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New employment, new risks: An Exploratory Study of Workplace Injuries Amongst Victorian Group Apprentices.

Elsa Underhill

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Group apprentice and traineeships expanded throughout the 1990s. This paper looks at a specific problem with the expansion of group training which is that it may be associated with an increased risk of workplace injury relative to direct hire apprentices and trainees. The paper explores workplace injuries amongst Victorian apprentices/trainees through an examination of their workers' compensation claims. Some tentative explanations for differing injury and claim rates are then proposed.

1. Introduction

Group apprenticeships were first developed in the late 1970s. Originally promoted to facilitate trade training in industries dominated by small employers, group apprentices have since expanded to around 14% of all apprentices and trainees, and cover a wide range of occupations and industries. This expansion has been driven by the development of 'new apprenticeships' in non-traditional occupations, and an apparent preference for group training arrangements in some industries (ANTA 2002; Toner, 2002). Like other emerging models of employment, group training offers a workforce to host employers without requiring a commitment to permanent employment.

This paper explains a specific problem with the expansion of group training which is that it may be associated with an increased risk of workplace injury relative to direct hire apprentices and trainees. The paper begins by describing group training, and then examines the main distinguishing characteristics of group training compared to direct hire apprentices and trainees. Of these, their occupations, average age, and rotation between host employers may each contribute to a greater level of occupational health and safety (OHS) risk. The growth in workers' compensation claims of group and direct hire apprentices/trainees in Victoria are examined in the next section. The paper concludes with some possible explanations for the observed patterns of workers' compensation claims, as well as suggestions for future research.

2. Group Training

Group training is "an employment and training arrangement whereby an organisation employs apprentices and trainees under an Apprenticeship/ Traineeship Training Contract and places them with host employers" (ANTA 2002, p.3). A unique feature of group training is the 'rotation' of apprentices and trainees across hosts. This is intended to ensure continuity of training, as well as quality and breadth of experience. Time and cost commitments associated with apprenticeships are reduced for individual host employers. The group training company (GTC) takes responsibility for off-the-job training, has lower administrative costs through economies of scale (the average number of trainees and apprentices in 2001 was 192 per GTC (ANTA 2002, p. 20)), and places the apprentice with the host to suit the host's needs. The GTC does not deliver training, but works with the registered training operator and host employer to ensure compliance with training requirements. The management role of the GTC, along with the flexibility of group training, are now the dominant reasons for hosts taking on apprentices and trainees through GTCs (ANTA 2001, p. 35).

In 1990, around 90 GTCs operated throughout Australia and employed about 10,000 apprentices and 1,000 trainees (ANTA 2002, p. 19). Their operations grew substantially throughout the 1990s, supported in part through the Commonwealth funded programme 'New Apprenticeships Through Group Training Expansion Programme' which commenced in 1996 and continued until 2000 (NCVER, 2001). By 2001, the number of GTCs had doubled to 181, and the number of group apprentices and trainees had increased three-fold to around 36,000 placed with 35,000 host employers. GTCs accounted for 11% of Victorian, and just under 14% of all Australian apprentices and trainees in 2000 (NCVER 2001).

All forms of apprentice and traineeships expanded rapidly in the 1990s. Traineeships were modified substantially in the mid-1990s, contributing to strong growth in trainee numbers (Toner 2002). Traineeships are now of much shorter duration, taking an average of half the time of traditional apprenticeships (NCVER 2001). They are available to adults as well as those already employed (as are apprenticeships), and training can be completed entirely on-the-job (Toner 2002). Consequently, traineeships have become much more attractive to employers, and the number of traineeships expanded at a much faster rate in the second half of the 1990s than traditional apprenticeships. In 1998, apprenticeships and traineeships were integrated under the 'New Apprenticeship' scheme, and all official statistics now combine these two forms of workers.

3. Distinguishing Characteristics of Group and Direct Hire Apprentices/ Trainees

The characteristics of apprentices and trainees employed through GTCs differ from those hired directly in several important respects. Group apprentices and employees tend to be employed in higher risk occupations than direct hire employees, they are younger, and they are likely to experience multiple new workplaces as they rotate across hosts. Each of these factors may contribute to a higher level of OHS risk for group employees.

3.1 Occupational distribution of group compared to direct hire apprentices and trainees

Traditionally, apprentice training was limited to blue collar trades. The rapid expansion of traineeships throughout the 1990s was accompanied by a shift away from traditional trades. In 2000/01, 60% of all new apprentice commencements were in intermediate and elementary clerical, sales and service occupations. A further eighteen per cent were in labouring and related occupations (Toner 2002, p. 59).

In contrast, group apprentice/traineeships have expanded into non-traditional occupations at a much slower rate than direct hire apprentice/trainees. Table 1 gives the occupational distribution of group and direct hire apprentices/trainees in June 2000. Sixty-three per cent of group compared to 47% of direct hire apprentice and trainees were in traditional blue-collar trades in 2000 (compared with 90% of group and 88% of all apprentices in 1995). The major areas of growth have been Clerical, Sales and Service Occupations. These now make up 22% of group apprentices and trainees (compared to 8% for group and all apprentices in 1995), and a much higher proportion - 31% - of direct hire apprentices/trainees. Nine per cent of group apprentices are employed in low-skilled blue-collar occupations, compared with 18% of direct hire apprentice and trainees.

The three highest risk occupational groups (measured by incidence of injuries) are tradespersons, intermediate production and transport, and labourers and related workers

(ABS, 2001). Combined, these account for 72% of group apprentices/ trainees compared to 65% of their direct hire counterparts. This suggests, prime facie, that group apprentices and trainees are likely to have a higher rate of workers' compensation claims.

Table 1 Occupational Distribution of Group & Direct Hire Apprentices & Trainees, Australia, June 2000

Occupation	Group apprentices & trainees (n=37800)	Direct hire apprentices & trainees (n=240,300)
Managers & Administrators	2%	1%
Professionals	2%	1%
Associate Professionals	3%	3%
Tradespersons & related workers	63%	47%
Clerical, sales & service workers	22%	31%
Inter. production & transport workers	2%	5%
Labourers & related workers	7%	13%
Total	100%	100%

Source: Adapted from NCVER 2001,p. 33

3.2 Age distribution of group compared to direct hire apprentices and trainees

The second distinguishing characteristic of group apprentice/trainees is their younger average age. Table 2 gives the number and proportion of teenage apprentices and trainees employed by GTCs, compared to all apprentices and trainees in Australia. More than half of group apprentices/ trainees are teenagers compared to 37% of all apprentices/trainees. The age of commencing new apprentices has increased dramatically since 1995, with 38% being 25 years or older in 2000 (Cully & Curtain 2001). As teenagers have increased their share of group apprentices/traineeships, older workers have increased their share of direct hire apprentice and especially traineeships. The younger age distribution of group apprentice/trainees is likely to contribute to a higher level of OHS risk for these employees. A number of studies report higher injury rates for younger workers.

Table 2 Teenage Apprentices & Trainees, Australia, June 1995-2000

Year	Group Training		All Apprentices & Trainees	
	Number	Per Cent	Number	Per Cent
1995	9,340	53%	72,800	54%
1996	10,120	49%	75,780	48%
1997	11,440	49%	77,180	45%
1998	14,430	50%	82,240	43%
1999	18,790	55%	94,450	37%
2000	20,940	55%	102,640	37%

Source: NCVER 2001.

To begin with, few Australian studies have measured the incidence of occupational injuries among younger workers, although Mayhew (2000:2) cites Western Australian data showing that workers aged 15 – 24 years contributed 27% of lost time injuries and diseases whilst making up only 21% of the workforce in the mid-1990s. In the United States, a 1996 national study found that 15-17 years olds had an injury rate of 4.9 per 100 full-time equivalent workers compared to 2.8 for 16 years and older (National Research Council 1998). U.S. legislation prohibits especially hazardous tasks from being performed by younger workers. Tasks prohibited for workers less than 16 years old include baking or cooking on the job, working on ladders and operating power-driven machinery. Those aged 16 and 17 years are not permitted to work with most types of powered equipment (such as circular saws), nor work in demolition, meatpacking or logging (Rubenstein et al. 1999).

What factors contribute to the higher injury rate for younger workers? The nature of their work experience, as well as physical and physiological characteristics are important. Younger workers are inevitably less experienced, and consistently found to not receive sufficient on-the-job or safety training. A number of studies have shown that less than half of injured youth in the US received any health and safety training (Knight et al. 1995), whilst a Swedish study found only 38% of workers under 21 years had received training on the equipment upon which they were injured (Persson & Larsson 1991, p195). Lack of supervision is also common. Greenberger and Steinberg (1986) found that only 12% of younger workers' time on the job was in the presence of a supervisor, whilst Knight et al. (1995) found that 80% of work-related injuries to adolescents occurred when the supervisor was not present. Both task related and OHS training, as well as supervision, are important injury prevention mechanisms (Hunting & Weeks 1993; National Research Council 1998).

Younger workers may also be physically unable to use tools and equipment correctly and safely when that equipment is designed for male adults. Shorter, light weight operators of ride-on-mowers, for example, were found to be more likely to be injured than average size adult operators (National Research Council 1998). On the other hand, physically large youth may be assigned 'adult' tasks when they appear older, more mature, and more experienced than they actually are. Being assigned inappropriate tasks, or tasks other than those they were hired to perform, raises questions about levels of relevant experience and training and places young workers at undue risk (National Research Council 1998). According to Rubenstein et al. (1999, p.576), "even physically mature adolescents may lack the emotional maturity or judgement necessary to perform a particular work assignment without injury". Some argue they are more likely to participate in risk-taking behaviour than more mature workers (Rubenstein et. al. 1999). Others suggest younger workers are not necessarily risk takers, but attempt to demonstrate they are responsible and independent by not asking for assistance when it is necessary. In other words, they may prefer to appear to understand in order to impress or meet the expectations of their supervisors. They may also perceive themselves as mature, and accept tasks for which they are unprepared (National Research Council 1998).

3.3 Rotation of group apprentices across host employers

The third distinguishing characteristic of group apprentices/trainees is their rotation across host employers. They are placed with a variety of host employers in order to maintain training employment, and to ensure exposure to a wider range of tasks than available with one relatively small employer. The extent of rotation has not been documented, however it appears to be diminishing as the size of host employers increases. In 2002, 31% of hosts employed more than 50 employees compared to 10% in 1996 (ANTA 2002, p.25). This is

likely to have reduced the need for rotation across hosts, with larger firms capable of hosting the apprentice for the full training period. The development of shorter training contracts through the New Apprentice scheme (39% of training contracts are for less than 2 years) may also have contributed to fewer rotations across hosts (ANTA 2000, p.25). The majority of group apprentices/trainees would still, nevertheless, appear to be hosted by smaller businesses.

Rotation is an important potential contributor to OHS risk for group apprentice and trainees, and raises similar OHS problems as those confronting labour hire employees. A number of studies have compared work-related injuries of labour hire with direct employees and found the former are injured more often, and more severely (Park & Butler 2001; Silverstein & Foley 1998; Storrie 2002; Underhill 2002). Of the factors contributing to this higher injury rate, lack of familiarity with workplace specific risks appears relevant to group apprentices and trainees. Employees new to a workplace have a much greater risk of injury than those with longer tenure. In the United Kingdom, research conducted in 1996/97 found that 1% of workers employed less than one month experienced an injury. If the same rate continued throughout the year, almost 25% of workers would experience an injury over 12 months (assuming those injured with less than one month's experience had on average worked half a month) (McKnight et al. 2001). A French study of temporary agency workers (Francois & Lievin 1995) found that 48% of injured temporary workers were injured in their first month at the workplace.

Misinformation about the level and nature of training undertaken prior to rotating to the current host may also be problematic. The second most common concern expressed by group apprentices and trainees in a national survey conducted in 2001 was the need for more or better information at induction and throughout placement. Other factors, such as OHS and rates of pay, were also significant concerns (ANTA 2001, p.50). Poor information exchange may especially be the case as the level of competition amongst GTCs increases. One outcome of the rapid growth in GTCs has been an increased emphasis on price competition, forgoing the package of services such as pastoral care which is seen as unique to group training operators (ANTA 2002, p.24). Other risk factors identified for labour hire employees may also be relevant for group apprentices/trainees. These include work disorganisation, such as communication breakdowns when new workers enter the workplace, and confusion over legal responsibilities attributable to the GTC and the host company (Quinlan et al. 2000; Underhill 2002). Rotation potentially raises a variety of threats compounding the risks facing the already vulnerable younger workers.

4. Growth in Workers' Compensation Claims of Apprentices and Trainees in Victoria

In Victoria, workers' compensation payments for work-related injuries are claimed against the Victorian WorkSafe Authority (VWA) once an injured worker has been absent from work for more than 10 working days, or their medical costs exceed the minimum reporting level. Claims are recorded on a VWA database which includes information on the occupation, agency, mechanism, bodily location and type of injury. The database allows the analysis of claims by employment status, providing a basis for comparing injury experience of group with direct hire apprentice/trainees. However, as the database excludes minor injuries requiring 10 or less days off with low level medical expenses, the analysis understates the overall rate of injury. A study of apprentice injuries by Driscoll and Hanson (1997), for example, found that only 20% of injuries required the loss of one or more working days off,

whilst the median number of days was between 4 and 5 days off. Claims requiring so few days off are included in the VWA database only when they meet the medical cost threshold.

The number of apprentices and trainees in Victoria has grown rapidly since the mid 1990s. In 1995, 33,120 apprentices and trainees were employed in Victoria. By 2001, this had increased to 111,803 (State Training Board 1995/96; OTTE 2002, p.2). It is likely this growth took place amongst both group trainee and direct hire trainees, reflecting national trends (see Table 3), although disaggregated Victorian data is not available to prove this. Australian data provides a proxy in the absence of Victorian data. Group apprentices/ trainees throughout Australia grew at a rate of 116% from 1995-2000 compared to 103% for direct hire apprentice/trainees. Most of the growth has been in traineeships rather than traditional apprenticeships (Toner 2002).

Table 3: Number of Group and Direct Hire Apprentices, and Percentage Increase, Australia, 1995-2000.

Year	Group Apprentices & Trainees ('000)	Direct Hire Apprentices & Trainees ('000)
1995	17.5	118.5
1996	20.7	135.8
1997	23.6	148.3
1998	28.7	164.2
1999	34.4	218.4
2000	37.8	240.2
% increase 1995-2000	116%	103%

Source: Adapted from NCVER, 2001: 25.

The number and distribution of workers' compensation claims for Victorian apprentices and trainees is provided in Table 4, which shows two phenomena. First, the rate of growth of workers' compensation claims has surpassed the pace in employment growth for group trainees and apprentices, but lagged well behind for their direct hire counterparts. Whereas the number of group trainees in Australia increased by 116%, their workers' compensation claims in Victoria increased by 230% - twice the rate of employment growth. The 103% growth in direct hire employment of apprentices and trainees, however, was matched by only 9% growth in claims.

Second is the growing proportion of claims amongst group apprentices and trainees relative to the direct hire sector. Between 1994/95-2000/01 their share of all apprentice claims more than doubled from 23% to 47%. What factors may account for these differences?

Table 4 Number and Distribution of Worker's Compensation Claims, Group and Direct Hire Victorian Apprentices & Trainees, 1994/95-2000/01

Year	Group Apprentices & Trainees		Direct Hire Apprentices & Trainees		Total Apprentice Claims
	No.	% of apprentice claims	No.	% of apprentice claims	
1994/95	66	23%	223	77%	289
1995/96	58	20%	239	80%	297
1996/97	71	30%	168	70%	239
1997/98	81	32%	170	68%	251
1998/99	80	33%	161	67%	241
1999/00	98	31%	221	69%	319
2000/01	218	47%	244	53%	462
% increase 1994/95 – 2000/01	+230%		+9%		+60%

Source: Victorian WorkSafe ACCtion Data Base.

First, 44% of claims by group apprentices/ trainees in 2000/01 are attributable to only two GTCs. In 1999/00, employees of those companies contributed only 4% of claims. A substantial share of the increase is therefore due to the practices of two companies rather than a broader pattern within the sector. Discounting for these companies, however, still leaves an overall increase in injuries of 86% for group apprentices/trainees from 1994/95-2000/01. This is a significantly higher rate of growth than for direct hire claims. The earlier discussion identified distinguishing characteristics of group apprentice/trainees which may explain their disproportionate share of injuries.

First, a higher proportion of group apprentices/trainees remain employed in higher risk Tradesperson occupations. Direct hire apprentices/trainees, on the other hand, are increasingly employed in safer white collar occupations of Clerical, Sales and Service Workers. In 2000/01, claims by clerical, sales and service workers contributed only 10% of direct hire and 6% of group claims, notwithstanding these occupations being 31% and 22% of employees respectively (in June 2000). The faster relative employment growth in safer occupations for direct hire apprentices/trainees will slow their rate of increase in claims relative to group employee claims. But the shifting occupational distribution of apprentices/trainees is only a partial explanation. Some higher risk occupational groupings, such as labourers and related workers, have a higher proportion of direct hire apprentices/ trainees, yet a lower level of claims than for group apprentice/trainees. In 2000, Labourers and related workers made up 13% of direct hire apprentice/trainees, but only 4% of claims (in 2000/01). By contrast, they made up 7% of group apprentice/trainees but 19% of their claims (refer Tables 5 and 6).

Second, younger workers have been found to have a higher injury rate than older workers. Age may be a contributing factor here given that group apprentice/trainees, on average, are younger than direct hire apprentices. The average age of Victorian injured apprentices and trainees has not, however been ascertained. The extent to which factors identified in US research on youth injuries are relevant to Victorian apprentices and trainees is also unknown.

Third, as group apprentices/trainees rotate across host employers, they are continually entering 'new' workplaces, and being exposed to the risk of insufficient knowledge of workplace specific hazards. This risk is compounded by the potential for their host employer to have insufficient knowledge of the apprentice/trainees' skills and experience. Host employers are also less likely to adopt a 'pastoral care' approach to apprentices/trainees than had they personally selected the employee and given a four-year commitment to indenture. Furthermore, anecdotal evidence suggests that some group apprentices/trainees may be completing different tasks compared with direct hire employees thus being exposed to different hazards. In the housing sector, for example, it has been suggested that group apprentices/trainees are mainly called upon for site clean up rather than skill development tasks. Such differences may result not only in exposure to higher risk tasks, but are indicative of an approach where the host employer devalues training, including OHS training. Finally, the rapid expansion of group apprentices/trainees in recent years may have produced both new GTCs and hosts who have yet to develop OHS systems appropriate to the non-standard employment arrangements inherent in group training.

Fourth, group apprentices/trainees are still more likely to be located in smaller businesses than direct hire employees, notwithstanding the trend towards large companies utilising group training. Employees in small business are generally more vulnerable to injury than those in larger organisations, and this is likely to be the case with group apprentices/trainees. Employees in small business are also less likely to be unionised, and less able to exercise their employment rights, including claims for workers' compensation, without fear of jeopardising their employment. Group apprentices/ trainees are in a peculiar position. On the one hand, they are likely to be located in a small business. On the other hand, they are likely to be employed by companies with at least 100 employees, and workers' compensation claims are lodged with their employer, not the host. This may result in greater knowledge of employment rights than is typically the case for apprentices, and more formal procedures for reporting injuries when they occur. Hence, they may experience a greater level of risk, but also have a greater likelihood of reporting an injury.

Each of the above may explain why group apprentices/trainees have higher workers' compensation claim rates than their direct hire counterparts. But why have claims by direct apprentices/trainees grown at a much slower rate than their employment growth? First, the shifting occupational distribution of apprentices/trainees to safer occupations, noted above, will explain some of the slower growth rate. Second, changes encompassed by the 'new apprentice' schemes include part-time apprentice/traineeships. When workers' compensation claims are linked to time lost at work, working part-time whilst studying means those days normally spent recuperating away from work may now be spent recuperating back at school. Part-time apprentices/trainees will be less likely to meet the minimum 10 days lost threshold for reporting injuries to the VWA. Third, the expansion of apprenticeships, especially traineeships, into new occupations and industries may mean that apprentices/trainees are more likely to be working in poorly unionised sectors where rights in relation to workers' compensation are rarely exercised. Hence, direct hire apprentices/trainees – where the greatest occupational shift has taken place – may be less likely to lodge a workers' compensation claims (as distinct from being less likely to be injured) than in the past. Finally the institutional changes of the last decade, especially declining union representation, may have contributed to a lowering of knowledge and exercising of employment rights across all industries. This may especially be the case in Victoria where employment rights were eroded substantially through the 1990s (Victorian Industrial Relations Taskforce 2000).

5. Conclusion

This analysis has been exploratory, with two key findings. The first is that group apprentices/trainees are more vulnerable to workplace injury than direct hire apprentices and trainees. Their injury growth rate far exceeds their employment expansion rate. The second is that workers' compensation claims by direct hire apprentices/trainees have grown at a much slower rate than their growth in employment. Explanations for the changes evident in workers' compensation claims for apprentices and trainees in Victoria are tentative, and point to the need for further research beyond workers' compensation data analysis. A fuller understanding of how rotation amongst host employers operates, including the provision of host specific OHS training, is needed. A more detailed analysis of demographic differences and OHS outcomes for group compared to direct hire apprentices/ trainees is also necessary, including research to provide a better understanding of why youths in Australia have higher injury rates. Whether factors identified in relation to labour hire employees and OHS risks apply to group apprentices/trainees also needs further exploration. Some of this information may be obtained through closer examination of workers' compensation claims, but other differences can only be clarified through closer study of group training operations themselves. Explanations for the slower rate of growth in claims by direct hire apprentices/ trainees also requires further research, especially into the changing nature of their employment environment.

Group training appears set to continue its expansion into the future. As the number of small businesses continues to grow relative to larger businesses, and as larger firms become more familiar with group training arrangements, then the market for group training may continue to grow. If group apprentices/trainees encounter different risks than their direct hire counterparts, then different approaches need to be developed to reduce those risks. A better understanding of the nature of these differences, and appropriate strategies to manage those risks, is required.

References

Australian Bureau of Statistics, 2001, *Work-Related Injuries, Australia,* Catalogue 6324.0, Austats.

Australian National Training Authority, 2001, *National Review of Group Training: Report on State and Territory Consultations,* ANTA, Brisbane.

Australian National Training Authority, 2002, *Group Training: a Unique Employment and Training Service*, Report of the National Review of Group Training, ANTA, Brisbane.

Cully, M. & Curtain, R. 2001, 'New Apprenticeships: An Unheralded Labour Market Program', *Australian Bulletin of Labour,* vol. 27, no.3,pp. 204-215.

Driscoll, T. & Hanson, M. 1997, 'Work-related injuries in trade apprentices', *Australian and New Zealand Journal of Public Health,* vol. 21, no. 7,pp. 767-772.

Francois, M. & Lievin, D. 1995, *Emplois Precaires et Accidentabilite: Enquete Statistique Dans 85 Entreprises*, Institut National de Recherche et de Securite, Paris.

Greenberger, E. & Steinberg, L 1986, *When Teenagers Work: The Psychological and Social Costs of Adolescent Employment*, Basic Books, New York.

Hunting, K.L. & Weeks, J.L 1993, 'Transport injuries in small coal mines: An exploratory analysis', *American Journal of Industrial Medicine,* vol. 23, no.3, pp. 391-406.

Knight, E.B. Castillo, D.N.& Layne, L.A. 1995, 'A detailed analysis of work-related injury among youth treated in emergency departments', *American Journal of Industrial Medicine,* vol. 27, no. pp. 793-805.

Mayhew, C. 2000, *Occupational Health and Safety Issues for Young Workers in the Fast-food Industry*, National Occupational Health and Safety Commission, Canberra.

McKnight, Elias & Wilson, 2001, *Workplace injuries and workforce trends*, Contract Research Report 281/2001, Health and Safety Executive, Norwich.

NCVER, 2001, *Group Training Apprenticeships and Traineeships in Australia*, National Centre for Vocational Education Research, Leabrook, South Australia.

National Research Council, 1998, *Protecting Youth at Work* National Academy Press, Washington DC.
OTTE, 2002, *NewsBriefs,* Issue 3, 14 January, p. 2, www.otte.vic.gov.au.
Park, Y.S. & Butler, R.J. 2001, 'The Safety Costs of Contingent Work: Evidence from Minnesota', *Journal of Labor Research*, vol. 22, no.4, pp. 831-850.
Persson, I. & Larsson, T. 1991, 'Accident-Related Permanent Disabilities of Young Workers in Sweden 1984-85', *Safety Science,* vol. 14, no. 3/4,pp. 187-198.
Quinlan, M. Mayhew, C& Bohle, P. 2000, *Contingent Work: Health and Safety Perspectives or The Global Expansion of Precarious Employment, Work Disorganisation and Occupational Health: A Review of Recent Literature*, Paper presented to 'Just in time employed – organisational, psychological and medical perspectives' European Union Research Workshop, Dublin, organised by the National Institute of Working Life, Stockholm.
Rubenstein, H. Sternbach, M.R. & Pollack S.H. 1999, 'Protecting the Health and Safety of Working Teenagers', *American Family Physician*, vol. 60, no.2,pp. 575-580.
Silverstein, B. and Foley, M. 1998, 'Protecting Contingent Workers from Work-related Injury', paper presented to the *Ergonomics Society of Australia Conference*, October 5-7, Melbourne.
State Training Board, 1995/96, *Annual Report*, Office of Training and Tertiary Education, www.otte.vic.gov.au.
Toner, P. 2002, 'The Occupational and Skill Structure of New Apprenticeships: A Commentary', *Labour & Industry,* vol. 13, no. 1, pp. 55-71.
Underhill, E. 2002, *Extending Knowledge on Occupational Health & Safety and Labour Hire Employment: A Literature Review and Analysis of Victorian Worker's Compensation Claims,* A Report prepared for WorkSafe Victoria, October, Melbourne.
Victorian Industrial Relations Taskforce, 2000, *Independent Report of the Victorian Industrial Relations Taskforce*, Department of State and Regional Development, Melbourne.

Table 5 Occupational Distribution of Worker's Compensation Claims for Group Apprentices & Trainees

Occupation	1994/95		1995/96		1996/97		1997/98		1998/99		1999/00		2000/01	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Managers & Administrators	1	2%	3	5%	1	1%	1	1%	3	4%	1	1%	1	1%
Professionals	-	-	-	-	-	-	-	-	-	-	3	3%	3	1%
Associate Professionals	4	6%	1	2%	-	-	-	-	-	-	3	3%	6	3%
Tradespersons, Related Workers	54	82%	51	88%	66	93%	71	88%	65	81%	71	72%	139	64%
Advanced Clerical, Service Workers	-	-	-	-	-	-	-	-	-	-	1	1%	-	-
Intermediate Clerical, Sales, Service Workers	-	-	-	-	-	-	-	-	1	1%	-	-	6	3%
Intermediate Production, Transport Workers	-	-	1	2%	-	-	-	-	1	1%	3	3%	10	5%
Elementary Clerical, Sales, Service Workers	-	-	-	-	-	-	-	-	6	8%	4	4%	6	3%
Labourers, Related Workers	5	8%	1	2%	3	4%	9	11%	2	3%	10	10%	42	19%
Others/Not stated	2	3%	1	2%	1	1%	-	-	2	3%	2	2%	5	2%
All	66	100%	58	100%	71	100%	81	100%	80	100%	98	100%	218	100%

Table 6 Occupational Distribution of Worker's Compensation Claims for Direct Hire Apprentices & Trainees

Occupation	1994/95		1995/96		1996/97		1997/98		1998/99		1999/00		2000/01	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Managers & Administrators	3	1%	6	3%	2	1%	1	1%	-	-	-	-	2	1%
Professionals	3	1%	6	3%	6	4%	3	2%	1	1%	13	6%	25	10%
Associate Professionals	23	10%	14	6%	16	10%	17	10%	12	8%	19	9%	16	7%
Tradespersons, Related Workers	160	72%	186	78%	129	77%	129	76%	121	75%	140	63%	149	61%
Advanced Clerical, Service Workers	-	-	-	-	-	-	-	-	-	-	1	1%	-	-
Intermediate Clerical, Sales, Service Workers	3	1%	5	2%	2	1%	2	1%	1	1%	5	2%	16	7%
Intermediate Production, Transport Workers	3	1%	4	2%	-	-	4	2%	13	8%	14	6%	8	3%
Elementary Clerical, Sales, Service Workers	1	-	1	-	-	-	-	-	2	1%	3	1%	6	3%
Labourers, Related Workers	17	8%	12	5%	4	2%	7	4%	8	5%	15	7%	9	4%
Others/Not stated	10	5%	5	2%	9	5%	7	4%	13	2%	11	5%	13	5%
All	223	100%	239	100%	168	100%	170	100%	161	100%	221	100%	244	100%