education in schools is perceived and possibly delivered. It is evident that the concepts of OHS education differ from those of the stakeholders engaged in provision of OHS. Consequently, students may not be receiving consistent messages from home and schools about OHS. This inconsistency or mismatch is in the following specific areas: definitions of OHS used by parents and

ILO/WHO (1995); and views of the parents and teachers and other stakeholders engaged in provision of OHS education. The mismatch may have an impact on the outcome of OHS education offered by schools.

When parents' concerns were explored, two factors emerged that appeared fundamental in shaping their responses: parents' concern for their child's safety and the lack of access to information on what is really happening in the school in terms of OHS education. As a result of the interviews, some of the parents realized for the first time that OHS education was important and parents should be kept informed of the school's initiatives in educating their children on OHS issues.

Parental views in this study are different in many ways when compared with those of teachers described in Chapter 3. Parents were more interested in practical matters and were not interested in a robust, integrated and all-inclusive OHS module. They were more likely to talk of 'safety in the classroom' and 'safety in the workplaces'. In a qualitative study (Shearn, 2006) it was found that teachers were also more likely to talk of 'safety in the classroom' than risk or risk control. This tendency may undermine the importance of generic OHS efforts targeted towards these young persons and makes it less attractive.

These findings are significant for school-based OHS education as effective learning needs mutual reinforcement between home and school. This reinforcement is one of the primary mechanisms of parental influence on children's educational outcomes (Hoover-Dempsey & Sander, 1995). What parents are telling their children about OHS is important and is potentially much more influential than efforts that are undertaken by the schools. The concepts and approach of school-based OHS is not effective as parents interpreted OHS as general safety in a generic sense and safety in subject related practical sessions or laboratory situations.

The findings of this chapter provide an important insight into the influences on children's views and behaviours about OHS. While parents know little about school-based OHS education they do understand some principles of OHS, and this reinforces their children's safety behaviour in their daily life. This is very important because OHS education would be more influential if parents' understanding were better, which could mean that OHS would be better practised by their children (Hoover-Dempsey & Sander, 1995). Regarding inclusion of OHS in curriculum, some parents stated that OHS should be a part of the curriculum. The

other important question that arose was whether the curriculum should only contain generic all-inclusive OHS issues or only the practical matters parents think important. This has an important implication for the structure and delivery of school-based OHS education. This aspect demands more investigation in order to attain greater insight.

## 4.6 Strengths and Limitations of study

The major strength of this study is that this is the first of its kind in Australia to focus on parents in an effort to provide a broader understanding of issues around school-based OHS education. Parents are important stakeholders, but are rarely asked about OHS issues for their children.

Due to the qualitative nature of this study, the results cannot be generalized to the general population. One of the limitations of this study is that I may not have reached the point of saturation, because of constraints of time and resources. A possible reason for low response from the parents could be that, based on my findings, parents appear to be less aware of school-based OHS education and therefore were unlikely to be interested in taking part in this study.

A common limitation of qualitative study is the results might be influenced by the researcher's personal biases and I cautiously tried to avoid influencing the respondents by my own views and perceptions as the interview progressed in the manner the questions were structured and presented.

## 4.7 Conclusions

This study contributes to knowledge in school-based OHS education by juxtaposing parents' understanding about school OHS education and OHS in general. The whole concept is evidently about occupational safety; occupational health was not clearly mentioned in parents' conversations. They highlighted the need for making their child aware about dangers, rights and responsibilities before getting involved in the workplace. Additionally, they tended to be more concerned about their child's safety, and protective equipment for their daily life activities and also about classroom and workplace safety. This chapter has illustrated that the OHS views of parents are different from that of teachers. This mismatch with the views of other stakeholders has implications for what we should do about the improvement of school-

based OHS education. Parents agreed with teaching OHS in schools, but their specific recommendations about the duration and content is noteworthy as they are in favour of something more specific. They also commented that teachers needed to be taught OHS education first, and this is consistent with teachers' opinions in chapter 3 of this thesis. From a content viewpoint there were differences as teachers and parents did not define contents of OHS in the same way.

It may be understood from the interviews that better recognition of parents' concerns regarding school-based OHS education may promote more effective OHS education in schools. Parental views indicate that there is a strong need for being strategic and targeted in administering focused intervention on the OHS issues which children may face in their real life after leaving high schools.

# CHAPTER 5    GENERAL DISCUSSION

## 5.1  Overview

In addressing introductory OHS education delivered through high schools, this research integrates an overview of young worker injury claims experience over a 10-year period, a literature review of effective OHS education for young workers, an assessment of teachers' practices and perspectives regarding school-based OHS education, and an assessment of the perspectives of parents of secondary school students.

The research has highlighted that the teaching of OHS in high schools would benefit by a standardized yet engaging approach, including case studies and audio-visual materials. The content and delivery mode of OHS education should be shaped to young workers, taking into account factors such as physical and psychosocial characteristics and, importantly, the circumstances in which young people are likely to work. In-service teachers' training with explicit guidance needs to be advocated.

The perspectives of different stakeholders should be considered. On the basis of the quotations and data, the concepts of OHS education may vary according to the stakeholder. Parents possess little knowledge about their child's school's OHS initiatives. However, parents are concerned about their child's safety. Addressing parents' understanding is an important aspect of effective learning for students.

In addition, it is argued that schools and industries have a complementary role in educating young people. There should be a partnership between schools and industry, such that knowledge and skills introduced at school are complemented and reinforced in the workplace.

The next section describes the significance of this research and considers the main findings of the research in the context of other published work. Finally, this chapter positions the key findings into a conceptual framework for effective OHS education for young workers and prepares grounds for future research needs and recommendations based on the conceptual framework.

## 5.2   Significance of the research findings

This research addresses an important but under explored area within OHS education. A complementary methodological approach was used to contextualize young workers' injury issues. The mix of different methods in this research has been useful to explore and strengthen the findings, through triangulation of data.   The statistical review of injury data and the systematic literature review laid the foundation for the direction of this research. The literature review and statistical reviews provided the background and understanding of current situation assisted in deciding the research tools of the other components such as the questionnaire survey and qualitative interview of parents.

*Statistical review*

The statistical review of injury data (presented in Chapter 1) shows that the time trends are encouraging, but a significant gap exists between males and females, and the decline in serious injuries is slow. Such information may be useful for training and prevention programs. It suggests a need for closer scrutiny of the initiatives undertaken for OHS for younger population of South Australia.

*Systematic literature review*

In this research a systematic review in the hospitality and food retailing sector was conducted to examine the elements of effective OHS education for young workers. This significant area was not explored before. This research found a paucity of high quality evidence to support this area but there are a number of common and reasonable methods and approaches that appeared to be effective. For example, the involvement of both managers and co-workers in the training was considered useful for better outcomes.

*Teachers' survey*

This research incorporates a comprehensive assessment of teachers' practices and attitudes regarding school-based OHS education. The teachers' survey highlighted perceptions, barriers and incentives which will assist in shaping further research initiatives.

*Parents' interview*

The views and perceptions of the parents were explored in this research and also the parent interview has highlighted the lack of awareness of parents, but also the opportunities to reinforce safe behaviour.

Substantial research has been conducted to investigate causal factors of high injury rates among young workers. On the other hand, there is a paucity of research or investigation of the role of schools and teachers in OHS. Much is still to be learned about school-based OHS education for young workers, which is one of the preventive means implemented widely by states and federal bodies to combat the high injury rate among them.

This research has highlighted a number of areas of inconsistencies in the field of OHS education in schools. For example, lack of training and not enough access to resources which should be considered by those responsible for education of health and safety in schools. It is evident from these findings that the concepts of OHS education may vary according to the education providers and broader stakeholders. In addition to addressing community expectations, there is a possibility that the programs would need to be tailored to address the perspectives of different stakeholders. It is significant for other OHS educational stakeholders because of the realisation of the relationship between different people and the strength they bring. They have implications for the way OHS education in the schools is delivered.

This is the first research in Australia involving teachers, who have not previously been asked about school-based introductory OHS education. This is also the first research to focus on the parents in an effort to understand the issues around school-based OHS education.

The other significant aspect of this research is the focus on complementarities and the potential mutual reinforcement of OHS education provision by the teachers at schools and by parents at home . This research is also noteworthy as it involves iterative processes to integrate findings derived from different sources, from teachers and parents, which provide evidence of the actual situation in regards to school-based OHS intervention.

## 5.3   Main findings in the context of other published work

This large section presents an integrated summary of the main findings from previous chapters with commentary in the light of the published literature. The key findings in relation

to the research questions are presented beginning with the statistical and literature reviews and then a consideration of practices and perspectives of effective OHS education. This section also focuses on the implications of the research.

## 5.3.1 Statistical review (Chapter 1)

The results of the statistical review of injury data shows that South Australia has seen some decline in young worker injury rates over the time period 1998-2007, however in the case of serious injuries this decline is less obvious. This finding is consistent with the national statistics for the period 2000–01 to 2005–06, which shows that the number of serious claims decreased by 16% (Australian Safety and Compensation Council, 2008). There are disparities in terms of injury rates between males and females which is consistent with a recent report by Safe Work Australia. This report suggests that young females are less likely to make a claim (Safe Work Australia, 2009). This may be due to the fact that males are getting more injured because of engaging in more risky behaviour than females and the perceptions that males are stronger according to the biological theory explaining sex differences stated by Udry (1998) without suggesting any remedy to minimize the disparities or explaining the reason behind this.

## 5.3.2 Literature reviews (Chapter 2)

In Chapter 2, the information about effective education outside of the school environment was presented. The results of this systematic literature review identified the essential elements of OHS education conducted in the hospitality and food retailing sectors where a large proportion of young workers is engaged. A number of themes and key elements of effective training emerged from the literature. Findings from this systematic review indicate the importance of stakeholders' views and participation in training. One of the important aspects of this review is the need to understand parents' views about adolescent work and this essentially formed the basis of interviewing the parents.

Even though the findings of this review focused on the literature in the hospitality and food retailing sectors, are likely to relevant in other sectors of industry where young workers are employed. All findings from this review support the notion of importance of evaluating the effectiveness of existing OHS education initiatives including the school-based approach.

### 5.3.3 Teachers' survey (Chapter 3)

Research question 1.1: What is the current practice of introductory OHS education in secondary schools of South Australia?

In order to address the question of what is the current practice, the main findings are grouped together in terms of process of OHS education delivery and stakeholders' perspectives. In terms of process of OHS delivery, it is important to know about the characteristics and features of the teachers as OHS education providers.

### 5.3.3.1 Process of OHS education delivery

The research survey included participants from all school sectors (Government, Independent and Catholic) and both rural and metropolitan locations. Teachers were asked about their role, background and training. It also included questions about current usage and ratings of usefulness of OHS resources; delivery of OHS education; student response; school support; and barriers and incentives. Approximately 50% of the teachers came from the pool of general teachers with multiple responsibilities including teaching OHS. Andreasen (2009) argues that teachers with multiple responsibilities often struggle just to keep up with attendance, behaviour issues, phone calls home, grading papers, creating lesson plans, defining objectives, and other teaching responsibilities. Teachers' conflicting priorities often result in inefficient use of time and resources, which may also affect the teaching of OHS.

In South Australia, schools are not consistent in the delivery, methods and assessment of OHS education. OHS education is delivered either within a subject or by preparing students for work experience. The route through which OHS was delivered also had variations. Some respondents delivered OHS education for school-wide work experience programs, while others only provided subject-specific OHS education, as a topic and/or to prepare students for subject-related work placements.

In addition, the survey revealed further inconsistencies in delivery in terms of timing of the sessions, class sizes and resources used. Most schools provided sessions immediately prior to work placements, although some were delivered during an introduction to a subject or at the beginning of the year or term. This needs critical review as to determine the best timing of delivering OHS education through further research.

The research survey indicates that various aids are also being utilised by different teachers. According to Breslin (2010a), teachers may have their own learning objectives, but how they follow this is up to them. At present there is limited information or monitoring of the use of OHS teaching aids used by the teachers. In Shearn's study (2006), teachers expressed that the school guidance materials provided only broad requirements for teaching, and the selection of the method for safety education depended upon the nature of the subject or topic, the preferences of the teacher or students, and the availability of resources. Similar inconsistencies in delivery of OHS were found in other countries (European Agency for Safety and Health at Work, 2009a; Salminen & Palukka, 2007; Schulte, et al., 2005). Based on these studies, a specific approach is needed to address the issue of OHS delivery, and all these inconsistencies imply a need of standardization of OHS education.

5.3.3.2   Lack of teachers' training on OHS education

A majority of teachers had received some training in OHS education, from a range of sources, most commonly in-service training, but also off-site formal training, health and safety representative training and industry experience. It is significant  that one in every six responding teachers (16%) providing OHS education had not been trained and younger teachers were twice as likely as older teachers to have had no formal OHS education training (24% and 12%, respectively). Salminen and Palukka (2007) state that almost three out of ten teachers (28%) in Finland teach OHS without having any formal education in the subject. However, the Finnish data did not subdivided by age or gender. Schulte and co-workers (2005) also mentioned a similar lack of training of teachers providing OHS education.

The survey found that some teachers have little or no experience in wider industry and having commenced teaching careers following secondary and tertiary education. Their experience may be limited to the education sector. The survey highlighted a need for the routine provision of formal teacher training. This need for training is also endorsed by the European Agency for Safety and Health at Work (2009a). It has been recognized that teachers need training in how to deliver safety education, and if they do not have such training they may be reluctant to teach it, particularly if it is not a compulsory topic (European Agency for Safety and Health at Work, 2009a). Not surprisingly, the survey revealed that more experienced teachers were likely to report a positive student response, with less experienced teachers likely to have less knowledge and confidence in teaching the topic.

5.3.3.3    Use and usefulness of resources

The findings suggest that teachers are moving away from more traditional teaching methods and embracing new technology. Websites were the most commonly (79%) used resources for teaching OHS. It is worthwhile to mention here that, South Australia was one of the pioneers in web resources in OHS, for example 'Virtual Hotel' in the late 1990's. So, it is not really surprising that teachers use websites. The current 'youth@work' website has a teachers' toolbox, and it was in the process of development at the time of the survey.

Data from Finland showed that only 14% teachers used web based material despite good access to Internet and in terms of traditional materials, and South Australian teachers made less use of text books compared to Finnish teachers (Salminen & Palukka, 2007). This has implications in terms of OHS education design and implementation. The OHS education needs more attention as to how the materials should be made available to the teachers and in what effective format.

When it comes to the usefulness of resources the teachers mentioned in their responses above, the picture changes considerably. Guest lecturers were given the highest rating.  This is perhaps comprehensible as the schools select persons who are specialised in the field and thought to be suitable for and acceptable to the students.

High usefulness was reported for case studies and websites, suggesting the preferences for resources that rely on current technology and provide examples from real life situations.

5.3.3.4    Content, accessibility and appropriateness of resources

The survey findings show that the majority of teachers surveyed (75%) considered the contents both accessible and appropriate for the developmental level and capabilities of most students. On the other hand, some of the respondents commented that teaching materials often contained too much information specifically related to theory and legislation, resulting in poor student response. The systematic literature review highlighted a similar notion that, adequacy and the need for specific relevant content in the training materials is important. Too much information given at one time, inappropriate formats, and hard to read materials were cited as reasons for ineffective OHS training. These findings are consistent with other general OHS training criteria (Goldenhar & Schulte, 1996; NIOSH, 2004). In an evaluation of a health and

safety awareness program conducted in the USA, hands-on activities were also highly rated by teachers and ready-to-use lesson plans were well accepted by teachers (Linker, et al., 2005).

The results of the systematic literature review also stressed participatory, interactive and hands-on training. These findings, though industry-specific, are consistent with other established training approaches that have been recognized to be useful and effective (Berthelette, et al., 2000; Culvenor, et al., 1996; Mayhew & Simpson, 2002). Furthermore, Shearn (2006) added that group discussion about safety issues can contribute to the development of skills such as weighing up evidence, recognizing available choices, appraising alternatives and making decisions and communication. It is thus important to apply these principles in designing training and educational interventions for young workers.

In terms of content, it was suggested that a school's role should focus on providing an introduction to OHS, prior to job-specific training provided by employers.  Thus, the information in schools would be basic and generic. However, there may be disadvantages in a generic approach. According to Breslin (2010a), there are varied categories of young workers in a class, making it difficult to administer a generic curriculum to meet the need of all. Also, care should be taken to be inclusive to cover important topic areas and all students. Davis & Pollack (1995) suggested a focus on hazard recognition, understanding of the principles of hazard control and health and safety rights.  However, it has been argued that simply imparting safety knowledge is unlikely to lead to behaviour change; changing beliefs and attitudes is crucial (Blair, et al., 2004; Shearn, 2006). In addition, another study highlighted a need to promote self-advocacy skills in youth workers and workplace willingness for change, arguing that such a tool is also crucial in enabling health and safety knowledge to be put into practice (Chin, et al., 2010).

Generic topics such as legislation were considered by many survey respondents to be challenging to teach, particularly in terms of gaining student interest and engagement, and supporting the view that information alone is of limited value. The presentation and delivery approach for the generic topics needs to be relevant and important to students. Generic topics need to be clear in the minds of students in relation to their importance in real life. In this way, students are more likely to become engaged in the learning and that educational intervention may foster positive changes in them.

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The questionnaire survey asked teachers whether they believed that their students gained significant knowledge in OHS. Teachers who used video material were almost three times more likely to report that students gained significant knowledge, suggesting that this mode of delivery may be appropriate for delivering the "information" component. In a UK study, teachers also identified a number of benefits of using videos, including their potential to raise awareness, to act as a catalyst for group discussion, and to provide graphic illustration, while highlighting a need for the presentation to be age-appropriate and culturally up-to-date in order to gain students' acceptance (Shearn, 2006).

5.3.3.5   Complementary roles for school and industry

The teachers' commented that the effectiveness of OHS education was limited by the lack of a strong partnership with industry. Some studies suggest that young workers often do not receive any on-the-job OHS training (Aumann, et al., 2007; Smith & Mustard, 2007). Similarly, Breslin (2011) found that young workers who are not participating in any schooling, early school leavers and those who enter the workforce immediately upon graduating from high school are disproportionately overrepresented in occupational injury statistics. However, this may be due to involvement in risky jobs rather than not being trained. It is important to note that many students entering the workforce are without proper exposure to OHS education as they do not receive OHS education neither from the schools nor from workplace through on-the-job training. The Australian Heads of Workplace Safety Authorities (HWSA, 2009 ) survey of the hospitality industry found that most workers were receiving training. However, the review of this study shows there was a selection bias for the workplace visited by inspectors. This suggests the importance of designing OHS education intervention for future young workers that encourages participation and ensures that all students are covered before going into labour market. This may need collaboration between and complementary roles for school and industry. A similar opinion was expressed by Breslin (2010b).

Many of the survey respondents commented that industry support in school-based OHS education plays an important role. Specifically, it was suggested that industry recognition would serve as a considerable incentive for schools to deliver an OHS qualification. Supporting this suggestion, a Finnish study found that most schools would introduce a short course leading to a safety qualification, if it were required by employers (Salminen &

Palukka, 2007). This suggests that all school-based OHS education should be delivered with the input and support of industry. Schulte et al (2005a) argued that without management commitment, the effectiveness of OHS training will be limited. In addition, particularly in relation to those industries that commonly employ young people, industry input would magnify the relevance of the curriculum.

In terms of the role of industry in effective OHS education, Breslin (2010a) argued that there is ambiguity over the responsibility of school and industry as schools consider OHS education will be given by industry, and industry deem that schools will provide training. He strongly suggested that there should be an established link between school and industry and that they should work synergistically. He also suggested that the linkage between the stakeholders should be coordinated by the government body which is responsible legally for workers' safety, for example the Ministry of Labour. According to Breslin (2010a), industry lacks incentive to train young workers as most of them are temporary and short term workers. Furthermore, many of them are in small business sector where future training is challenging. He also commented that OHS legislation should ensure that employers provide OHS education prior to young workers entry to work.

5.3.3.6   Integration of OHS into the curriculum

The issue of integration of OHS in the curriculum has received considerable discussion. In an online survey about training, unsafe work conditions, work injuries and safety knowledge, Breslin (2011) found that youth who had received information about work safety from their school consistently scored better on all quiz questions than those who reported not receiving any information from school. Despite the general recognition of the importance of OHS education, together with the access to high-quality resources, the lack of formal integration in the curriculum suggests that OHS education is largely dependent on the initiative of individual schools and teachers. Based on the available information, it appears that OHS education in South Australian secondary schools faces similar challenges to those identified elsewhere.

School-wide work experience programs are not offered by all schools, and there is no requirement to teach OHS in compulsory subjects. Therefore it is possible that some senior secondary students, particularly those focusing on entry to higher education, do not receive any school-based OHS education. Curriculum statements of South Australian Certificate of

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Education (SACE) suggest that selection of optional topics should be based on "student interest, and teacher experience" (SACE Board of SA, 2010b). Some international studies also expressed similar concern and show that school-based OHS education is not mandated and is characterised by a lack of formal integration in the curriculum, with limited OHS content within relevant subjects (European Agency for Safety and Health at Work, 2009; Salminen & Palukka, 2007; Schulte, et al., 2005).

In terms of the route of delivery, a cross-curricular approach has been suggested by EASHW (2009) in which relevant OHS topics are embedded in subjects of study (European Agency for Safety and Health at Work, 2009). However, a stand-alone introduction, in conjunction with school-wide work experience programs was recommended by teachers to maximise the impact of OHS education. To reach as many students as possible, targeting compulsory subjects would be most effective.

In South Australia, OHS is generally integrated into subjects, particularly in curriculum areas such as science, physical education, health education and citizenship. Overall, the available information suggests that school-based OHS Education in the European Union is at a similar stage of development as that in South Australia. Teachers have strongly expressed their views in support of inclusion of OHS into the formal curriculum, but the parents had a mixed opinion on this. A consensus among all stakeholders on this issue would be desirable.

5.3.3.7   Barriers and incentives

Survey participants identified limited time availability, often due to the demands of a 'crowded curriculum', as a major barrier to effective OHS education which is consistent with the report on focus groups. This suggests a need for proper balance in curriculum composition in terms of topics covered.

Lack of consistency in school-based OHS education was another major issue of concern for survey participants. To address these concerns OHS education should be based on a prescribed standard and delivered to all secondary school students.

Lack of high quality educational resources was also cited as a barrier by some of the survey participants. Despite the availability of a large amount of OHS educational resources, focus group participants identified a need to improve access to high quality resources, particularly

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those that promote student engagement. This concern about the quality of resources may reveal a need to improve existing resources, a lack of awareness of the available resources, or problems with accessibility.

Almost one third of teachers indicated that students respond negatively, commenting that students find OHS education boring. Teachers described the underlying reasons behind negative responses may be due to that students may be disinterested if they are already in the workforce and a lack of relevance for those not yet in the workforce. Class-room discussion may be a useful tool for effectively engaging those students already in the workforce. This is consistent with other research highlighting that more than half of the secondary school teachers prefer discussion with students as a teaching method of OHS (Salminen & Palukka, 2007). In formulating and developing OHS resources, the issue of time-pressure should be recognised.

### 5.3.4 Stakeholders' perspectives (Chapter 3 and Chapter 4)

This section presents the stakeholders' perspectives on the process and outcomes of school-based OHS education. It examines about the response of teachers about their level of support for OHS education in secondary schools and also describes parents' views on school-based OHS education.

### 5.3.4.1 Teacher's perspectives (Chapter 3)

Research question 1.2: What are the perspectives of teachers?

Support of teaching OHS in secondary schools

Results from this study demonstrate that the teaching of OHS in secondary schools was strongly supported by respondents. This is consistent with widespread international recognition of the importance of providing school-based OHS education (Davis & Pollack, 1995; Linker, et al., 2005; NIOSH, 2004; Schulte, et al., 2005a). The report of the European Agency for Safety and Health at Work (2009b ) emphasizes on how safety education can be made sustainable by rooting it in the mainstream curricula and convey this message to the policymakers and individual education authorities. This report demonstrates that there is substantial development and efforts made in terms of both implemented and planned actions. The report also highlights the efforts towards mainstreaming OSH education into the

curricula. In a qualitative study (Shearn, 2006), it was also found that teachers were already motivated to provide safety education for students at high schools.

This is the first study to examine the perspectives of teachers on the support provided by management and other teachers. Many teachers indicated that both the school management and other teaching staff were supportive of OHS education.

Support to integrate OHS into the curriculum

Most of the teachers' comments were related to the curriculum and resources. It was suggested that the quality of OHS education would be improved if it was formally integrated in the curriculum. Suggestion was also in favour of making the topic compulsory and standardised, with assessment provided and credit awarded. Almost half of the suggestions referred to a need for better accessibility and quality of teaching resources. This thesis findings and other studies (Linker, et al., 2005; Shearn, 2006) contend that high-quality resources should be distributed to schools, at no cost, and that teachers should be made more aware of appropriate resources available.

In terms of resource type, teachers advised more accessible and higher quality online resources and DVDs. To be most effective, it was suggested that the resources should be up-to-date, comprehensible and appropriate for the target age group, and suitable for all literacy levels. Online resources were used and considered useful by the majority of teachers; however, many reported difficulties with accessing these resources. Therefore, this study recommends that schools should have easy access to online resources.

Predictors of effective OHS education (Chapter 3)

Research question 1.3: What teaching/school factors are associated with positive learning outcomes (as perceived by the teachers)?

In the process of investigation, a number of potential predictors of effective OSH education were identified which are consistent with the literature. The use of videos was significantly associated with a teacher-reported gain in knowledge by students, suggesting that this is an appropriate vehicle for the information component. Similarly, experienced teachers, presumably because they have more knowledge and confidence in teaching the topic, were more likely to find the concepts easy to teach and to report that students responded positively.

Improved access and quality of teacher training is suggested as a way to address gaps in knowledge.

The use of case studies and teaching in public schools was associated with reporting high levels of student participation and engagement. Case studies have the potential to raise awareness of potential consequences of unsafe behaviour in a way that students can relate to, thereby promoting engagement and potentially changing attitudes and beliefs. Students in public schools may be more likely to be engaged due to higher levels of workplace experience, again highlighting the importance of relevance. Employing class discussion is suggested as a way of drawing on the knowledge and first-hand experience of these students.

Finally, teachers in metropolitan locations were almost twice as likely to find the concepts easy to teach, suggesting a need to address the particular challenges faced by rural teachers. Teachers from rural schools, some of which are very small, presumably have less access to resources, training opportunities and teaching support.

Attitudes and beliefs of students

In terms of attitudes and beliefs of students, teachers recognized characteristics of young people that make teaching OHS particularly challenging, including a predisposition to risk-taking behaviour. It is also of concern that some teachers identified a perception among students that accidents cannot be prevented. Other suggested reasons for negative student responses included, among those in the workforce, is a general belief that they know enough already, and among those not yet in the workforce, a lack of relevance. In addition, repetition due to the delivery of OHS education within a variety of subjects and programs was cited as a reason for students' disinterest. To be most effective, programs and resources should be tailored to young people, taking their unique views and characteristics into account.

Dealing with the attitudes and beliefs component of OHS education, survey respondents identified a need to address risk-taking tendencies and attitudes by raising awareness of the consequences of unsafe behaviour. Case studies may be a relevant vehicle for awareness-raising. The questionnaire revealed that teachers who used case studies were more than twice as likely to report a high level of student engagement and participation. Likewise, in the study by Shearn (2006), teachers reported that students respond positively to case studies that are based on incidents with which students can identify.

In modifying attitudes and beliefs, the importance of relevance should not be underestimated, and may explain the finding that teachers from public schools were more than twice as likely as those working in private schools to report a high level of student participation and engagement. It seems likely that public school students, having a lower socioeconomic status, would be more likely to engage in part-time employment, and therefore, find the topic relevant. This possibility needs further exploration.

5.3.4.2   Parents understanding about OHS education in school (Chapter 4)

Research question 2: How do parents understand OHS education in schools?

The results in chapter 4 suggest that parents are not aware of any kind of preparation their child received from schools or workplaces for work related hazards. Parents believed that OHS meant wearing appropriate footwear, school uniform, goggles, hat, clothing and other PPE. Some of them expressed their OHS concerns around their child's immediate safety and protective actions while they are at schools and workplaces.

The findings also reflect parental unawareness about work related hazards and OHS education. This was also mentioned by Runyan and Schulman (2011). Their study recommends further research to enhance parents' success in making work safe for teens. Other studies also suggests that interventions aimed at parents and teens to reduce hazards associated with teen work can also prevent work-related injuries (Ginsburg, et al., 2009; Richter & Jacobs, 1991).

The findings suggest that parents need to be more familiar with their children's school information. The literature review also points to a need to understand parents' views about adolescent work. In a telephone survey findings of parents of working adolescents conducted by Runyan (2009) found that 40-50% parents were concerned about adolescents working alone or not having adequate safety training. Many of them expressed that OHS knowledge was the result of 'common sense'. However, they were not sure that school OHS education had any effect on their child's OHS behaviours and this suggests that they need more information on OHS by giving access to the school-based OHS education.

### 5.3.4.3 Difference and concordance of views and perceptions of the stakeholders

The results from chapter 4 shows that OHS views of the parents are different from that of the teachers in various ways. Some parents stated that incorporating OHS into the curriculum is important, but it should be precise and specific, so that their children need not spend a lot of time on this, and that it does not detract from their primary objective of having effective mainstream education. However parents were not aware of any kind of preparation their child received from schools or workplaces for work related hazards. They understood that OHS in some sense which reinforces their children's safety behaviour in their daily life. Some authors suggest that OHS education would be more influential if parents' understanding was better and OHS would be better practiced by their children (Hoover-Dempsey & Sander, 1995). It is evident from the findings that the concepts of OHS education differ from the high school teachers involved in this study. As a result, students may not be receiving consistent messages from home and schools about how OHS is to be practiced in the workplace. This mismatch between parents and teachers views should be addressed in future research.

Some parents were quite aware of teachers' lack of background in teaching OHS education in their child's school. In expressing their opinion about teachers' ability to provide OHS education, they were confident that teachers are quite capable of teaching OHS if they have proper direction. The following excerpts support this view that there should be the right people to deliver this education.

> *"As long as they are educated fully in teaching it, you can't teach something that you are not yourself educated in. So if they are properly prepared and educated, I would be very happy.  Not that someone is just making things up as they go, or trying to figure it out themselves as they teach it"' (Interview 6)*

> *"I think they (teachers) would have to be taught it (OHS) first." (Interview 3)*

Parents also suggested that using real-life experienced speakers as guest lecturers would be very effective and relevant. This approach was also suggested by teachers in current study and also by transition brokers and VET co-ordinators.  The following excerpts of Chapter 4 of this thesis are relevant in this respect.

*"Yes, I just think they need a, a talk on it or if they have guest speakers come to the school and they'll tell them about something or rather, it should be in that kind of way that they have a talk or they have several talks in case for students that are away that miss it you know." (Interview 10)*

*"Probably teachers may not be the best person to do it, maybe an outside person or guest lecturer who is more experienced in that area could just come in and give a seminar on it." (Interview 5)*

Addressing parents' understanding is an important aspect of effective learning for students and may contribute to develop an effective school-based OHS education. The current target audience of OHS education is the students, and parent interview data suggest extending this to parents. This will help reinforcement of the OHS education approach in high schools as parents have a great influence on their children's learning experience and they are the central force in preparing their children for future work.

## 5.4 Strengths and limitations

### 5.4.1 Strengths of the research

There are several strengths of this research. The most important is the complementary sources of information which integrates an assessment of teachers' practices and attitudes regarding school-based OHS education, a literature review of effective OHS education for young workers and perspectives of parents of year 11 students. The complementary mixed methods (quantitative and qualitative) enabled triangulation of the findings and made it more verifiable.

Methodologically, the design of the teacher questionnaire survey was sound. Much attention and effort to the development of the questionnaire, sampling procedure, and the management of data ensured the high quality of the survey. Prior to development of the questionnaire, there were focus group discussions and input of advisors. A strength in the questionnaire was its open-ended questions which allowed the investigator to validate some of the reported information.

Moreover, there were methods of accessing information on a broad range of topic areas and issues related to the public and private schools with a reasonably large sample size in order to

examine the effects of different socio-demographic attributes of the teachers including age, gender, length of teaching experience and training.

In the selection process, participation of parents for interview was unique and achieved by involving the school principals and using the school newsletters as a means to reach the parents to invite them to participate in the interviews.

## 5.4.2 Limitations of the research

One of the limitations of this research was it did not seek the views of students, policy makers and the Regulatory body (SafeworkSA) as this was technically and practically difficult. This limitation on stakeholders could limit the scope of generalizability of the results.

Another limitation is the teachers did not officially represent the school's management. This research could not establish exactly how much teaching was actually occurring in each school that responded. The survey was unable to determine the response rate of OHS teachers because no information was available on the number of teachers who teach the topic. However, the data are consistent with findings of the focus group discussions. In addition, school principals were sought in identifying relevant teachers who were most involved in OHS education to participate.

The inherent methodological limitation of a cross sectional study is, the research was conducted at a particular point of time. Survey of teachers only represents their practice and their opinions at one point of time. A prospective study would be more likely to reveal cause and effect relationships, as well as trends. The conclusions must also be limited by the fact that only teachers' perspectives were assessed and the measures were self-reported and therefore subjective, particularly the effectiveness-related outcome measures. In future effectiveness evaluations, assessment of students' perspectives and the more objective outcomes of behaviour change and injury reduction would allow for more definite conclusions to be reached.

A weakness of statistical review of South Australian workers compensation data is the fact that it do not actually have the accurate reporting of injuries of young workers as there is possibility of under-reporting and claims lodgement of the injuries. A limitation of the

parents' interviews was the possible inability to reach the point of saturation, because of constraints of time and resources.

## 5.5 Conclusions

Teachers identified the challenges of time constraints and the lack of standardization. In terms of teaching methods, the survey, and other studies, suggests that those that are engaging, interactive and face-to-face are most effective. In the face-to-face component, teachers should incorporate case studies and class discussion, including the sharing of real-life experiences in the workplace. As recognized previously (Bazas, et al., 2002a; Schulte, et al., 2005a), it is important that future OHS education initiatives be subject to rigorous evaluation. Preferably, evaluation should be in the form of longitudinal studies, and in a collaborative evidence-based mode. Outcomes should be evaluated in terms of increases in student knowledge (Bazas, et al., 2002a), and ultimately in terms of behaviours and injuries.

There is a need to recognise parents' concerns and perceptions regarding schools based OHS education. Although parents were more concerned about their child's safety, and protective equipment for their daily life activities and also about classroom and workplace safety, they highlighted the need for making their child aware about dangers, rights and responsibilities before getting involved in the workplace. This suggests that schools should make them aware about OHS education and involve them in the provision of OHS education. The complementary role of schools and industry was also highlighted.

## 5.6 The Conceptual Framework for effective introductory OHS education

The key findings of the research may be used to develop a conceptual framework of effective OHS education. This includes the findings of the literature review on effective OHS education approaches for young workers, the current practice on school-based OHS education and the perspectives of teachers and parents. The elements of the framework consist of those which either influence the effectiveness of education or recognise the characteristics of the teachers, students and parents and other stakeholders.

### 5.6.1 Development of a conceptual framework

This section describes the steps that may be taken in the development of a conceptual framework. It also identifies the organizations and individuals who influence the process, and how these relate to each other, including complementary roles of industry and schools.

<u>Identifying relevant literature</u>

The Institute of Work and Health (Robson, Schulte, Amick, Chan, Bielecky, Wang, 2010 ) has recently developed a conceptual framework of training from a systematic review of the effectiveness of workers training and education. This report presents the conceptual framework of workplace training interventions for primary prevention in OHS and summarises the relationships between the training factors, individual factors and workplace factors with immediate outcomes, intermediate outcomes and with impacts of training (Figure 5.1).
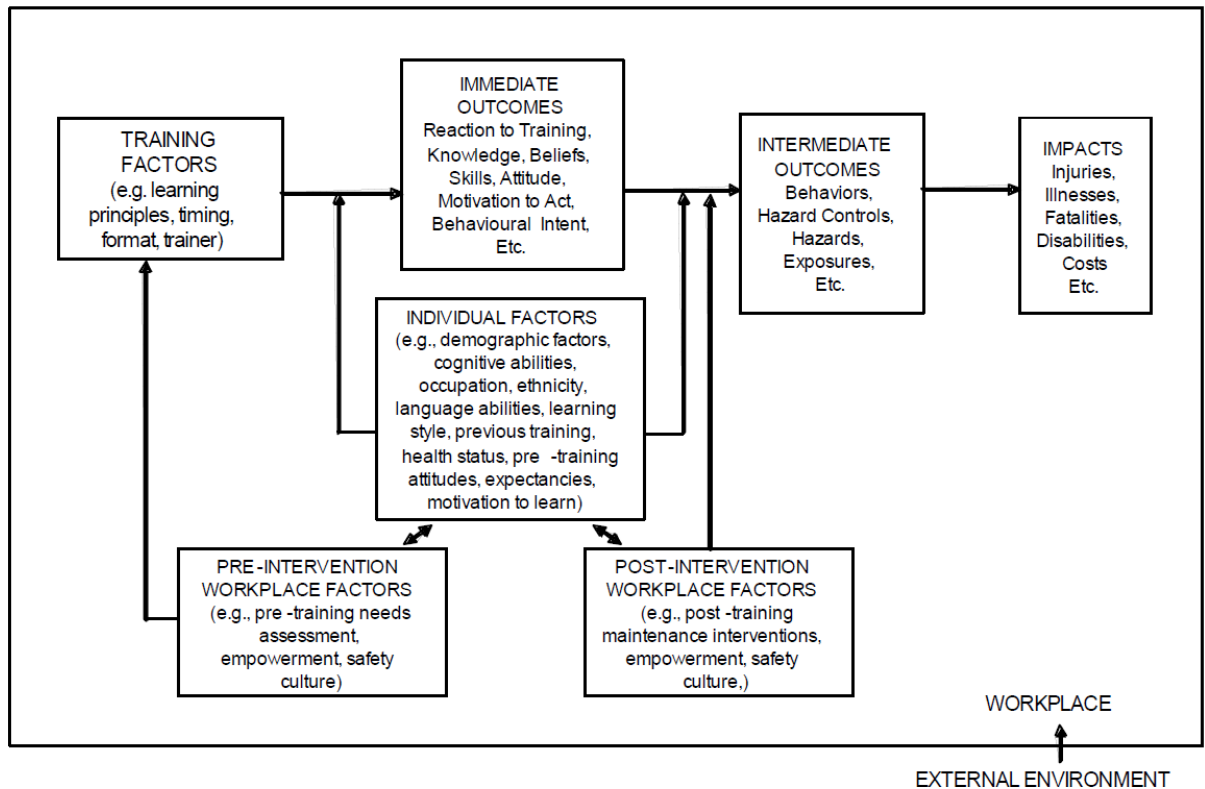
Adopted from IWH Report 2010

**Figure 5.1: A conceptual model of workplace training interventions for primary prevention in OHS**

The principal findings of this IWH (2010) report show that there is a positive association between OHS training and the knowledge and attitudes of workers which is supported by other evaluation studies (Lerman, et al., 1998; Linker, et al., 2005). However, Crowe (1995) found that, for young workers, there may not be always positive associations between OHS training and knowledge as young workers' situation is different. There are many issues with individual factors of young workers, for example, physical development, cognitive developments and risk taking behaviours.

While much of the literature suggests that training and education has an important positive impact on workers' health and safety (Bazas, et al., 2002), the findings of this IWH report concluded that there is insufficient evidence of the effectiveness of training.

However, this report did not consider in detail parents, peers, or teachers. The report considered general learning principles and did not discuss training that needs to be relevant for any particular age group. For young workers there must be some special consideration

which is different from the older workers and represents very basic starting point for a conceptual framework for young workers.

The IWH (2010) report also claims that there is insufficient evidence that high engagement training is more effective than medium or low engagement training. This is in contrast to Burke's review ( 2006), which found that highly engaging and participatory training methods were more effective in greater knowledge acquisition and consequently in reducing accidents and hazards.

Another conceptual framework (Figure 5.2) was proposed by a study conducted by Westaby and Lowe (2005) when examining how social influence and risk-taking orientation impact youth injury at work.
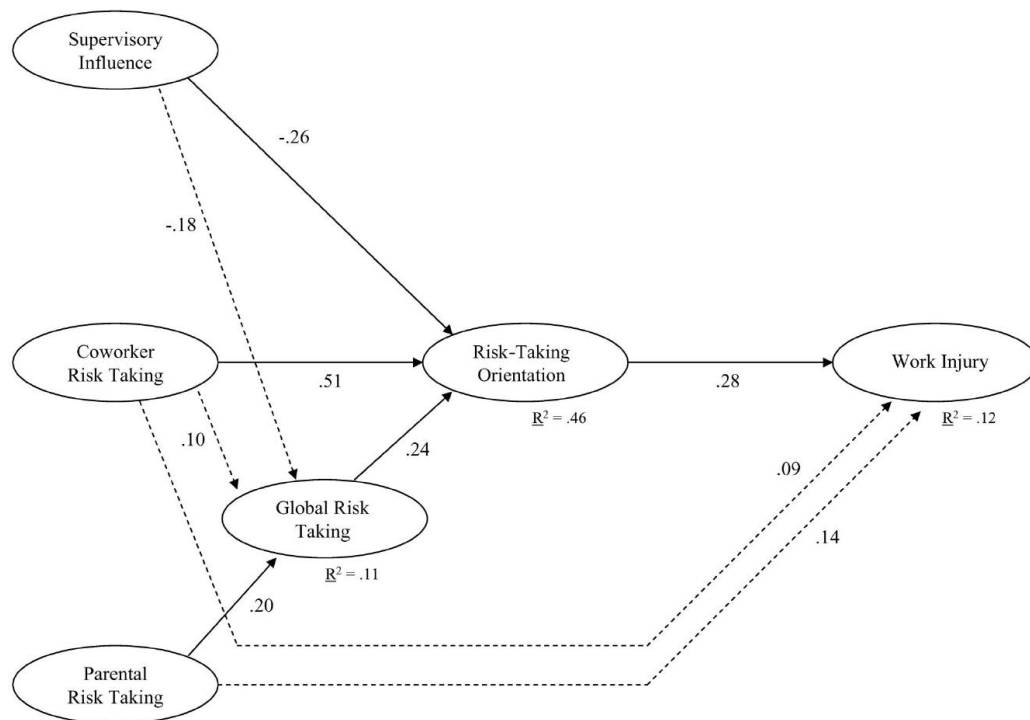


Adopted from Westaby and Lowe 2005

**Figure 5.2: Linkages between parental and co-worker risk taking and work injury**

This study examined the impact of parental risk taking on youths' risk perceptions and a positive association was found between perceived parental risk taking and youths' risk taking. Figure 5.2, adopted from Westaby (2005) shows the linkages between parental and co-worker

risk taking and work injury. Parents were shown as one of the contributors in the process of developing a conceptual framework for OHS education.

The current research examining teacher and parent perspectives also suggests parents as an important contributor and stresses a participatory, interactive and hands-on training for young workers.

### 5.6.2   The elements of the conceptual framework

The findings of conjunction with other literature (for example, IWH 2010 and Westaby 2005) suggest a framework which addresses the following questions:

- who is involved in OHS Education

- who should actually be teaching

- when it should be taught

- what and how should it be taught

### 5.6.2.1   Who is involved in OHS Education?

It is important to understand the contributors and their influences in the case of school-based OHS education. From the empirical research of this thesis (Chapter 3 and Chapter 4), it can be argued that the high school teachers and the students are the important players involved in OHS educational framework. Apart from the direct relationship between teacher and student, there are a number of influences on teachers and students.

Schools have a duty of care to provide a safe learning environment, and providing suitable safety instruction for laboratories, field trips, workshops. Schools decide when OHS is to be taught as a part of the OHS education process. The selection of the teachers who are providing OHS education also depends on the schools' decision. Industries may affect the schools through the transition brokers as they provide a link between the teachers, schools and industries, and the education departments (DECS) may be influenced by the industry and the regulatory body, for example by Safe Work SA. Peers and industry (i e. co-workers and supervisors) may influence students in part-time employment.

Therefore all these groups contribute in the process to achieve effective learning for students, and ultimately improve behaviours. Hence there is a need to work with these different groups of people.

The following figure (Figure 5.3) show the complexities and dynamics involved in OHS educational framework:
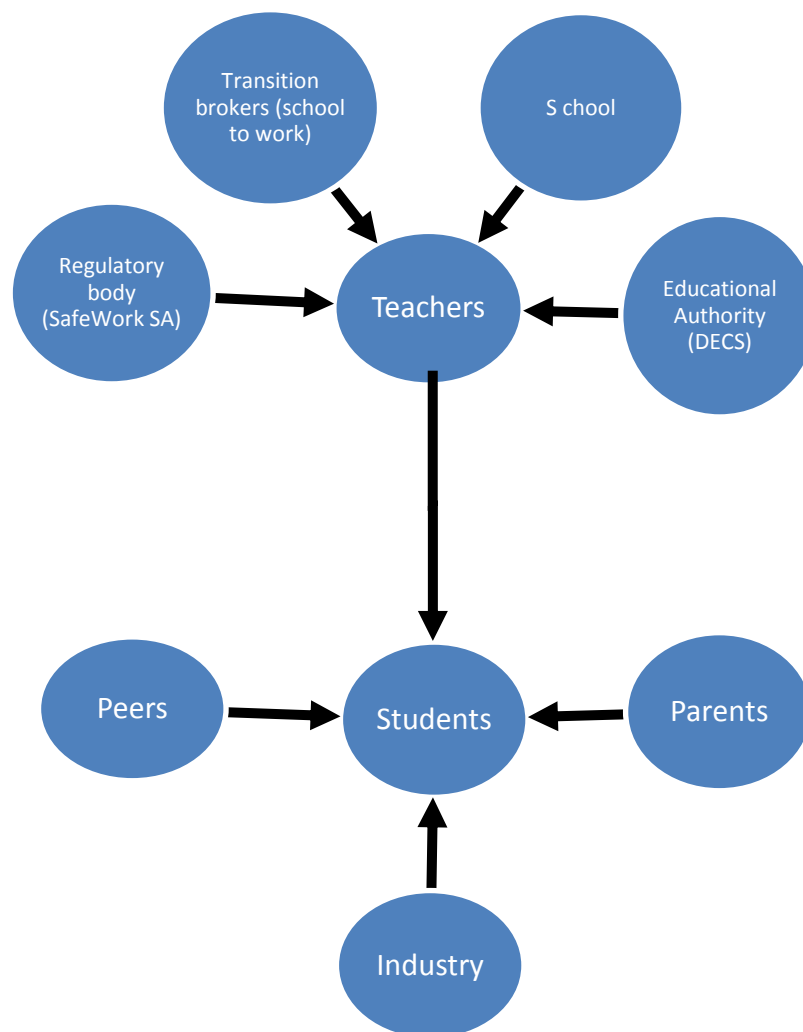


Figure 5.3: Influence of the contributors in OHS educational framework

5.6.2.2   Who should actually be teaching?

The people who teach the OHS education are mainly teachers.  They should receive training and have ready access to information and resources.

Although parents admitted that they knew very little about their child's school's OHS initiatives, they are an important influence on their children's learning experience and can either be positive or negative influences (See. Fig 5.2, Westaby and Lowe 2005).

5.6.2.3   When it should be taught?

Figure 5.4 shows the type of education from year 7 to year 12, where in year 10 the fundamentals are taught, in preparation for work experience, although some students may already have work experience in family businesses etc.



| Year 7 | | Year 10 | | Year 11-12 |
|---|---|---|---|---|
| • Awareness | ⇨ | • Fundamental OHS education (work experience) | ⇨ | • Advanced OHS education (mostly hazards management) |
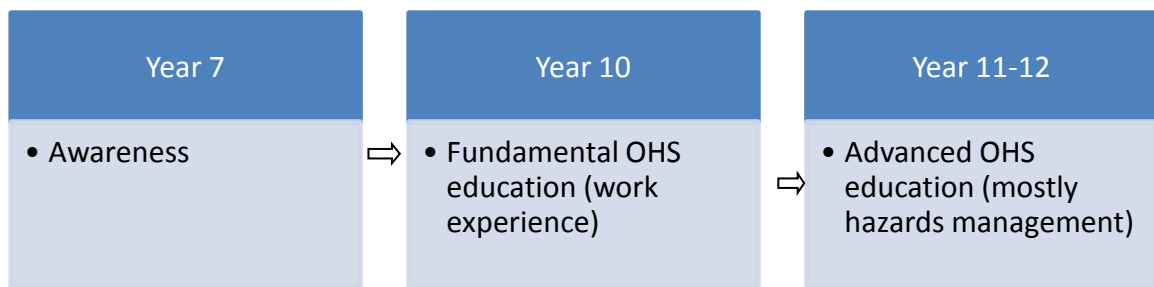
**Figure 5.4: Timing of OHS education provision and steps**

Figure 5.5 provides an overall picture of contributors, timing, the type of content and focus of the instruction.
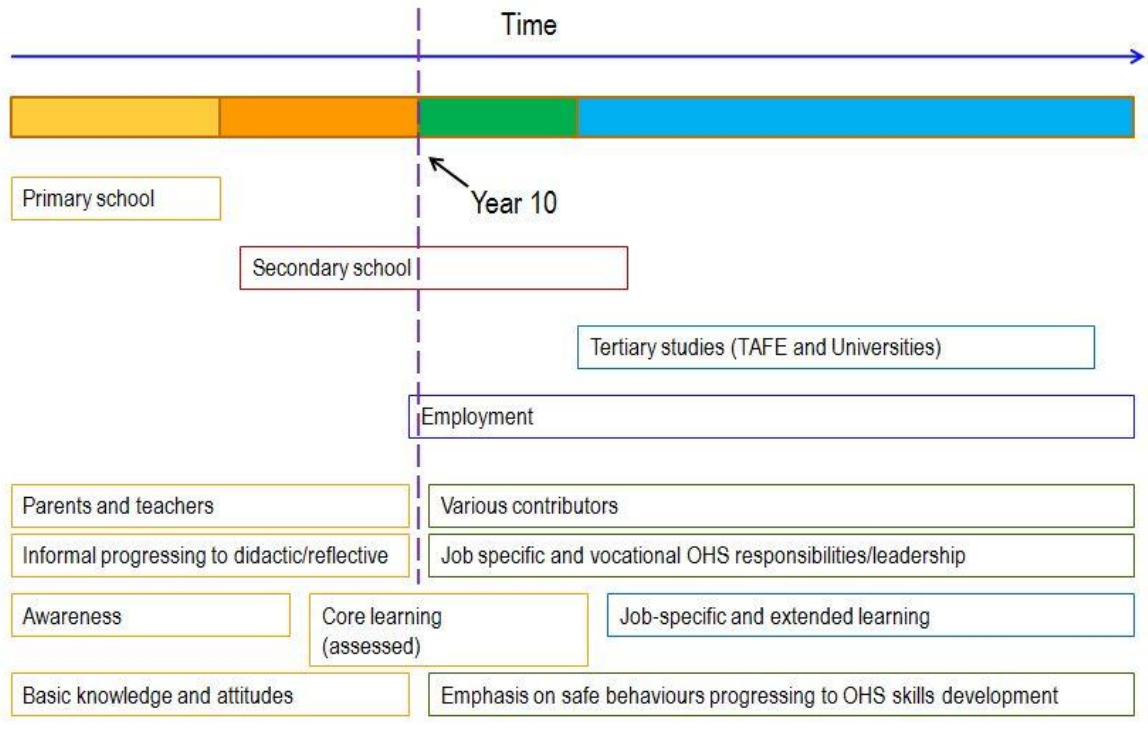


**Figure 5.5: OHS education from primary to tertiary level**

5.6.2.4   What and how should it be taught?

As discussed previously, three fourth (75%) of the teachers suggested accessible and appropriate contents for the developmental level and capabilities of most student. The findings of the systematic literature review also stressed participatory, interactive and hands-on training. Findings also suggest that school should provide basic and generic information.

Complementary roles of schools and industries

OHS education for young workers should recognise the importance of relationship between schools and industries.  Industries have legal responsibilities for safe work environment. It  is important that appropriate actions are formulated and implemented effectively.

This research has already focussed on the roles schools should play and what is necessary for the schools to deliver effective OHS education. The relationship between industries and schools is significant and should be complementary. Since schools are preparing students for

industry, they cannot disregard industries.   Figure 5.6 shows workplace training versus school-based OHS education.

| School<br><br>What is necessary for effective education | | Industry<br><br>What makes the education effective<br>(Systematic Rev) |
|---|---|---|
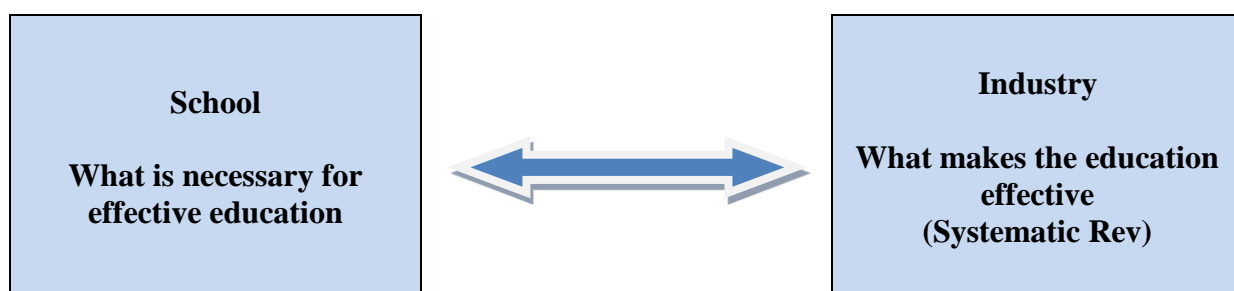
**Figure 5.6: Complementary roles of schools and industries**

Schools should give the students the opportunity to understand their rights and responsibilities, to consider the potential life changing implications of a workplace injury and share their experiences. Industries do not necessarily know what kinds of OHS training is being conducted at schools. If industries were more aware of OHS training in schools this may reinforce workers' OHS knowledge, and perhaps reduce duplication.

On the other hand, many schools do not have an adequate understanding of what occurs  in the industrial sector. As discussed earlier, there is a need for more clarity over the responsibility of school and industry. Ultimately, while industry has the legal responsibility to provide OHS training, schools have a duty of care. This important issue needs to be attended to by schools and industries in order to foster greater collaboration.

# CHAPTER 6    CONCLUSIONS AND RECOMMENDATIONS

## 6.1   Overview

This chapter addresses (1) the conclusions from the research, (2) the future research needs and (3) recommendations.

## 6.2   Summary of findings and conclusions

In chapter 1, the statistical review of injury claims in South Australia from 1998-2007 showed a declining incidence for young workers, but is still unacceptably high as an average of 1 in 15 young male workers make injury claims each year. The general literature review in Chapter 2 identified a limited number of studies relating to the effectiveness of school-based OHS education. In an attempt to further examine the issue of effectiveness, the scope of the review was broadened to include industry-based training.

The systematic review for the hospitality and food retailing sectors identified the essential elements of OHS education and emphasized participatory, adequate, interactive and hands-on training.

The teacher survey (Chapter 3) revealed a lack of consistency in the delivery of OHS education in South Australian high schools. It was a common held view among teachers that, to address these concerns, OHS education should be based on a prescribed standard and delivered to all high school students.

Teachers in the survey generally had considerable experience. However, one in six teachers providing OHS education had no formal training in OHS.

The teacher survey and focus group discussions revealed that two third of teachers considered OHS education as an essential part of the school's role in preparing students for the workplace. The majority of the teachers who had responded suggested that resources should be interesting, engaging, clear, concise, relevant, and age-appropriate.

The findings also suggest that, targeting compulsory subjects would be most effective, in terms of reaching the maximum number of students. In this respect, work experience programs provide an opportunity for introduction to OHS, and have the potential to reach

large student numbers regardless of subject choice. Other comments included the need for increased employer and parental support. Teachers believed that the effectiveness of OHS education was limited by the lack of a strong partnership with industry.

Time constraints and lack of standardization were two main challenges identified by the OHS education providers in schools. To promote engagement, generic topics must be presented in a way that highlights their relevance and importance and how knowledge could be applied in real-life situations. Additionally, they commented on financial constraints resulting in limited availability of OHS teaching materials, suggesting that more free or low-cost resources should be made available.

Chapter 3 presented the factors associated with positive learning outcome. Based on the findings from the bivariate and multivariate analysis, use of videos were significantly associated with a teacher-reported gain in knowledge by students, suggesting that this is an appropriate media for the information component.

Experienced teachers were more likely to find OHS concepts easy to teach and to report positive student responses. Public school students are more likely to be engaged in OHS education which may be due to higher levels of workplace experience. Moreover, employing class discussion is recommended as a way of drawing on the knowledge and firsthand experience of these students. Chapter 4 highlighted the parents' understanding of OHS. Based on the interview findings, it appears that parents are largely unaware of current practice in school-based OHS education. Predictably, parents expressed concern for their children's immediate safety in the workplace and schools, and viewed the integration of OHS education within the curriculum favourably, provided it is to-the-point and not at the expense of mainstream educational objectives.

From the results of the qualitative analysis in Chapter 4, it has become evident that parents are aware of teachers' lack of training in teaching OHS education in their child's school. Results also illustrated that the OHS views of the parents contrast from that of teachers. Additionally, the results highlighted the need for parents to increase their child's awareness of potential workplace dangers, rights and responsibilities.

## 6.3 Future research needs

Opinions and perceptions from students, policy makers and regulatory bodies regarding OHS education in schools should be included. Although, teachers were asked what they thought about students' learning, the lack of input directly from students limits the usefulness of these findings. A data gathering exercise will be necessary for all the elements of the conceptual framework.

As noted in Chapter 1, injury rates amongst young workers have been decreasing. However, the reasons for this decline are unknown and warrant further investigation. This is important to formulate strategies to maintain the decline or to escalate the rate of decline. The analysis also indicates that the decline is less obvious for serious injuries, and that older age groups and males are more likely to lodge a serious injury claim. This issue of serious injuries and gender differentials are important and demands further investigation. There should be rigorous evaluation of future OHS education initiatives, preferably with longitudinal studies, and in a collaborative evidence-based mode.

## 6.4 Recommendations

On the basis of the findings of this research, the following recommendations are made:

**A standard for secondary school OHS education, in terms of learning outcomes and process, should be prescribed.**

The survey identified concern about inconsistency, between schools, in approaches to OHS education. In accordance with this finding, international literature suggests that the quality of OHS education is dependent on the initiative of individual teachers and schools. Furthermore, survey participants indicated that they would feel more comfortable teaching OHS if expectations were clearly defined. An OHS education standard should be developed in consultation with stakeholders including education sector representatives, teachers, Government, employers, unions, students and parents. In setting the OHS education standard, it should be recognised that schools and employers have distinct, and complementary, roles in OHS education.

**A stand-alone, basic introduction to OHS should be provided to all secondary school students in South Australia**

The research findings, and the international literature, identify widespread agreement that school-based OHS education is important and should be provided. However, teachers reported that OHS delivery is inconsistent and that some students do not receive any OHS education at school. For most students, year 10 seems to be the most appropriate level for a stand-alone introduction, prior to work experience. Formal integration of OHS in school curriculums would ensure delivery to all students, not only those with a vocational focus. This is important since secondary school students cannot be sure of their future career directions.

**Teachers who teach OHS should be provided with suitable in-service training.**

Lack of training was identified by teachers as a limitation of their own, and other teachers' OHS teaching performance. The research findings recommend that in-service training should be routinely provided by each of the school sectors. This training should also focus on issues likely to be encountered by students, i.e. in hospitality or retail industries. In addition, teachers can be made more aware of appropriate resources available. The incorporation of OHS modules in university teacher training curricula would improve teachers' knowledge of OHS principles and practice.

**The course content and mode of delivery should be tailored to young workers' physical and psychosocial characteristics and the industries in which they typically work**

The course content and mode of delivery should be developed in consultation with stakeholders including teachers, parents, students, education sector representatives and employers. In addition, the characteristics of young people should be addressed, e.g. the tendency to engage in risk-taking behaviour, the influence of peer pressure and the influence of co-workers. In terms of the mode of delivery, highly engaging and participatory training methods have been demonstrated to be most effective in promoting greater knowledge acquisition. Furthermore, a face-to-face component incorporating case studies, videos and class discussion, and real-life workplace experiences could be included to improve OHS teaching.

**Incorporation of parents' views in the learning**

To avoid receiving inconsistent messages from home and schools about how OHS is to be practised, parents need to be more familiar with their children's school information. This could be achieved by engaging them in the school OHS education process by informing them through school newsletter or during parent teacher meetings. This will need a shift from the current student centred approach to a 'Student and Parent Centred' approach.

**Partnerships between education and industry should be strengthened.**

Teacher survey respondents suggested that school-based OHS education would benefit from an increased industry contribution. Specifically, it was suggested that industry recognition would provide an incentive for schools to deliver an OHS qualification. The possibility of formal industry recognition for a generic school-delivered OHS qualification, e.g. *Passport to Safety*, should be explored. Further collaboration between industry and the education sector should be facilitated to improve their mutual roles in OHS training.

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**APPENDICES**

# Appendix 1: Survey Questionnaire

**Survey questionnaire**

NOTE:
This appendix is included on pages 198-202 of the print copy
of the thesis held in the University of Adelaide Library.

**Appendix 2: Ethics approval letters**

**Ethics approval letter: Human Research Ethics Committee, University of Adelaide**

22 May 2008

Associate Professor DL Pisaniello
Discipline of Public Health

Dear   Associate Professor Pisaniello

**PROJECT NO:** *Improving the evidence base for effective OHS education in secondary schools*
**H-055-2008**

I write to advise you that I have approved the above project on behalf of the the Human Research
Ethics Committee.  Please refer to the enclosed endorsement sheet for further details and conditions
that may be applicable to this approval.

Approval is current for one year.  The expiry date for this project is: 31 May 2009

Where possible, participants taking part in the study should be given a copy of the Information Sheet
and the signed Consent Form to retain.

Please note that any changes to the project which might affect its continued ethical acceptability will
invalidate the project's approval.  In such cases an amended protocol must be submitted to the
Committee for further approval.  It is a condition of approval that you immediately report anything
which might warrant review of ethical approval including (a) serious or unexpected adverse effects on
participants (b) proposed changes in the protocol; and (c) unforeseen events that might affect
continued ethical acceptability of the project.  It is also a condition of approval that you inform the
Committee, giving reasons, if the project is discontinued before the expected date of completion.

A reporting form is available from the Committee's website.  This may be used to renew ethical
approval or report on project status including completion.

Yours sincerely

Professor Garrett Cullity
Convenor
Human Research Ethics Committee

4 December 2008

Associate Professor DL Pisaniello
Discipline of Public Health

Dear Associate Professor Pisaniello

**PROJECT NO:**    *Improving the evidence base for effective OHS education in secondary*
**H-055-2008**     *schools*

Thank you for your email dated 27.11.08 including the modified ethics application.

I write to advise you that on behalf of the Human Research Ethics Committee I have approved the variation request to conduct a questionnaire survey of teachers and to conduct focus groups with parents and students, as detailed in your email and attachments.

Thank you for providing a copy of the questionnaire. The information sheets for the focus groups and interviews need to be tailored to suit the specific participant group.  A specific parental/guardian consent form must also be completed before students can participate.  Would you please provide copies of these documents when finalised, along with an outline of the questions/themes to be discussed during the focus groups.

The ethical endorsement for the project applies for the period until 31 May 2009.

Yours sincerely

Professor Garrett Cullity
Convenor
Human Research Ethics Committee

**DECS approval letter**

**Government of South Australia**

Department of Education and
Children's Services

Community and Tertiary Liaison
Education Centre
Level 15/31 Flinders Street
Adelaide 5000
South Australia

Tel:  8226 2154
Fax:  8226 1815

DECS CS/08/0248.5

27 January 2009

Mr Dino Pisaniello
The University of Adelaide
Discipline of Public Health
Mail Drop 207
Level 9, 10 Pulteney Street
SOUTH AUSTRALIA 5005

Dear Mr Pisaniello

Your project titled 'project *"Improving the evidence base for effective OHS education in secondary schools"* has been reviewed by a senior DECS consultant with respect to protection from harm, informed consent, confidentiality and suitability of arrangements.  Subsequently, I am pleased to advise you that after careful consideration, following the provision of a satisfactory response to the issues/concerns raised by the reviewer, your project has been **approved**.

Please find below some comments made by the reviewer for your information along with the reviewer's contact details.

*"The original concerns relating to the lack of clarity in the research plan, nature of the questions, methods of selection and information about confidentiality and non identification of schools have been fully addressed."*

Ms Bev Rogers, Curriculum Director, Numeracy & Science., Curriculum Services, DECS. Phone: 8226 4387.

**Please supply the department with an electronic copy of the final report**, which will be circulated to interested staff and then made available to DECS educators for future reference.

I wish you well with your project.

**Maureen Cochram**
**A/DIRECTOR**
**COMMUNITY AND TERTIARY LIAISON**

**Government of South Australia**

Department of Education and
Children's Services

Community and Tertiary Liaison
Education Centre
Level 15/31 Flinders Street
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Tel:  8226 2154
Fax:  8226 1815

DECS CS/08/0248.5

27 January 2009

Dear Principal/Director/Site Manager

The research project titled *"Improving the evidence base for effective OHS education in secondary schools"* being conducted by *Mr Dino Pisaniello* from the University of Adelaide been reviewed centrally and granted approval for access to DECS sites.  However, the researcher will still need your agreement to proceed with this research at your site.

Once approval has been given at the local level, it is important to ensure that the researchers fulfil their responsibilities in obtaining informed consent as agreed, that individuals' confidentiality is preserved, and that safety precautions are in place.

Researchers are encouraged to provide feedback to sites used in their research, and you may want to make this one of the conditions for accessing your site.  To ensure maximum benefits to DECS, researchers are also asked to supply the department with a copy of their final report, which will be circulated to interested staff and then made available to DECS educators for future reference.

Please contact Elena Basmayor on (08) 8226 2154 for further clarification if required, or to obtain a copy of the final report.

Yours sincerely

**Maureen Cochram**
**A/DIRECTOR**
**COMMUNITY AND TERTIARY LIAISON**

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**Catholic school approval letter**

**Catholic Education Centre**

116 George Street  Thebarton  SA  5031
PO Box 179  Torrensville Plaza  South Australia  5031
Telephone: (08) 8301 6600
Facsimile: (08) 8301 6611
ISD: 61 8 8301 6600
Email: director@ceo.adl.catholic.edu.au
www.cesa.catholic.edu.au

**Catholic Education**
SOUTH AUSTRALIA

Mr Dino Pisaniello
Acting Professor in Occupational Health and Safety
The University of Adelaide
Level 9, Tower Building
10 Pulteney Street
ADELAIDE  SA  5000

Dear Dino

**RE: RESEARCH PROJECT – IMPROVING THE EVIDENCE BASE FOR EFFECTIVE OHS EDUCATION IN SECONDARY SCHOOLS**

I am writing in response to your letter in which you seek permission to conduct research relating to *Improving the Evidence Base for Effective OHS Education in Secondary Schools* with a focus on student transition from school to work and addressing strategic targets for injury reduction among young and new workers in South Australia.

I note that the project will involve teachers and VET coordinators in focus groups and short structured interviews.  I also note that approval for the project from the University of Adelaide Human Research Ethics Committee has been received.

Permission to approach Catholic Secondary Schools to participate in this research project is granted on the basis that individual students, schools and the Catholic sector itself is not specifically identified in published research data and conclusions.

Approval is also contingent upon the following conditions, i.e. that:

- A copy of any material being provided to the focus groups and interview questions has been provided to the Principal

- the permission of teachers and VET coordinators has been obtained

- the research complies with the ethics proposal of the University

- the research complies with any provisions under the Privacy Act that may require adherence by you as researcher in gathering and reporting data

- no comparison between schooling sectors is made

- sector requirements relating to child protection and police checks are met by researchers:

  o where researchers obtain information in relation to a student which suggests or indicates abuse, this information must be immediately conveyed to the Director of Catholic Education SA

  o all researchers and assistants, who in the course of the research interact in any way with students, are required to undertake a police check.

Information with regard to obtaining police clearance can be accessed at the website address: www.cesa.catholic.edu.au

Researchers should forward a certified copy of their National Police Certificate, which has been issued within the last three months, to the Catholic Archdiocese of Adelaide Police Check Unit at the Catholic Diocesan Centre, GPO Box 1364, Adelaide SA 5001. The Police Check Unit will then post a clearance letter to the researcher. Applicants will need to include their contact number and the role that will be performed and the location (e.g. Researcher, school name). The clearance letter must be provided to the Principal of each school.

Please accept my very best wishes for the research process.

Yours sincerely

HELEN O'BRIEN
ASSISTANT DIRECTOR – CATHOLIC EDUCATION SA

October 2008

**Appendix 3: Cover letter for Principals of the Schools**

**Cover letter for Principals**

**DISCIPLINE OF PUBLIC HEALTH**
SCHOOL OF POPULATION HEALTH & CLINICAL PRACTICE
FACULTY OF HEALTH SCIENCES

LEVEL 9, TOWER BUILDING
10 PULTENEY STREET

UNIVERSITY OF ADELAIDE
MDP 207
AUSTRALIA  SA  5005

The Principal
Allendale East Area School
c/- Post Office
Allendale East SA 5291

26 March 2009

Dear Principal,

We seek your assistance in conducting a survey of secondary school teachers involved with occupational health and safety education.  Along with this letter are 2 questionnaire packages concerning teacher experiences in the provision of OHS education.  *We would appreciate it if you would forward the packages to all those teachers who currently provide OHS education to prepare students for work experience or placements – e.g. VET coordinators or Work Experience Coordinators*

This project aims to understand current practices and experiences in order to improve OHS education. In turn, this will support efforts to better prepare students for the workplace and ultimately reduce workplace injuries in SA.

At the conclusion of the project, a summary of the findings will be sent to each school.  In addition, the survey results will be incorporated into a report providing recommendations on improving the effectiveness of OHS education for those entering the workforce.

The University of Adelaide is leading this project which has the support of key stakeholders including Business SA, SA Unions, SafeWork SA, DECS and other school sectors. *In addition, the project has been approved by DECS and the University of Adelaide Ethics Committee (approval no. H-055-2008).*

Please be assured that responses will be confidential and used only for research purposes by the University of Adelaide team, in accordance with strict ethics requirements.  Individuals and schools will not be identifiable. Further details of the arrangements are included in each package.  Once you have passed on the envelopes to the relevant teachers, we would be grateful if you would encourage them to send their response in the reply-paid envelopes within 2 weeks.

If you have any questions about the research, please contact Ms Sasha Stewart on 8313 1043 or email: sasha.stewart@adelaide.edu.au

Thanking you in advance.

Yours faithfully,

………………………..
A/Prof Dino Pisaniello
On behalf of the project team.

**Appendix 4: Letter to teachers**

**THE UNIVERSITY OF ADELAIDE**
**AUSTRALIA**

**DISCIPLINE OF PUBLIC HEALTH**
SCHOOL OF POPULATION HEALTH & CLINICAL PRACTICE
FACULTY OF HEALTH SCIENCES

LEVEL 9, TOWER BUILDING
10 PULTENEY STREET

UNIVERSITY OF ADELAIDE
MDP 207
AUSTRALIA  SA  5005

Dear Teacher,

We seek your input for a survey on occupational health and safety education.  Attached is a questionnaire that asks a variety of questions about opinions and experiences relating to OHS education.

This project aims to understand current practices and experiences in order to improve OHS education. In turn, this will support efforts to better prepare students for the workplace and ultimately reduce workplace injuries in SA. OHS education provided in secondary schools offers a unique opportunity for students to gain skills and knowledge in health and safety before they enter the workforce.  As a teacher with experience in preparing students for the workplace, your input would be greatly appreciated.

The survey should take you about 15 minutes to complete.  I hope you will take the time to complete this questionnaire and return it in the reply-paid envelope, **by 13ᵗʰ April**.

As an appreciation for the time taken to complete the survey, we would like to offer every respondent a $5 voucher for Gloria Jean's Coffee or a $5 scratch lottery ticket.  To receive the gift of your choice, please complete the enclosed form and return with the survey (forms and surveys will be handled separately).

Please be assured that responses will be confidential and used only for research purposes by the University of Adelaide team, in accordance with strict ethics requirements.  Individuals and schools will not be identifiable.

At the conclusion of the project, a summary of the findings will be sent to each school.  In addition, the survey results will be incorporated into a report providing recommendations on improving the effectiveness of OHS education for those entering the workforce.

If you have any questions or concerns about completing the questionnaire or about being in this study, you may contact Ms Sasha Stewart on 8313 1043 or email: sasha.stewart@adelaide.edu.au

We greatly appreciate your assistance in this effort.  Thank you in advance.


Yours faithfully,


………………………..
A/Prof Dino Pisaniello
On behalf of the project team.

*Page 1 of 1*

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# Appendix 5: OHS education by teacher's age, gender, role, training, use of resources and school sectors

(Supplementary data relating to correlations between variables)

**OHS education by teacher's age, gender, role, training, use of resources and school sectors:**

*Question 1: Do younger teachers lack formal training compared to the older teachers?*

*Question 2: Is there any difference between male and female teachers in terms of OHS education and training?*

*Question 3: Is there any difference in student preparation for work by teachers' role? Do VET or SWL coordinators have more training than other teachers?*

*Question 4: Does use of resources vary with teacher category?*

*Question 5: Does use of resources vary with teachers' gender?*

*Question 6: Is length of OHS teaching experience related to type of teachers?*

*Question 7: Does length of OHS teaching experience vary with school sector?*

*Question 8: Is there any difference between rural and metro teachers in terms of 'no formal training'?*

*Question 9: Is there any difference in opinion between Public and Private teachers in terms of quality of OHS education compromised by other demands of teachers' role? What about rural versus metropolitan teachers?*

*Question 10: What is the difference between public and private schools in terms of management support from schools and support from other teaching staff to OHS education?*

*Question 11: Do the younger teachers have different opinion on school management's support to OHS education?*

In this section, the results of the correlations between variables are presented. The questions related to correlation are cited below in groups and addressed in the same order they appear here.

*Question 1: Do younger teachers lack formal training compared to the older teachers?*

It can be seen from the table below (Table A.5.1) that proportion of teachers aged over 45 years were more likely than younger teachers to have received training in OHS education.

Those in the younger age group were twice as likely as older teachers to have had no formal training (24% and 12%, respectively). It is also evident that in-service training was the most common form reported..

Table A.5.1: Teachers' training by age groups

| Teacher training in OHS: | Age <= 45 years | | Age > 45 years | |
|---|---|---|---|---|
| | % | N | % | N |
| Health & Safety rep. | 16 | 10 | 18 | 16 |
| In-service | 56 | 35 | 69 | 60 |
| Industry experience | 31 | 20 | 40 | 35 |
| **No formal training*** | 24 | 15 | 12 | 10 |

*=significant, P<0.05

*Question 2: Is there any difference between male and female teachers in terms of OHS education and training?*

The majority of teachers surveyed (63%) were female (Chapter 3, Table 3.4). Male and female teachers differed with respect to their training. From the table below (A. 5.2) it can be seen that, though majority of both the groups had training either through their job or in the form of industry experience, males were almost five times more likely than females to have received training as a Health and Safety representative (20% and 4%, respectively).

Table A.5.2: Teachers' training by gender

| | Male | | Female | |
|---|---|---|---|---|
| Teachers' training in OHS: | % | N | % | N |
| Health & Safety rep. | 20 | 11 | 4 | 4 |
| In-service | 67 | 37 | 61 | 58 |
| Industry experience | 44 | 24 | 33 | 31 |
| No formal training* | 16 | 9 | 17 | 16 |
| OHS teaching experience | | | | |
| 10 yrs or less | 33 | 35 | 67 | 70 |
| 11-20 yrs | 27 | 6 | 73 | 16 |
| More than 20 yrs | 82 | 9 | 18 | 2 |

*=significant, P<0.05

*Question 3: Is there any difference in student preparation for work by teachers' role? Do VET or SWL coordinators have more training than other teachers?*

Approximately half (52%) of the teachers surveyed were VET or SWL Coordinators (Chapter 3, Table 3.4). The remaining teachers taught a range of subjects covering all areas of the

curriculum. These groups of teachers differed with respect to their training backgrounds. From the table below (Table A.5.3) it can be seen that VET and SWL Coordinators were more likely than other teachers to prepare students for structured work placements (69% and 43%, respectively). Table A.5.4 shows that teachers with 'Other' roles were more likely than VET and SWL Coordinators to have received in-service training (72% and 55%, respectively). Proportions of teachers in both the groups were similar in terms of having no training.

Table A.5.3: Student preparation for work by teachers' role

| Preparing students | VET & SWL Coordinators | | Other roles | |
|---|---|---|---|---|
| | % | N | % | N |
| For work experience | 86 | 66 | 72 | 52 |
| For structured work placements* | 69 | 53 | 43 | 31 |

*=significant, P<0.05

Table A.5.4: Training by teachers' role

| Teacher training in OHS | VET & SWL Coordinators | | Other roles | |
|---|---|---|---|---|
| | % | N | % | N |
| Health & Safety rep. | 17 | 13 | 18 | 13 |
| In-service* | 55 | 42 | 72 | 52 |
| Other formal training | 49 | 38 | 49 | 35 |
| Industry experience | 35 | 27 | 36 | 28 |
| No formal training | 17 | 13 | 17 | 12 |

*=significant, P<0.05

*Question 4: Does use of resources vary with teacher category?*

As shown below (Table A.5.5), VET and SWL Coordinators were more likely than other teachers to use websites (91% and 74%, respectively), particularly Get Certified (77% and 57%, respectively) and Virtual Hotel (64% and 40%, respectively). Teachers with 'Other' roles were more likely than VET and SWL Coordinators to share their own experiences (67% and 56%, respectively).

Table A.5.5: Teachers type with use of resources

| Resource type: | VET & SWL Coordinators | | Other roles | |
|---|---|---|---|---|
| | % | N | % | N |
| Teacher guide (SafeWork SA / WorkCover) | 55 | 42 | 42 | 30 |
| Websites* | 91 | 70 | 74 | 53 |
|    Get Certified* | 77 | 54 | 57 | 30 |
|    Virtual Hotel* | 64 | 45 | 40 | 21 |
|    Passport to Safety | 57 | 40 | 51 | 27 |
|    safe@work | 59 | 41 | 57 | 30 |
|    Smart Move | 16 | 11 | 21 | 11 |
|    Other | 19 | 13 | 15 | 8 |
| Text books | 29 | 22 | 31 | 22 |
| Video materials | 39 | 30 | 36 | 26 |
| Newspaper clippings | 60 | 46 | 57 | 41 |
| Case studies | 52 | 40 | 40 | 29 |
| Brochures | 43 | 33 | 32 | 23 |
| Guest lecturers | 33 | 25 | 32 | 23 |
| Own experience* | 56 | 43 | 67 | 48 |

*=significant, P<0.05

*Question 5: Does use of resources vary with teachers' gender?*

As shown below in Table A.5.6, female teachers, compared to male teachers, were more likely to use resources such as websites (88% and 71%, respectively), newspaper clippings (68% and 42%, respectively) and brochures (46% and 22%, respectively), while it appears that male teachers relied more on sharing their own experiences (although the result was not statistically significant).

Table A.5.6: Resource type by gender

| Resource type: | Male | | Female | |
|---|---|---|---|---|
| | % | N | % | N |
| Teacher guide (SafeWork SA / WorkCover) | 36 | 20 | 52 | 49 |
| Websites* | 71 | 39 | 88 | 84 |
| Get Certified | 47 | 26 | 62 | 59 |
| Virtual Hotel* | 29 | 16 | 53 | 50 |
| Passport to Safety* | 31 | 17 | 54 | 51 |
| safe@work* | 33 | 18 | 53 | 50 |
| Smart Move | 11 | 6 | 17 | 16 |
| Other | 18 | 10 | 12 | 11 |
| Text books | 24 | 13 | 33 | 31 |
| Video materials | 33 | 18 | 40 | 38 |
| Newspaper clippings* | 42 | 23 | 68 | 65 |
| Case studies | 35 | 19 | 54 | 51 |
| Brochures* | 22 | 12 | 46 | 44 |
| Guest lecturers | 36 | 20 | 31 | 29 |
| Own experience | 55 | 30 | 48 | 46 |

*=significant, P<0.05

*Question 6: Is length of OHS teaching experience related to type of teachers?*

Among the VET/SWL coordinators, 17% have more than 10 years of OHS teaching experience, which is 31% in other teachers (Table A.5.7).

Table A.5.7: Teachers by their length of OHS teaching experience

| Years of OHS teaching experience | VET/SWL Coordinators | | Other teachers | |
|---|---|---|---|---|
| <=10 years | 59 | (83%) | 46 | (69%) |
| 11-20 years | 9 | (13%) | 13 | (19%) |
| >20 years | 3 | (4%) | 8 | (12%) |

*Question 7:* Does length of OHS teaching experience vary with school sector?

Table A.5.8 shows that public school teachers having experience less than 10 years are substantially high (47.8%) compared to teachers of private schools (28.3%).

Table A.5.8: Type of school and length of OHS experience of teachers

| Type of school* | | category of OHS exp | | | Total |
|---|---|---|---|---|---|
| | | <=10 years | 11-20 yrs | >20yrs | |
| Public | Count | 66 | 15 | 11 | 92 |
| | % within PubPriv | 71.7% | 16.3% | 12.0% | 100.0% |
| | % within category of OHS exp | 62.9% | 68.2% | 100.0% | 66.7% |
| | % of Total | 47.8% | 10.9% | 8.0% | 66.7% |
| Private | Count | 39 | 7 | 0 | 46 |
| | % within PubPriv | 84.8% | 15.2% | .0% | 100.0% |
| | % within category of OHS exp | 37.1% | 31.8% | .0% | 33.3% |
| | % of Total | 28.3% | 5.1% | .0% | 33.3% |
| Total | Count | 105 | 22 | 11 | 138 |
| | % within PubPriv | 76.1% | 15.9% | 8.0% | 100.0% |
| | % within category of OHS exp | 100.0% | 100.0% | 100.0% | 100.0% |
| | % of Total | 76.1% | 15.9% | 8.0% | 100.0% |

*=significant, P<0.05

*Question 8: Is there any difference between rural and metro teachers in terms of 'no formal training'?*

Table A.5.9 shows that rural school teachers (20%) are more likely to have 'no formal training' compared to metropolitan school teachers (13%).

Table A.5.9:   Training status by location of schools

| Location | | Training status | | Total |
|---|---|---|---|---|
| | | With formal training | No formal training | |
| metro Adelaide | Count | 84 | 13 | 97 |
| | % | 87% | 13% | 100% |
| rural | Count | 47 | 12 | 59 |
| | % | 80% | 20% | 100% |
| Total | Count | 131 | 25 | 156 |
| | % | 84% | 16% | 100% |

*Question 9: Is there any difference in opinion between public and private teachers in terms of quality of OHS education compromised by other demands of teachers' role? What about rural versus metropolitan teachers?*

When asked if work load compromised the quality of OHS education, teachers from both public and private schools gave almost similar response (Table A.5.10). But when compared by location of schools, larger proportion (76%) of teachers from rural school indicated that workload did not compromise the teaching quality (Table A.5.11).

Table A.5.10: Impact of workload on quality of OHS education by types of school

| Type of school | | Quality compromised | | Total |
| --- | --- | --- | --- | --- |
| | | Disagree or Neutral | Agree | |
| Public | Count | 65 | 33 | 98 |
| | % | 66% | 33% | 100% |
| Private | Count | 31 | 21 | 52 |
| | % | 60% | 40% | 100% |

Table A.5.11: Impact of workload on quality of OHS education by location of school

| Location of school | | Quality compromised | | Total |
| --- | --- | --- | --- | --- |
| | | Disagree or Neutral | Agree | |
| Metro | Count | 55 | 41 | 96 |
| | % | 57% | 43% | 100% |
| Rural | Count | 41 | 13 | 54 |
| | % | 76% | 24% | 100% |
| Total | Count | 96 | 54 | 150 |
| | % | 64% | 36% | 100% |

*Question 10: What is the difference between public and private schools in terms of management support from schools and support from other teaching staff to OHS education?*

In terms of support from management and other teaching staff for OHS education provision by the schools, around 80% of the teachers from both types of schools were reported as supportive (Tables A.5.12 and Table A.5.13).

Table A. 5.12: Support from management and other teachings staff for OHS by types of school

| Type of school | | School management Supportive | |
| --- | --- | --- | --- |
| | | Strongly agree or agree | Disagree or neutral |
| Public | Count | 89 | 12 |
| | % | 88% | 12% |
| Private | Count | 43 | 8 |
| | % | 84% | 15% |

Table A.5.13: Support from other teachings staff for OHS by types of school

| Type of school | | Teaching stuff supportive | |
|---|---|---|---|
| | | Strongly agree and agree | Disagree or neutral |
| Public | Count | 83 | 16 |
| | % | 85% | 16% |
| Private | Count | 41 | 11 |
| | % | 79% | 21% |

*Question 11: Do the younger teachers have different opinion on school management's support to OHS education?*

Being asked about their opinion about support of the school management, the majority of the older teachers agreed that they found the management supportive (Table A.7.11).

Table A.5.14:  Teachers opinion about support of the school management by age group

| School management supportive | | Age group | |
|---|---|---|---|
| | | <=45 | >45 |
| Strongly agree or agree | Count | 54 | 73 |
| | % | 43% | 58% |
| Disagree or neutral | Count | 8 | 11 |
| | % | 42% | 58% |

**Appendix 6: Letter to the principal**

**Letter to the principal**

The Principal

xxx  School, c/- Post Office, SA ----

Date---------2010

Dear Principal,

I am writing to seek your further assistance in a research project concerning health and safety education programme in secondary schools. This project aims at understanding current practices and experiences in order to improve OHS education. In turn, this will support efforts to better prepare students for the workplace and ultimately reduce workplace injuries in SA. As part of this research we are interviewing different stakeholders including parents.
This is a follow up to our questionnaire survey which has the approval of Department of Education and Children's Services (ref: DECS CS/08/0248.5, 27 January 2009) and Human Research Ethics Committee, The University of Adelaide *(approval no. H-055-2008)*. We would like to request you to include a small flyer in the newsletters sent to parents. We are particularly interested in gathering the views of parents of year 11 students. The contact telephone number is listed in the flyer. We have enclosed a sample flyer containing brief information on research, duration of the telephone interview, and contact number of the researcher. We have also enclosed a sample of the interview schedule for parents.

Please be assured that responses will be confidential and used only for research purposes by the University of Adelaide team, in accordance with strict ethics requirements.  Parents and schools will not be identifiable. Once the project is completed, we will provide feedback on the results to your school, and participating parents.

If you have any questions about the research, please contact Ms Nasreen Jahan on 83036875 or email: nasreen.jahan@adelaide.edu.au

Thank you for taking the time to consider this request.

Yours faithfully,

………………………..

A/Prof Dino Pisaniello

On behalf of the project team.

Attachment 1: Flyer for the school newsletter

Attachment 2 : Interview schedule for parents

**Appendix 7: Flyer for the school newsletter**

**A notice for parents of year 11 students**

The University of Adelaide is seeking your views about occupational health and safety education for secondary school students. The main purpose of this research project is to investigate the practices and perceptions of introductory health and safety education for students in secondary schools of South Australia.

We invite you to participate in a telephone interview at a time convenient to you. It will take approximately 20 minutes to complete. Your responses will be anonymous and your name (and the name of your son/daughter) will not be used when we summarise the results of these interviews. You will be provided with a $ 20 gift voucher for participating in this research.

*This project has been approved by The University of Adelaide Ethics Committee.*

***To participate in the interview and/or learn more about it please contact:***

Ms Nasreen Jahan, Discipline of Public Health, The University of Adelaide, on **8303 6875** or email: nasreen.jahan@adelaide.edu.au

# Appendix 8: Interview schedule

**Interview schedule**

**Project title: Practices and Perceptions in Introductory OHS education in Secondary Schools – Towards a Conceptual Framework for Effective OHS Education for Young Workers.**

Participants: Parents of the year 11 students of Secondary schools.

<u>**Introductory Script**</u>

Hi, my name is Nasreen Jahan. I am the PhD student in the Discipline of Public Health at the University of Adelaide, who spoke to you about taking part in my research. I appreciate your making the time to talk to me today. I'm going to ask you a series of questions and we should finish this interview in 20-25 minutes. Your answers will be anonymous; your name (and the name of your son/daughter) will not be disclosed and will not be used when we summarise the results of these interviews. With your permission, I'd like to audio record our interview as it would help in the analysis. Do you mind if it is recorded?

Before we start, you need to understand what this is about and agree to participate. You may ask any questions you have. Your participation is voluntary. If you do not wish to participate, you may stop at any time.

The main purpose of this project is to investigate the practices and perceptions of introductory health and safety education in secondary school students, particularly those in year11. These students may have received OHS education for the first time in their year 10. The analysis will help us develop a conceptual framework of occupational health and safety education, which is hoped to improve OHS education and thereby reduce the injury rates among young workers in Australia.

It is important for you to know that this research study has been reviewed and approved by the Ethics Committee of the University of Adelaide.

I'm really interested to hear your perceptions, opinions, views and expectations on the OHS education provided by the school to your child. Do you have any questions before we begin?

**Perceptions and attitudes to OHS**

General

1. Does your child work? (if NO, Has he/she ever worked in either a paid or unpaid job?)
2. Where does/did he/she work?
3. Has your child ever talked about workplace health and safety with you?
4. There may be hazards associated with work. Has your child ever had any preparation for these work related hazards?

| If the response is 'yes' | If the response is 'no' |
|---|---|
| What kind of preparation? Any training? <br><br> Who provided the training? <br> Duration of training? <br> How did you know about these preparations? | What do you think about the kind of preparation your child should have? <br> Any training? <br> Who should provide this training? <br> How long should the training be? |

5. What do you know about any training or intervention on work safety education provided by your child's school?
6. Can you tell me something about what you know? Or Could you please name the training or intervention provided by your child's school?
7. How important do you think this safety training is?
8. Why do you think so?
9. What should be the schools role in work health and safety education training?
10. Do you think this training should be a part of curriculum? Why? Why not?

Students

1. How do you feel about your child's work health and safety activities?
2. What is your understanding of your child's attitudes and perceptions regarding OHS education?

Schools

3. In your view, how much is your child's school committed to OHS education?
4. How well does the school address the needs of your child regarding OHS education?

Teachers

5. How do you feel about the motivation of teachers to teach OHS?

6. What is your opinion about teachers' ability to provide OHS education?

**Current Practice:**

What is your understanding of current practice in OHS education?

7. Is there any monitoring or feedback system provided, regarding compliance?
8. Is there any assignment, home work, practice given to your child?
9. What do you think about the quality of the education provided (e.g. suitability of materials)?
10. Have you heard of Passport to Safety?
11. What do you think of Passport to Safety and its role?

**Expectations about OHS education**

12. What is your expectation about the OHS education your child receiving from the school?

13. How well does your child follow the OHS education?

14. How do you feel about your child learning about OHS before going on work experience?

**Barriers**

15. Does your child feel any barriers/difficulties in receiving the OHS education?
16. If YES, do you have any suggestions about how to overcome the barriers/difficulties or improve OHS education?
17. If NO, do you have any suggestions about how to improve OHS education?
18. Do you think there are any barriers regarding the implementation of your suggestions? What might be some foreseeable barriers to the implementation of your suggestions?

**Any issues associated with the School's OHS education**

<u>**Conclusion**</u>

Thank you very much for that. We've covered a great deal of ground today and I've got some wonderful insights! If you have questions or problems about the practical aspects of your participation or wish to raise a concern or complaint about the project, you can consult the principal supervisor of the project.

Do you have a pen and paper to write down his name and other details? So the principal supervisor is Dr. Dino Pisaniello, Discipline of Public Health, University of Adelaide, Phone:

8303 3571. If you want to talk to an independent person about any concerns, you can contact the Human Research Ethics Committee's secretary on 8303 6028. Would you like me to repeat the numbers?

How would you like to receive the $20 voucher? I may post that to you or you may suggest me the other way. If I will post that, can I have your postal address please?

Again, I really appreciate your willingness to spend time helping us out. Before, we finish is there anything else that we haven't talked about that you would like to add? While you're thinking about that, would it be OK if I quickly double check to make sure I've covered everything?

# Appendix 9: List of tree nodes

**List of tree nodes**

1. barriers
2. child compliance
3. child learning
4. child OHS attitude
5. child safety activities
6. current practice in OHS education
7. curriculum
8. feedback monitoring
9. guest lecturer
10. importance of OHS education
11. job
12. OHS learning from common sense
13. parents child communication on Safety
14. parent's expectation from school
15. parents' knowledge on school-based OHS education
16. passport to safety
17. preparation for work
18. protective equipment as meaning of school OHS education
19. quality school OHS education
20. reasons for parents understanding on meaning of OHS
21. role of school in OHS education
22. school address child's OHS need
23. school committed to OHS education
24. sources of OHS training outside school
25. suggestion
26. teacher's ability
27. teachers committed
28. teacher's motivation
29. teacher's training
30. what is OHS
31. work experiences
32. work varieties

**Appendix 10: Publications generated from this research**

Jahan, N., Pisaniello, D., Stewart, S., Braunack-Mayer, A., & Winefield, H. (2010 ). Young worker injury experience in South Australia 1998-2007. *Public Health Bulletin South Australia, 7*(1), 53-55.

NOTE:
This publication is included on pages 239-241 in the print copy
of the thesis held in the University of Adelaide Library.

Pisaniello, D., Stewart, S., Jahan, N., Pisaniello, S., Winefield, H., & Braunack-Mayer, A. (2013). The role of high schools in introductory occupational safety education – Teacher perspectives on effectiveness. *Safety Science 55,* 53–61.

The candidate contributed, along with others, in the following areas of the published paper:

•       Literature review

•       Data analysis and interpretation

•       Writing