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WORKING PAPER SERIES

Skills Shortage in the Electrical and Associated Industries and employers' perceptions of apprentice training as a contributing factor

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Introduction

A strong skills base and effective skill development are important ingredients for a country to successfully compete within a global setting (ANTA 2003, objective 4). The size of a skills base will be determined by the number of skilled workers presently in the workforce, their propensity to remain there, the number of new skilled entrants to the workforce and the rate of skill formation among workers. The incidence of newly skilled people will derive from the training effort in the previous period and/or increments to the population of skilled workers through migration. When the number of new entrants is not sufficient to offset the level of exits of a given skill, given the labour market needs for that skill, a skill shortage will develop. There is evidence of this in a number of trades within Australia at the present time, including the electrical trades (Financial Review 2002) as there is also for a number of other countries such as Canada, the United States and the UK where shortages of electrical trades-persons have recently been reported (Jenkinson 1997; Canadian Labour Congress 2002; Bond 2002; Wark 2002; P Sherwood 2001; Hillage et al 2002; Grant 2003, Anonymous 2002).

Although a shortage of electrical tradespeople in Australia at the present time would appear to be at odds with the overall picture of growth in vocational training numbers over the last few years, upon examining disaggregated data this is not surprising. Aggregate statistics present a rather distorted picture of the level of training since the growth in the number of training places has occurred mainly in areas other than the traditional trades. As reported by the NCVET (2002),

...a considerable reduction in the proportion of skilled trade apprenticeships has been observed, from almost 90 percent of all apprenticeships and traineeships in 1995 to less than half by June 2001 (p. 32).

The electrical and electronic trade is an occupational area with some disturbing training patterns. The annual rate of growth of apprenticeship completions during the period 1995-98 was -1.2%; by far the worst performing trade. On the other hand the number of commencements showed successive increases over the period with an average rate of growth of commencements of 3.2 percent and it had the second highest

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rate of growth of all the trades in the numbers in training (3.5%) (NCVER 2000, p. 7). However, NCVER (2000) warns of a shortage in this occupational grouping;

...while the indications are that growth in commencements in this industry area will outpace the forecast employment growth, a skills shortage in this industry area is most likely to arise due to the growth in completions not keeping pace with employment growth (p. 11).

For Victoria, the picture is different in that, unlike Australia as a whole, apprentice numbers for the electrical and associated industries have fallen and this emerging shortage is not being addressed through an increase in the size of the apprentice intake (Worland & Doughney 2002, p. 98). The reasons for the lower intake of apprentices are complex and relate both to supply and demand factors. Fewer people are finding the apprenticeship training option attractive. Many potential candidates are remaining at school and are being lured into the higher education system to undertake full time tertiary education (NCVER 2002, p. 22). These people often see an apprenticeship as an unattractive option. The number of apprenticeships offered has declined, especially by large employers who traditionally hosted large numbers of apprentices. A number of these employers, within both the private and public sectors no longer engage apprentices. Rationalisation within the public sector during the move towards privatisation has been characterised by a downsizing of the training function. A common practice within both the private and public sectors is for firms to outsource a number of their maintenance services. These firms no longer take the responsibility for developing employee skills and there has been a dearth of new employers to take their place in apprentice training. Where labour hire firms take on the contracts, apprenticeships tend not to be part of the labour arrangement. However, this impending shortage of trades-persons is not visible because it is in the shadow of a short-term increase in the number of fully trained workers released to the market as a result of the industry reorganisation. What is not well understood is the illusory nature of this temporary boost to the supply of skilled workers.

Whilst the condition of a skills shortage within the electrical and associated occupations in Victoria is shared with a number of other western countries, the evidence suggests that more generally, Australia does not fare well when comparing its skill formation with the performance of other countries. Anta says, "On most key measures, the skills and knowledge of our population and workforce lag behind other countries. Currently, only 61% of the Australian workforce possesses post compulsory qualifications. The average profile for all OECD countries was 68% in 1995 and forecast to grow at between 1-2% per annum over the next decade (anta quoting Cullen, 1998) (ANTA, Australia's National Strategy for Vocational Education and Training 1998-2003).

Method

The purpose of this paper is to present and analyse the perceptions of employers in the industry about this phenomenon. First the paper explores employer and labour hire perceptions of skills shortages in the electrical and electronics industries. Secondly, it considers aspects of apprentice engagement, including the firms undertaking training, the recruitment process, impediments to recruitment and the effect of group training on the outcomes.

The data

A sample of employers from firms of different sizes and industry segments operating within Victoria was drawn from the National Electrical and Communications Association (NECA) database and a database of an industry labour hire association. Perceptions of skills shortages in the various segments were sought from both employers and labour hire firms. Labour hire firms were of special interest because industry experience suggests these firms do not participate in training.

A survey tool was developed and tested in a supervised session with 15-20 employers. The survey tool was then modified using responses from the pilot survey group. Surveys completed in the pilot session were not included in the research database. Employers were grouped according to the categories presented in Appendix A. A postal survey method was used in the first instance for general employers. This was followed by a targeted telephone survey. Employers surveyed by telephone were encouraged to either complete the survey with the telephone surveyor, or complete and return the survey previously mailed to them. There was approximately one month between the mail out and the follow up. Labour hire employers were interviewed face to face with the same instrument.

The employer group provided 155 useable responses and labour hire firms provided 21. The structure of each sample is shown in Appendix A.

The study first broached the question of skills shortages. Both electrical employers and labour hire firms perceived shortages to exist. Their perceptions are presented and considered below.

Perceptions of employers and labour hire firms about a skills shortage.

Tables 1 and 2, respectively, record the perceptions of employers and labour hire firms about the existence of a skills shortage.

Table 1 shows the perceptions of two groups of employers – those who engaged electricians, communication workers or electronic workers and those who did not engage those kinds of workers. Employers who

engaged electricians were more likely to perceive a shortage than those who did not engage workers from that occupation. This was also true for employers of communication and electronic workers although in the case of communication workers the relationship was not statistically significant.

Table 1. Employer perceptions of skills shortages by employers employing people with the skills in question

<i>Are the following skill categories employed?</i>	<i>Is there a skills shortage?</i>	
	Yes no of employers	No or Don't know no of employers
Electricians		
Yes	103	37
No	3	5
Communication workers		
Yes	9	9
No	20	58
Electronic workers		
Yes	7	4
No	22	63

Employers who employed apprentices revealed a stronger conclusion about skills shortages than those not employing apprentices (see table 1.a). This difference in perception is statistically significant and is consistent with the idea that market conditions are a factor in persuading employers to be involved in training.

Table 1.a Employer perceptions of skills shortages by employers employing electrical apprentices

	Employers with apprentices No of employers.	Employers without apprentices No of employers.	Total No of employers.
Number who said there was a skills shortage	81	25	106
Number who said there was not a skills shortage or that they did not know	18	24	42

The data was disaggregated into metro/non-metro categories, since it seemed plausible that labour market conditions could be influenced by location. However, as there was no difference in the perception of the two cohorts the shortage can be regarded as state- wide.

Labour hire firms were also surveyed about their perceptions of skills shortages and a summary of the responses from this group is presented in table 2.

Table 2 Perceptions of skills shortages among labour hire firms

Is there a skills shortage amongst the following?	Yes		No		Don't Know	
	No of firms.	(%)	No of firms.	(%)	No of firms.	(%)
Electricians	11	(78.6%)	2	(14.3%)	1	(7.1%)
Electronics or instrument mechanics	9	(64.3%)	2	(14.3%)	3	(21.4%)
Communication workers	4	(28.6%)	1	(7.1%)	9	(64.3%)

Labour hire firms perceived shortages in two of the categories, namely the electricians and instrument workers. A majority of those employing communications workers declaring their position also saw a skills shortage in that occupation. Labour hire firms that were not involved in the specific fields of electrical and electronic workers reported shortages of skilled workers in the skills areas where they were actively recruiting labour. The main additional areas in question were the metal trades.

The conclusion is, therefore, that employers and labour hire firms perceive a skills shortage and the perceptions among employers and labour hire firms are remarkably similar. This impression confirms the findings reported in a recent study by Catelotti (2000).

Symptoms and causes of shortages

The study now turns to the question of possible symptoms and causes of the shortages. To identify symptoms, the study relied upon evidence of perceptions of both employers and labour hire firms. A list of plausible symptoms was presented to the respondents and their perceptions of them are presented below.

One symptom is the difficulty in meeting peak labour demand due to labour market conditions – a comment on the prevailing labour market conditions during the boom phase of a business cycle. Labour hire firms made a much stronger statement about this as a factor, but both groups considered it an important symptom.

There were differences in the ranking of two factors. The first of these was poaching; more commonly experienced by labour hire firms when a client retained a good worker or when a worker was lured to another labour hire firm. The second factor ranked differently was the difficulty of attracting people with the right attitude to work; a more common experience among direct employers. These experiences suggest that the labour hire sector is influenced more by immediate labour market issues

and less by issues such as loyalty, continuity of relationships and other internal labour market concerns.

Other symptoms considered important were the level of response to recruiting, the shrinkage in the list of reserve labour and the difficulty of attracting and retaining good workers.

Some employers and labour hire firms identified additional symptoms. Labour hire firms included a lack of response to advertising (four respondents), feedback from exit interviews and the unusually low number of tradespersons on their books as additional symptoms. For the employer category the higher level of work being done, the lower quality of apprentices and the higher rates of pay on site were listed.

The study then explored the causes of skill shortages. Here, both groups were able to identify with the list of causes of labour shortages suggested by the researchers. Employers saw the problem as being determined by both supply and demand factors. The strongest support was for one specific supply factor, namely too few apprentices being trained. When coupled with the related factor of downsizing and its impact on the supply and the strong demand for tradespersons evident at the time of the survey, much of the story appears to have been captured. Industry downsizing and the withdrawal from apprenticeship training of public sector employers seem to be important factors and this is reinforced by official statistics that show the public sector withdrawal from apprenticeship training (Worland & Doughney 2002, p. 94).

Between one-quarter and one-third of employers saw the various loss variables, such as wastage during apprenticeships and workers leaving the trade, as relevant. Downsizing often results in workers being made redundant leaving the trade. The current strong labour market for electrical workers resulting from a cyclical upturn in demand also contributed to the labour shortage.

Eleven employers indicated additional causes, some of which were extensions of the factors already canvassed. Most suggestions gave reasons for the shortage of good apprentice stock. The change in focus of the education goals pursued by young people, the failure of the authorities to adequately promote the trade as an attractive career option and the structure of the school system with the 'demise of the technical schools' being three contributing factors. By not being introduced to the trades in schools, it is argued, students are being discouraged from entering a trade. Labour hire firms also identified with the problems of secondary students not being attracted to apprenticeships.

Labour hire firms strongly identified with the proposition that the shortage is related to the dearth of apprentices in training in both the private and public sectors. As well, the practices of downsizing outsourcing have resulted in firms opting out of training. A small percentage

of respondents saw apprenticeship wastage and the departure of people from the trades as factors.

Solutions to the shortage

What can be done to overcome the shortages? Two alternative approaches are considered – one being to control the demand for labour and the other to increase its supply by training additional workers or through migration. The responses from the employers were compiled into a list containing 108 suggestions. The ranked list is presented as table 3. What is interesting is that it is heavily biased towards supply factors, although within the regimen of solutions the migration option is not canvassed at all. Indeed, most of the response categories are related to the question of the number apprentices in training.

Table 3 Suggestions as to how the current skills shortage might be overcome

<i>Ranked suggestions</i>	<i>Number</i>
Take on more apprentices	27
Promote trades among the youth	19
Subsidies, assistance, allowances for apprenticeships	19
Better training	14
TAFE schooling	5
Reduce apprentice wages	5
Keep unions out	4
Job creation	3
Less emphasis on cost	3
Promote apprenticeships to employers	3
Pay more to trades-persons	1
Poach	1
Improve training effort in the bush	1
Anti-poaching	1
Change the age of apprenticeships	1
TOTAL	108

Although the list does not include the responses from labour hire firms data from that sector shows the first two options to be the only ones seriously canvassed. All labour hire firms saw the need to train more people and particularly more apprentices. Two reasons contributed to the contemporary prominence of this issue, namely the significance of the apprenticeship issue in enterprise bargaining discussions and the part played by some employer associations in stimulating interest for labour hire firms to take on apprentices through group training schemes. The specific reasons for the timing of this matter needs to be further investigated.

Of the 14 labour hire firms making suggestions about overcoming the shortage of skilled trades persons, 11 offered solutions requiring an increase the number of apprentices while the other three involved bringing in skills

from outside. Making the apprenticeship route more attractive both to employers and potential apprentices, overcoming existing prejudice and using group training to facilitate a significant increase in the number of apprentices in training were common suggestions.

The conclusion that there are too few electrical, electronic, or communications apprentices/trainees employed by firms within the labour hire industry is consistent with the finding from the KPMG (1998) study.

Incidence of apprentice employment

The paper now turns to the issue the how many apprentices are trained, who trains them and their distribution across the industry. This section examines the incidence of the employment of apprentices among a sample of employers and labour hire firms, the nature of firms undertaking training, the recruitment process, impediments to recruitment and the effect of group training. The analysis of labour hire firm data is especially important to verify the veracity of the commonly held viewpoint that labour hire firms do not engage apprentices nor contribute to the on-going training of their workers. It is asserted that the expansion of labour hire in this industry has contributed to reduced training in the industry.

Table 4 presents the evidence from 21 labour hire firms to show their participation in apprenticeship training in the electrical and associated occupations. The sample of labour hire firms in the study was from two discrete groups: those operating exclusively as labour hire firms and those where labour hire formed only part of their overall operations. This latter group is more likely to have workshop facilities and there is a discernable difference in the incidence of apprenticeship training between these two categories with those operating exclusively as labour hire firms less likely to employ apprentices.

Table 4 Labour hire firms and apprentice employment

	With apprentices	No apprentices	Total
Firms with workshop	5 (1 with electrical)	2 (1 used to have apprentice)	7
Firms without workshop	1 (1 with electrical)	13 (4 used to have apprentice)	14

Of the 21 firms, six (29 per cent) employed apprentices. Of these, five had workshop facilities and apprentices were employed in each of those workshops. Five (71 per cent) of the seven firms with workshop facilities employed apprentices, and all but one of the firms with workshop facilities claimed to have employed apprentices in the past. Of the firms that were wholly engaged in labour hire, only one (seven per cent) employed apprentices. It is clear from the evidence that those with workshop facilities

and permanent staff are more likely to have apprentices than those solely engaged in labour hire. The continuous work-flow associated with workshop facilities is an important ingredient when a firm is considering engaging apprentices.

Within the sample of labour hire firms, there are very few electrical apprentices. There were 12 firms that employed electrical, electronic and/or communication workers and only two of these firms employed electrical, electronic or communication apprentices/trainees with one of these being a specialist labour hire firm. What appears to have happened is that a number of firms have spread their activities into the labour hire area from a traditional employment base and have continued their apprenticeship programme within the workshop but not within the labour hire part of their business. Conversely, firms that developed as specialist labour hire firms have not become involved in apprenticeship training because they see this as incompatible with successful labour hire.

Since the incidence of employment of apprentices in labour hire firms is so small, the remaining analysis of the data on apprenticeship numbers focuses on those employed by the employer category only.

The position of these employers is quite different to the labour hire sector. In 1999 the 152 survey firms employed 349 apprentices. They are engaged either directly by the employers or through a group-training provider. Table 5 shows the number of firms with apprentices under the two forms of employment arrangement, direct employment and employment through a group training company. At the time of the survey (late 1999), 97 firms surveyed employed an apprentice under either arrangement (See Table 6). This represented 62.6 per cent of the survey population. This is in stark contrast with the figures for labour hire companies, where fewer than 10 per cent employed an apprentice in the electrical field.

Table 5 General employers and apprentice employment

		<i>Group</i>		
		Yes	No	Total
<i>Direct</i>	Yes	20	52	72
	No	25	55	80
	Total	45	107	152

The more common form of employment is the direct method of employment. Seventy-two employers (46.5 per cent) used this method; nearly double the number using apprentices through the group scheme (45 or 27.7 per cent). Fifty-two firms employed apprentices exclusively under the direct method and twenty-five firms took apprentices exclusively from the group training companies. Twenty firms (12.9 per cent) used both schemes.

The first question for analysis is the degree of concentration in the employment of apprentices. Is the training effort spread across the industry or is it concentrated in a small number of firms? Table 6, by showing the numbers of apprentices employed by size of firm, gives an understanding of the concentration of training effort among firms.

Table 6 Apprentices per employer, by numbers of employers

Apprentices per employer	Number of employers	Number of apprentices	Cumulative %
0	55	0	0
1	39	39	11.1
2	22	44	23.8
3-4	20	66	42.7
6-7	4	20	48.4
8-9	5	42	60.5
10+	7	138	100
Total	152	349	100

According to the survey data, at the end of 1999 there were 349 electrical apprentices working for 152 firms. Fifty-five firms did not employ an apprentice. Two-hundred-and-thirty-five apprentices (67.3 per cent) were directly employed by the firms, and the remaining 114 (32.7 per cent) were working under a group scheme arrangement. Thirty-nine firms employed one apprentice. The majority of firms (58) that employed apprentices employed more than one. Within these multi-apprentice firms, there is a high degree of concentration of the apprentices. For example, 39.5 per cent of apprentices were trained by eight per cent of the firms, and more than half (51.6 per cent) were trained by 16.5 per cent of the firms. There were only four female apprentices in the firms sampled, and they were all employed under a group scheme by one firm. With so few female apprentices it is not possible to undertake further statistical analysis of this cohort.

Classifying employers according to the ratio of apprentices to employees reveals a range of zero to more than 25 per cent. Cross-tabulating these ratios with size of firm shows a relationship between size of the organisation and the proportion of employees that are apprentices, with smaller firms having a larger proportion of electrical tradespersons as apprentices on average. Chart 1 illustrates the relationship, with the trend line showing its direction. However, the scattering of data points also illustrates the significant dispersion involved, suggesting that it would be wise not to read too much into the results. (This cautionary note is reinforced when we perform a linear regression on the ratio of electrical apprentices to electrical employees against the number of electrical employees in firms in the sample that employed apprentices. Only 12.5 per cent of the change in the proportion (ratio) of apprentices is explained by a change in the number of employees. That is, 87.5 per cent is explained by other factors.)

Is there a difference in the concentration of apprentices between the direct employers and the group scheme employers? Taking a simple delineation

between the single and multi-apprentice employers, there is no difference in the propensity of the groups to take on more than one apprentice. Forty-eight (67 per cent) of those that employ apprentices directly employ more than one apprentice, and 29 (67 per cent) of those who employ apprentices under the group scheme employ more than one apprentice.

Chart 1 Electrical apprentice-employee ratio to number of electrical employees (employer size)

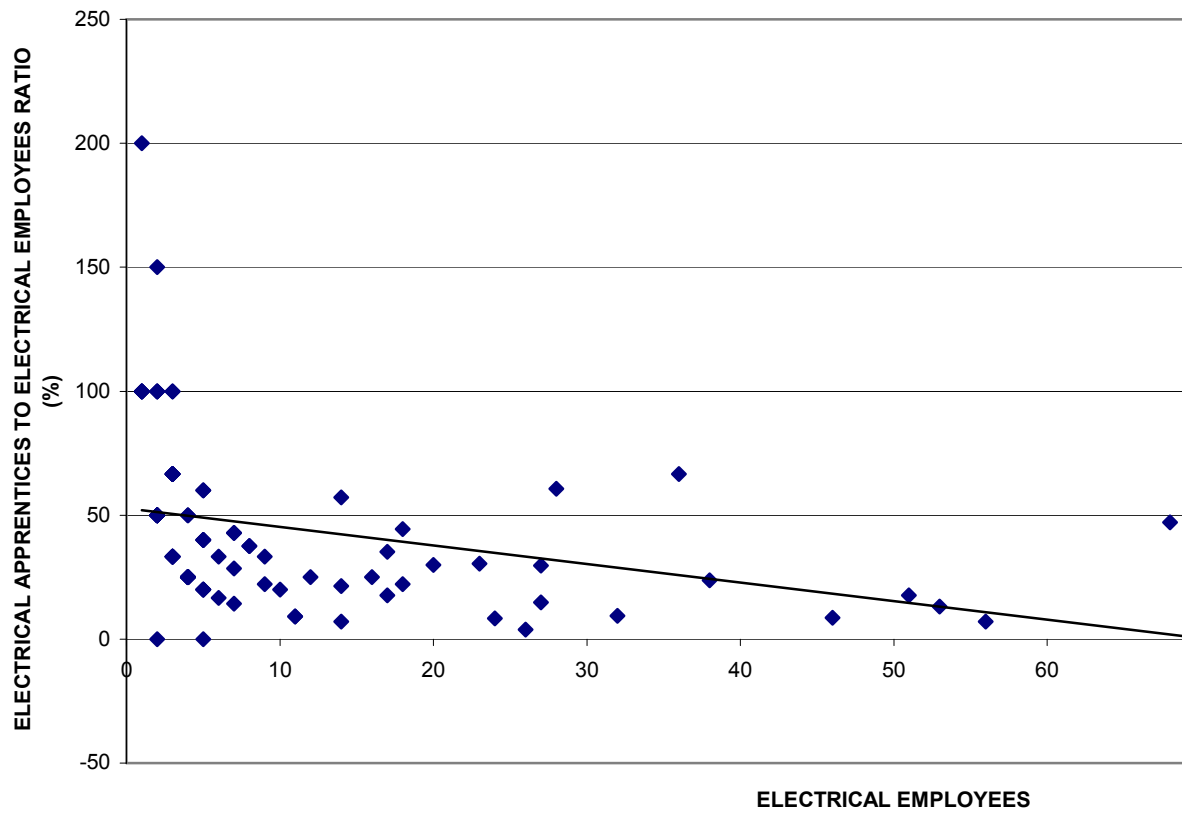


Table 7 Electrical apprentices per employer, by gender, year of apprenticeship and direct vs. group scheme employment, 1999

Year of apprenticeship	1		2		3		4		All years	
	M	F	M	F	M	F	M	F	M	F
<i>Direct</i>										
1	25		19		21		16		81	
2	8		7		6		7		28	
3	4		2		3		1		10	
4	0		1		2		0		3	
5+	2		3		1		1		7	
Totals firms	39		32		33		25			
Totals apprentices	64		69		64		38		235	
Apprentices /firm	1.64		2.15		1.94		1.52			
<i>Group</i>										
1	8		12	1	13		7		40	1
2	4		9		5		5		23	
3	1		0		1	3	0		2	3
4	0		0		1		1		2	
5+	1		0		0		1		2	
Totals firms	14		21	1	20	1	14			
Totals apprentices	24		30	1	30	3	26		110	4
Apprentices /firm	1.71		1.41		1.57		1.86			

The survey data is now analysed to discern a pattern of recruitment over time. Table 7 shows the incidence of employment of electrical apprentices by firm and by year. The number of firms taking on apprentices as direct employees has grown over the four years 1996-1999, and especially in 1999. The number of firms employing apprentices under the group scheme has also increased, but in 1999 there was a decline. So, using evidence of the number of firms suggests a swing back towards direct employment of apprentices in 1999.

The ratio of apprentices per firm in each year reveals an interesting pattern. For group apprentices, the ratio increases with the year of apprenticeship, suggesting a preference for more experienced apprentices by firms. The reverse is the case for firms directly employing apprentices. This might be a reflection of the apprenticeship wastage rates or it could be a reflection of the different levels of apprentice recruitment from year to year. The lower rate for first year apprentices directly employed in 1999, for example, will result in a lower rate for year 2 apprentices in the following year than the rate for that cohort in 1999, especially after accounting for wastage. It should be noted that wastage is not an issue for employers of group apprentices, since the wastage is only reflected in the numbers registered with the group training company and not with the employer accepting a placement.

There are smaller numbers of apprentices employed under both schemes in 1999 than in each of the previous two years and this is a matter of concern.

On the question of recruitment, there are two issues to be addressed. The first is to establish the number of apprentices being recruited into this field. The second relates to the recruitment method used. The first question is examined using data showing the intentions of employers and labour hire firms. Employers indicated an intention to recruit 223 electrical apprentices/trainees in 2000; an increase of more than 150 per cent over 1999. Do the plans for an increase represent an increase in commitment by firms already employing apprentices or is it due also to new firms being involved in training? For the directly employed apprentices there is no statistically valid relationship between numbers currently employed and intended numbers of new apprentices. Data from group training companies was considered too unreliable to support statistical analysis.

The employment intentions of labour hire companies, revealed the prospect of a significant increase in the number of apprentices in training within those firms and a number of firms (8) who currently do not have apprentices would be employing apprentices in future. However, the significance of the change in culture required to realise these intentions gives rise to a doubt about the veracity of labour hire firms' claims without an effective exogenous stimulus to support a change in culture. An employer association(s), a union campaign, changing market conditions or moral obligation towards training young workers could be possible stimuli for such a change.

The second issue is the method of recruitment. The most commonly used recruitment methods were recommendation, receipt of personal curriculum vitae by the employer, advertising in the media or recruitment of apprentices through the NECA apprenticeship test programme. Twenty-four employers indicated more than one method of recruitment and the most common second method was the interview - complementary method of recruitment.

Given that one attraction to employers of training apprentices is their contribution to a future trained workforce, it might be expected that employers would prefer apprentices to stay on after completion of their apprenticeship. Surprisingly, only 22 firms employing apprentices had a policy of retaining them, and five of these qualified their response by saying that it depended on the individual. Eighty-four firms said their decision depended on the individual; a proxy for their labour needs at that time

Impediments to recruitment of apprentices

The literature suggests a range of obstacles preventing the employment of apprentices. These are now explored.

Tables 8 and 9 show employer perceptions of major impediments to employing apprentices directly (table 8) and under group training arrangements (table 9). The responses are categorised according to whether the respondents employed apprentices or not. Both groups disclosed 'economic uncertainty' and 'the flexibility of group training as an alternative' as the main impediments to apprentices being employed. The quality of applicants is an important impediment

to around one half of those who engage apprentices. Cost is often proposed as an impediment expressed through lower productivity during the early years of an apprenticeship and loss of work time through workplace absence due to schooling commitments. The evidence suggests that cost, whilst important to many employers who do not employ apprentices, is an impediment to only about one quarter who do. The availability of suitable work, lack of productive work from apprentices and lack of suitable supervision are impediments for a minority of both groups.

Table 8a Perceptions of Employers who employ apprentices directly, of impediments to taking on apprentices as direct employees

<i>Impediments to taking apprentices as direct employees:</i>	Yes	No	Don't know
Economic uncertainty inhibits direct employment of apprentices	49	37	1
Poor quality of applicants - attitude, skills, etc	41	41	4
The group training scheme provides greater flexibility to the employer	36	32	17
Scarcity of suitable applicants	35	45	6
Costs of apprenticeship	21	61	1
Lack of suitable work for apprentices - especially in the high technology areas.	14	66	3
The early years of apprenticeships do not suit the employer - apprentices are not productive enough in the first years	12	68	4
Lack of suitable supervision in their place of work	10	73	1

Table 8b Perceptions of Employers who do not employ apprentices directly, of impediments to taking on apprentices as direct employees

<i>Impediments to taking apprentices as direct employees:</i>	Yes	No	Don't know
Economic uncertainty inhibits direct employment of apprentices	29	7	2
Costs of apprenticeship	23	12	3
The group training scheme provides greater flexibility to the employer	18	8	
Lack of suitable work for apprentices - especially in the high technology areas.	17	19	
The early years of apprenticeships do not suit the employer - apprentices are not productive enough in the first years	11	23	1
Scarcity of suitable applicants	9	20	3
Poor quality of applicants - attitude, skills, etc	8	19	4
Lack of suitable supervision in their place of work	5	26	

Employers' perceptions of impediments to recruiting apprentices under the group-training programme are shown in table 9. A clear majority of those employing apprentices under the group scheme indicated that they use group apprentices to

top up their labour requirements. Nearly half of the employers expressed doubts about the quality of apprentices under the group training scheme. Surprisingly, few employers see lack of suitable work, obstacles to supervision and lower apprentice productivity as impediments.

Table 9a. Perceptions of Employers, who employ apprentices under a group scheme, of impediments to taking on apprentices under a group training arrangement

<i>Impediments to taking apprentices from a group training programme:</i>	Yes	No	Don't know
Prefer direct apprentices and only use Group scheme to top up	53	33	7
Poor quality of group apprentices - attitude, skills, etc	39	38	12
Lack of suitable work for apprentices - especially in the high technology areas.	18	63	9
The early years of apprenticeships do not suit the employer: apprentices are not productive enough in the first years	18	65	4
Lack of suitable supervision in their place of work	12	76	1
Opposition from those who would be required to supervise	4	79	5

Do employers who hire apprentices under a group training arrangement see a different set of impediments to those who do not take on group apprentices? Of the impediments suggested, the only one to be given overwhelming support by those who employed apprentices was the preference for direct employment of apprentices. Employment of group apprentices is seen by a majority of those who use this scheme as a topping up process. The poor quality of apprentices is viewed as a factor among a narrow majority of employers who use the group scheme. All other factors suggested by the researchers were considered impediments by a minority of employers, whether or not they employed apprentices under a group scheme.

Table 9b. Perceptions of Employers, who do not employ apprentices under a group scheme, of impediments to taking on apprentices under a group training arrangement

<i>Impediments to taking apprentices from a group training programme:</i>	Yes	No	Don't know
Prefer direct apprentices and only use Group scheme to top up	12	16	2
Lack of suitable work for apprentices - especially in the high technology areas.	12	19	3
The early years of apprenticeships do not suit the employer: apprentices are not productive enough in the first years	12	20	1
Poor quality of group apprentices - attitude, skills, etc	8	11	10
Opposition from those who would be required to supervise	1	24	4
Lack of suitable supervision in their place of work	1	26	3

Labour hire firms identified a range of obstacles preventing the employment of apprentices. Surprisingly, more than half of the labour hire firms (62 per cent) said the cost factor was not an impediment, although 43 per cent saw the lower productivity of earlier years of apprenticeship as an impediment. Labour hire firms regarded a number of other work related factors as more important obstructions. These were the capacity to provide suitable continuous work (62 per cent), the economic uncertainty (62 per cent), the provision of adequate supervision (38 per cent) and the lack of support from clients (71 per cent).

Tables 10 and 11 contain summaries of the responses of labour hire firms regarding impediments (direct employment table 10 and group scheme table 11).

Table 10 Labour hire firms’ perceptions of impediments to taking on apprentices as direct employees

<i>Impediments to taking apprentices as direct employees:</i>	Yes	No	Don’t know
Attitude of labour hire client	15	2	4
Economic uncertainty inhibits direct employment of apprentices	13	6	2
The group training scheme provides greater flexibility to the employer	13	6	2
Lack of suitable work for apprentices - especially in the high technology areas.	13	7	1
The early years of apprenticeships do not suit the employer - apprentices are not productive enough in the first years	9	9	3
Lack of suitable supervision in their place of work	8	10	3
Costs of apprenticeship	8	13	-
Scarcity of suitable applicants	5	13	3
Poor quality of applicants - attitude, skills, etc	4	14	3

The issue of economic uncertainty, seen as important, was usually interpreted as the ‘stop-start’ or short-term nature of the labour hire operation. Some firms see themselves as supplying labour on a very short-term time horizon. They argue that the staccato nature of the workflow is not conducive to hiring apprentices, as the needs of the business do not match the work requirement of an apprentice in training. The lack of supervision resources in labour hire amplified this. Thirty-eight per cent of firms saw the lack of suitable supervision as an impediment. However, that the majority of firms did not see this as a problem is probably due to the delineation of labour hire firms into two distinct types: those with a more permanent labour force located in a workshop setting and those without a significant core workforce.

The difficulty of guaranteeing work for apprentices in a workplace setting with a significant ebb and flow of work is a major obstacle in businesses driven by bottom line cost factors. Direct employment of apprentices is anathema to the culture of flexibility required to respond to clients’ immediate needs. The option of taking apprentices from a group training scheme is more consistent with this philosophy, and 62 per cent of the respondents see the group training alternative as inhibiting them from directly employing apprentices. Labour hire firms argue that clients do not want apprentices; they are driven by cost factors, and hiring

apprentices is not seen as cost-effective. In a number of cases, the clients of labour hire companies withdrew from training apprentices when they contracted out their maintenance function to labour hire companies and were not interested in becoming involved in apprentice training again.

However, the lack of support for apprentices among labour hire firms is a contested point. Some labour hire firms are not convinced of the veracity of claims that clients are opposed to using apprentices, and others argue that clients need to be persuaded about the importance of apprentice training. So, although 71 per cent of firms see lack of client support as an impediment others see this as phoney. This attitude, when held by client firms, should be vigorously debated with them. The need to educate clients about the merits of apprenticeship training was mentioned by a number of respondents.

There is no real strength in the support for the idea of a scarcity of applicants. Notwithstanding, in the discussion about the causes of the skills shortage, this issue was raised by a number of respondents. The issue of the productivity of apprentices over their training lives was also tested as a variable and a majority believe it to be an impediment.

A similar set of impediments was identified for the hiring of group apprentices. The single most important factor to gain support from the data in table 11 is the commonly held view that group training is seen by a number of employers as offering an opportunity to top up their workforces. Nearly half of the firms said that they prefer direct employment of apprentices and use the group scheme as a topping-up mechanism.

Table 11 Labour hire firms' perceptions of impediments to taking on apprentices under a group training arrangement

<i>Impediments to taking apprentices from a group training programme:</i>	Yes	No	Don't know
Attitude of labour hire client	13	4	4
Lack of suitable work for apprentices: especially in the high technology areas	11	8	2
Prefer direct apprentices and only use group scheme to top up	9	9	2
The early years of apprenticeships do not suit the employer: apprentices are not productive enough in the first years	8	10	3
Lack of suitable supervision in their place of work	8	9	3
Poor quality of group apprentices: attitude, skills, etc.	5	7	8

Preference for direct employment or group apprenticeship training

The survey attempted to obtain feedback about employers' preferences for direct or group apprenticeship and the factors contributing to that preference. Eighty employers (77%) indicated a preference and of those 57 (71%) prefer the direct employment of apprentices. Their reasons are given in table 12.

Table 12 Reasons employers prefer either the direct or group training

<i>Reasons for preferring either the direct or group method of employment:</i>	Number	%
• Flexibility	25	26.3
• Discipline/control	25	26.3
• Suit our needs	12	12.6
• Loyalty	10	10.5
• Cost	8	8.4
• Better training	6	6.3
• Preference for long term	6	6.3
• Group employer recommendation is helpful	3	3.1
TOTAL	95	100

Two factors stand out in shaping their preference: flexibility and discipline/control. Flexibility is interpreted here as the degree of freedom an employer might have over the use of an apprentice, particularly a freedom to engage or to disengage an apprentice and the group scheme provides greater flexibility and is the dominant factor in the preference by the employers of group apprentices for that scheme. Twenty-one of the twenty-three employers who use the group training scheme put flexibility as the factor influencing their preference. The decision to employ an apprentice directly represents a longer-term commitment by the employer with consequences for flexibility.

The issue of control relates to the influence an employer has over the way in which the apprentice develops. It extends to the level of discipline that develops from this lasting relationship; absent under a group training arrangement. Another related variable is the perception by employers that direct employment ensures an apprentice will develop in the company mould, adopting the cultural traits fostered by the employer. Loyalty can also be seen as a product of the control variable. The discipline/control factor was the advantage most frequently mentioned by supporters of the direct employment relationship. Twelve indicated the importance of training the apprentice in the company way and 10 identified the loyalty factor as important. These factors were not seen as relevant by any of the companies with a preference for group training.

Finally, cost was identified as a factor by a small number of employers, as was the quality of training. However, it is interesting that, in both of these cases, employers who supported either scheme were able to identify cost and quality as an advantage of the particular scheme for which they had expressed a preference.

Labour hire firms were also questioned about their preference for either scheme. Of labour hire firms that had some involvement with apprentices, 82 per cent expressed a preference. However, the preferences are evenly divided between the schemes. Nonetheless the issues dividing the choice are consistent with those given by employers. Like the employers, labour hire firms favouring direct employment believe direct employment gives them greater control over the apprentice than does the group scheme.

Post trade training

Contributing to the post trade training of a workforce is another way in which organisations can demonstrate commitment to training. The evidence of training being provided by employers and labour hire firms for their employees are presented below. Eighty-five employers (54 per cent) and thirteen (62 per cent) of the labour hire firms provided post trade training for their employees. The nature of the training is revealed in Table 13.

Table 13 The kind of post trade training supported by employers and labour hire firms

<i>Type of training</i>	Number of employers	Number of labour hire firms
General support for training	27	-
PLC, motor control, fault-finding and testing	20	1
Cabling and communications and data	17	1
Electronics/advanced electrical	9	2
Occupational health and safety/first aid	9	1
General support for training that suited the company	8	2
Austel/Telecom licence	5	-
Equipment training	5	-
Supervision and business training	5	-
Plans, drawing, estimating	4	-
Drivers/forklift	2	5
Basic computer	2	-
Air conditioning/engineering	2	2

The evidence suggests the following patterns of post-trade training. Seventy-four employers (87 per cent of those indicating the provision of further training) identified the type of additional training undertaken by their workers. A substantial proportion of these responses were general in nature. Thirty-five employers supported additional training but were no more specific about that training than to say that it should have suited the company before gaining their support. The remaining 50 employers provided more specific details about the kind of training supported. Clearly the additional training is concentrated in the areas of more sophisticated electrical, electronic, communications and data training. There is also considerable emphasis on occupational health and safety training and on training required for licensing to operate machinery. What is surprising is the small number of employers who said they supported training in supervision and business training.

Of the 21 labour hire firms surveyed, 13 indicated that they encouraged employees to undertake further training to enhance their skills. There was a clear dichotomy between those with workshop facilities and those who were solely engaged in labour placement activities. The firms with employees in their workshops were supportive of training, as were those who had employees placed with clients on contracts. The labour placement firms however, see it as an unnecessary cost and an activity that weakens their competitive position. Training

encourages the movement of workers to client companies or to competitors. Some see clients as preferring to train their own staff or having a requirement for trained staff. 'We are not a training company', said a representative of one of the labour hire firms.

What is obvious in a comparison of employers' and labour hire firms' responses is the different thrust to the training support between the two groups. Labour hire firms support training that will provide workers with a broader range of skills that enhances their workers' capacity to do additional tasks such as drive a forklift. The training supported by the employer group is more of the skill intensification kind and likely to be undertaken over a longer period of time.

The range of courses taken by the workers were work related and either skill broadening or skill intensification programmes, occupational health and safety training or specific training programmes arranged by the firm through a TAFE institution. Outcomes such as PLC, S permits, rigging tickets, fork lift tickets, welding tickets, scissor lift tickets and cable jointing were mentioned.

A level of support by employers for ongoing training could be gauged from their preparedness to provide for or pay for training. Nearly all of the 35 responses indicating support for training either specifically referred to a material level of support or implied that a company subsidy was available. When the assistance provided for the specific training initiatives is added to this, nearly all the employers who responded to this question would provide assistance of some kind for training. Likewise, all 13 labour hire firms encouraging training, suggested that they either facilitated the training or would consider subsidising it in some manner.

Conclusion

This study set out to establish whether Victorian employers in the electrical and associated industries perceived a skill shortage in the electrical and associated occupations and to identify the contributing factors. The analysis of the skills shortage has been informed by literature together with evidence provided by employers and labour hire firms.

On the question of attitudes to training and skill development, Wiltshire (2002, p.5.) said of the building industry:

The training market itself is more driven by supply than demand and many employers seem to have forgotten the need to train future workforces....and, It has become too easy for employers to poach qualified workers from elsewhere rather than establish a formal training program .

This view is confirmed by the experience and behaviour of firms in the electrical and associated industries, especially labour hire firms, who, although signalling the existence of skill shortages, have not been active in apprenticeship training. Employers in general in this industry, however, do contribute to the training of

labour. The contribution by organisations varies, with some firms demonstrating a tradition of a strong commitment to apprenticeship training and others either not being involved or changing their involvement over time. In terms of size of firm, there appeared to be a higher ratio of apprentices to tradespersons in smaller firms – with the exception of the self-employed, who, by definition, are not involved.

Two plausible explanations of the skill shortages are the cost of apprenticeships and a shortage of suitable applicants. The evidence provided by employers suggests that factors other than cost have been more important deterrents to taking on apprentices directly. In particular the employers surveyed cited economic uncertainty as the main factor, followed by the flexibility offered by the alternative of group training. However, cost is said to be a more significant factor explaining the very low incidences of apprenticeships within the labour hire sector. The lack of suitable applicants appears to have been an issue. Concerns were expressed by a number of participants in the study about whether suitable applicants were receiving sufficient information and encouragement about apprenticeships in their school setting. Further, very few apprentices are being recruited from among disadvantaged groups and women.

Support for strategies to identify attitudinal barriers to entry to electrical apprenticeships would be one measure that could assist in promoting the trade at an appropriate time in the career decision chain. This strategy could involve the promotion of the trade in schools and elsewhere by developing a promotional and marketing campaign aimed at increasing the number of people seeking to commence entry level training (see also Catelotti 2000, p. 40). In addition this research indicates a need for specific strategies to improve knowledge of the value of electrical trades by parents and careers counsellors (see recommendation 14 from Kirby 2000, p. 20). This calls for the integration and improvement of careers information and guidance services relating to education, employment and training for young people and adults.

At the same time there is a need for intending applicants to be provided with better information about apprenticeships. Improved understanding of the nature of apprenticeship training and the electrical industry will assist in better ‘matches’ between the apprentice and the job and should therefore decrease attrition rates. Apprentices are on probation before signing the indenture. Hence appropriate induction into the job could also assist in this area (see Schofield 2000, p. 55), as could earlier work experience while at school.

Establishing alternative pathways for entry to the trade is also worthy of consideration. Current methods of recruitment are not achieving the desired level of intake, retention and completion, so alternative entry pathways should be explored (see also Catelotti 2000, p. 45). For example, it is important to explore opportunities for those entering trades to switch trades at various times during their training so that a better match is achieved and they are not lost to trades through a poor initial choice.

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Appendix A

E4: general employers

General electrical employers were grouped into categories as follows. Their industry sector component is also shown in the right hand column.

- | | |
|--------------------------|--------------------------------------|
| • Sole traders | electrical/commercial/communications |
| • Sole traders | electrical/communications |
| • 1-10 employees | electrical |
| • 1-10 employees | commercial |
| • 1-10 employees | commercial/communications |
| • 11-30 employees | commercial/communications |
| • more than 30 employees | electrical |
| • more than 30 employees | commercial/communications |

A limited telephone survey (E4) of employers was conducted. A sample of 241 employers was selected at random from the main database of employers in an effort to increase the representation of sectors underrepresented in the postal response. The sample details are shown below, with the method of selection given in parentheses.

- | | |
|--------------------------|---|
| • Sole traders | 60 electrical/commercial/communications
(1 in 4) |
| • Sole traders | 4 electrical/communications (1 in 12) |
| • 1-10 employees | 90 electrical (1 in 4) |
| • 1-10 employees | 40 commercial (1 in 3) |
| • 1-10 employees | 29 commercial/communications (1 in 6) |
| • 11-30 employees | 13 commercial/communications (1 in 10) |
| • more than 30 employees | 3 electrical (1 in 20) |
| • more than 30 employees | 2 commercial/communications (1 in 15) |

Overall results of the employer postal and telephone survey (E4) are as follows. Percentages of the total distributed (excluding those returned address unknown) are also given. 49 employers completed and returned surveys as a result of telephone contact from the research team.

- | | |
|--|----------------|
| • Total surveys distributed | 1056 |
| • Total completed and returned surveys | 157
(14.9%) |
| • Surveys returned address unknown | 4 |
| • Surveys not returned | 895
(85.1%) |

E4: labour hire employers

Labour hire employers were surveyed using the main employer survey tool (E4). The relevance of the survey tool to labour hire companies was checked via a pilot session with personnel from a labour hire company. The survey was then administered via individual interview with managers of 21 labour hire companies.

- | | |
|----------------------------------|----|
| • Total surveys administered | 21 |
| • Total useable results obtained | 21 |