



The female 'tradie': Challenging
employment perceptions in non-
traditional trades for women

FIONA SHEWRING

TAFE NSW, ILLAWARRA INSTITUTE

NCVER NEW RESEARCHER AWARD RECIPIENT

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- ✧ Catherine Curry, The Cultural Recreation and Tourism Training Advisory Council
- ✧ Fiona Shewring, TAFE NSW, Illawarra Institute
- ✧ Mary Cushnahan, Kangan Batman TAFE.

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About the research



The female 'tradie': Challenging employment perceptions in non-traditional trades for women

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One of the main research objectives of the National Centre for Vocational Education Research (NCVER) is to build the research capacity of the vocational education and training (VET) sector. To assist this objective, NCVER has developed a program whereby new researchers are sponsored to attend its annual 'No Frills' conference. Four new researchers were supported to attend the 2008 conference in Launceston. One of these awards went to Fiona Shewring. This paper is based on her presentation at the conference.

The manual trades is an area where women are substantially under-represented. Despite many government initiatives over the past 30 years to open up the manual trades to women, discrimination and negative stereotypes about the ability of women to work in areas such as building and construction, boiler-making, fitting and machining, and painting and decorating have persisted.

This paper describes the experiences of 16 women who participated in training in trades not considered traditional for women at Illawarra Institute in New South Wales.

Key messages

- ✧ While it is difficult to accurately gauge the number of women in the manual trades, the number is very small, probably less than 2%.
- ✧ Employers continue to hold negative stereotypes about the ability of women to work in the manual trades.
- ✧ Women who have successfully gained employment in the manual trades tend to come from families where parents or siblings are already tradespeople.
- ✧ Strategies for encouraging women into the manual trades include: introductory and pre-apprenticeship courses, preferably involving work experience; clustering female students; and support from teachers in opening up job opportunities.

Tom Karmel
Managing Director, NCVER

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Introduction

This paper outlines the results of research conducted with women enrolled at TAFE NSW's Illawarra Institute to train in manual trades traditionally dominated by males. The research is informed by my 14 years as a trade painter and decorator, and my experience as a trade teacher. I am familiar with many of the difficulties women face as they attempt to enter the male-dominated manual trades—both in working as a tradesperson (or 'tradie' as we are colloquially called) and managing family commitments as the mother of five children.

Sixteen women from ten trades took part in the research, representing 34% of the women training in non-traditional trades at Illawarra Institute. The trades ranged from the building and construction trades of electrical, carpentry, bricklaying, plumbing, painting and decorating, and signcraft, through to boiler-making, fitting and machining, automotive spraying and butchery. These trades were not the only manual trades with female students, but time and funding were not available to continue the interviewing process. At the time the research was conducted I also spoke with women or knew of women training in refrigeration and as automotive mechanics. Some trades such as shop-fitting, cabinet-making and foundry had no female trade students. Painting and decorating and its affiliated trade, signcraft, have experienced a considerable increase in the numbers of female students in recent years. The reasons behind this are also examined.

Women rarely consider the manual trades as employment options, and employers by and large do not consider women as potential apprentices. One purpose of the research was to see whether there were common factors that enabled women to successfully enter occupations characterised by gender bias—perhaps the most extreme in Australian society. Another purpose of the research was to identify what, if anything, helped or hindered the women to gain training and employment in the trades.

An historical background of women in the non-traditional trades is presented, along with current statistical evidence. Literature from the United States, Great Britain, New Zealand and Australia relating to women's participation in trades and other male-dominated occupations was reviewed. Consideration was also given to occupations, such as the police and fire brigade, which had been similarly male-dominated, and the manner in which changes in parity were made. The official figures and results of the 2007 World Skills Competition were examined to see if these indicated any shifts in gender parity in manual trades internationally.

The findings of the report confirm the importance of informal networks in securing apprenticeships for women. Most of the women came from trade families and as children had often helped their fathers with manual work around the house. Factors which supported these women to overcome obstacles were a love and passion for their chosen trade and a high level of tenacity and perseverance. Additional findings refute negative myths and gender-discriminatory statements about the capability of women to be effective tradespeople, such as their physical ability, the lack of childcare and family issues. Employer support was found to be crucial in helping women succeed in their trades and in guiding future gender shifts.

Three products have resulted from the research: a short academic paper for the Australian Vocational Education Training Research Association (AVETRA); this longer, more detailed paper for NCVET, which has been funded by a New Researcher Award; and a booklet,

‘Supporting women in non-traditional trades’, containing the women’s stories in their own words. The booklet has also been formatted into an ‘e-zine’ by the Institute of Trade Skills Excellence and is accessible on the SkillsOne website.

Background research

Historically, women's participation in manual trades and similar areas of non-traditional employment undergoes major shifts during times of war. Women are called upon to fill the gap created by men enlisting and going to war, and they have willingly stepped into the breach when required. At the end of the war they are usually told that it is their patriotic duty to leave the workforce and return to the home. While most people are well aware that this was the case in the world wars of the twentieth century, it is less well known that there is evidence of medieval women in Great Britain working as steel merchants, builders, masons, plasterers, cartwrights, wood-turners, clay and lime workers, glaziers and ore and silver miners (Saunders cited in *Women in Manual Trades* 2001). There is also photographic evidence of women from the 1860s working in heavy industry during the American Civil War (*National Geographic Magazine* 2005). I have restricted my background research of women in trades to societies similar to Australia, that is, the United States, Great Britain and New Zealand, but I am aware that other societies have had quite different attitudes to women in trades and this could be an area worthy of research.

International research

The United States and Great Britain historically have pushed to change the gender bias in the manual trades and making changes in this area is still a priority for both countries. In New Zealand, research has been conducted and initiatives are being implemented to bring about change.

During the second half of the twentieth century, the United States actively attempted to encourage women into the manual trades. The Carter Administration set goals and timetables over a three-year period, from April 1978, aimed at increasing women's participation in the building and construction trades to 6.9%. This was enacted by forcing construction companies holding federal contracts over \$10 000 to take on women and minorities. If they did not comply, they faced losing their contracts. However, by 1983, 'women were 1.8 percent of the construction workforce' (Eisenberg 1998, p.20), less than a quarter of the original target. It had been intended that women would represent a quarter of the construction force in 2000, but instead women's participation stabilised at around 2% (Martin 1988; Eisenberg 1998).

The American women's stories of the 1980s and 1990s are well documented by writers and tradespeople such as Jean Schroedel (1985), Molly Martin (1988) and Susan Eisenberg (1998). Schroedel describes the efforts of 25 blue-collar women to overcome discrimination, while Martin interviewed 26 women in a variety of trades and gender-dominated occupations such as fire-fighting, trucking and mining. Eisenberg recounts the stories of 28 women from the building and construction trades. These women met fierce opposition, not only from most of their fellow workers, but also from management and unions. Resentment was manifested through direct intimidation, sexual harassment, veiled threats and isolation, and even included 'workplace accidents'. In 1999 the United States' Department of Labor noted that 88% of women reported being sexually harassed (United States Department of Labor 1999).

The research shows that the women who survived to 'journey person' (tradesperson) status came from a variety of standpoints—young, mature, married, single, with and without children. It was a passion for their trades which kept them going. Most of the women commented on knowing little or nothing about their trades when they began. Factors that helped them to survive were

drive and determination, the prospect of a very good income for the time, family support, and the occasional support from a male work colleague who went against the implicit harassment code of his colleagues. They commented on being 'hands on' people who did not want to work in an office. With the exception of the shocking harassment the American women suffered, the experiences of the Illawarra women were remarkably similar. The other difference between the research group and the American women was that the lure of a high income was not a major motivating factor for the Illawarra women. Only one, Monica, commented that she wanted to be independent and didn't want to rely on her partner having a better job.

Today in America there are many groups, such as Hard Hatted Women, whose aim is to support women in trades, and whose funding is still targeted towards increasing the number of women in the manual trades. Pre-apprenticeship courses are run by these support groups, which give women skills, confidence and support to enter the trades. The Hard Hatted Women website has links to 13 other such websites.

In Great Britain a major support group for women in trades is Women and Manual Trades (WAMT), which began in 1975 with 23 women in trades, ranging from carpentry and gardening, to bricklaying and telephone fitting (Bethlen 2001). Britain has worked to implement major changes in the construction industry as a whole. These are described in the 1998 report by Sir John Egan and in an earlier report by Sir Michael Latham (1994). These reports recommended radical changes to the construction industry, including substantial changes to its culture and structure to bring about improvement (Egan 1998; Latham 1994). They enabled thinking to extend beyond the traditional male employment base, opening pathways for women to enter the manual trades (Women and Manual Trades 2002).

The report from the British Women in Construction Conference in 2001 cites 'nine popular myths about women in construction' (Women and Manual Trades 2001, p.8) which include: construction work is too heavy; women would distract men on the building site and make them uncomfortable; women don't want to do dirty work; women will leave to have children; and a building site is not a safe place for women. The report noted that there was a mountain to climb to combat the prevailing culture in the construction industry. The Chair of Women and Manual Trades, Rachel Epson, in her report introduction noted: 'We need a construction industry which looks like Britain. Britain is not all male and white, and there are many stereotypes of the industry which need to be demolished' (Women and Manual Trades 2002, p.1).

In more recent times the Equal Opportunities Commission in Great Britain has conducted research into training and workplace segregation for women and men. Its progress report, in relation to recommendations made in 2005, notes that prior to 2005 the Equal Opportunities Commission found that young people expressed interest in non-traditional trade training, but there had been a lack of encouragement or support from schools and/or employers (Equal Opportunities Commission 2006). The government initiatives were also found to be 'insufficiently joined-up and sustained' (Equal Opportunities Commission 2006, p.6). Female construction apprentice commencements indicated increases, which ranged from 50% to over 100% for 2006, although the numeric numbers were still small. The report felt that the figures 'do give the first early indications of shifts in the persistent segregation that the investigation sought to change' (Equal Opportunities Commission 2006, p.8).

The Equal Opportunities Commission highlighted that the sectors reporting new levels of skills shortages were all male-dominated occupations, adding an interesting dimension. The report went on to note: 'This is consistent with the finding of a correlation between the employment sectors where women are under-represented and skills shortages' (Equal Opportunities Commission 2006, p.9). This statement was backed by the British Women and Work Commission, which noted that 'removing barriers to women working in occupations traditionally done by men, and increasing women's participation in the labour market, could be worth

between £15 billion and £23 billion or 1.3 to 2.0 per cent of the GDP [gross domestic product] (Women and Work Commission cited in Equal Opportunities Commission 2006, p.10). The four areas requiring action were identified as education, training, employment and government. While the report considered that major inroads had been made in these areas, it felt there was no time for complacency or a 'misplaced belief that the agenda is firmly and irreversibly in place' (Equal Opportunities Commission 2006, p.20), and that monitoring and support needed to continue.

The American website, Tradeswomen Now and Tomorrow, notes that even after more than 25 years in the trades, women still face unique challenges in entering and succeeding in male-dominated careers. These challenges are identified as being isolation, lack of role models and mentoring, discrimination in hiring and laying off, and task allotment (Tradeswomen Now and Tomorrow website). This was also found to be the case in New Zealand. A key objective during 2005–07 for Northland Polytechnic in Whangarei was to conduct research into factors impacting on women's tertiary studies and employment options (Northland Polytechnic 2006). Jane Scripps cites gender segregation and discrimination as the main causes for the lack of women in vocational trades by (2006). Scripps claims that, while equity legislation may be in place, it has little effect on women entering male-dominated trades. She notes that employers are not keen to take on female employees and that the majority of trade tertiary training is 'run by men for men' (Scripps 2006, p.19).

The responses to an employer questionnaire as part of research for the report provoke Scripps to claim that 'the most significant barrier to women successfully entering and prospering in vocational trade is the attitude of the males who run the businesses' (Scripps 2006, p.24). These attitudes included negative stereotypes of women in trades. For example, over 70% felt that women would be harder to train, while almost half of the respondents felt that their trade was unsuitable for women due to the heavy lifting aspects of the work. Another major issue for most employers was they thought they would or might have problems with women becoming pregnant and leaving. In conclusion, Scripps notes that the most obvious key to increasing women in trades rests predominantly with employers, but that their interest in employing women is limited by their traditional gender attitudes and long-held views about women in trades. She states that, without 'the robust application of anti-discriminatory behaviour and the realigning of outdated gender beliefs, little progress will be made' (Scripps 2006, p.27).

As a result of Scripps's report, a proposal for a Women's Trade Academy for Northland Polytechnic has been developed. The proposals include building 'women friendly' facilities for trade training (Northland Polytechnic 2006, p.52), which include space for mentoring, learning and socialising. She also recommends liaising with employers for two reasons: firstly, to provide graduates with the employers' trade training requirements and workplace preparation; and secondly, to gain a commitment to the provision of work experience and employment to graduates (Northland Polytechnic 2006). Work is currently in progress to make this proposal a reality.

Comparisons with other male-dominated occupations

Comparisons with other traditionally male-dominated professions can offer insights into the pervasive nature of gender bias and the difficulties associated with effecting change in the workplace. The professions chosen for this comparison are the fire brigade and the police force.

In its male-dominated culture the fire brigade is very similar to the manual trades. Sue Lewis (2004) in her paper researching gender issues in the Australian fire brigades comments that international research into the masculine history of fire fighting reveals 'uncomfortable findings and will generate diverse views' (Lewis 2004, p.6). She goes on to note that, while the fire brigade is correctly perceived by the public as being heroic, its culture and traditions are very static and,

when looked at holistically, the service does not equate to the public image (Lewis 2004). Fire brigades across the world have been built on a highly autocratic, strength-based culture, which is maintained in all areas, including those where it is inappropriate, such as in the fire houses and where coercion and bullying can result.

This culture is so entrenched that in one extreme example the London Fire Brigade Training College in England was closed for a year and all its trainers replaced to bring about change (Lewis 2004). As in the trades, gender discrimination in the form of myths (such as women not being strong enough) is perpetuated to maintain the culture. Change, particularly with regard to gender, is viewed as an attack. Events which become triggers for change may shock the public and the service itself, for example, during the Brixton race riots in London in 1981, firemen (being male and white) were attacked in the course of extinguishing fires started by rioters. This raised questions regarding gender and racial balance in the fire brigade and a number of reports were produced looking at the significance of the imbalances (Lewis 2004).

Recommendations to effect change in the British fire brigades included a move away from a paramilitary style of training to one based on the adult learner model of further education institutes or university. Lewis recommends a number of measures for the recruitment and retention of female fire fighters, which include a female trainer on every recruit training course; clustering female students; equity and diversity training for both trainers and all new recruits; and training and guidance and support for fire stations (Lewis 2004). The Australian fire brigades currently have fewer than 3% of female officers (annual reports of the various state and territory fire services 2007), but this is still more than twice the current figures for female construction tradespeople. Lewis notes that change will be long-term and take commitment and perseverance from all areas of management.

As government departments, the fire brigades in the states and territories set targets to reflect the Australian population. The goal is to gain parity in employment, with equal numbers of male and female officers. The police force also sets targets, but the force is much closer towards reaching their desired goals. With some differences between the states, the police force has an average of 23% of female officers of all ranks (annual reports of the various state and territory police forces 2007). While the police force began with a similar male-dominated culture, it has made far greater inroads into changing the gender parity of its workforce. Both services have support groups for female officers, but the difference may be that there is a more general acceptance within the management and leadership of the police force, as well as by society as a whole, of the need for women police officers.

Gender bias changes in the medical profession

The medical profession has been a male-dominated occupation and one which has effected gender parity to the extent that it is no longer considered male-dominated. Medicine has a particularly long history, during which women were seen as being both victimised and pioneering. The medical profession became a key platform for breaking down barriers to women in relation to employment, education, the law and, above all, women's suffrage. Women initially trained informally as doctors during the 1800s in the face of immense opposition. Discriminatory statements arguing against women training as doctors included references to women's lack of strength, both physically and mentally. Dagmar Berne, the first woman to enter medical education, in 1885 in Sydney, was forced to complete her studies in Edinburgh due to male hostility. As a proportion of the medical student body, the percentage of women's participation rose slowly, reaching 16.9% in 1960 and up to 36% in 1985 (McCarthy 2006). According to Australian Institute of Health and Welfare (2005) figures, women represented 32% of all employed doctors in 2005. Today women represent half of the student body in medical studies. McCarthy comments that a major factor which contributed to breaking down the barriers to

female physicians was the wish of women to consult a female doctor. She also cites the historian Brian Harrison, who notes the importance of women's health issues as a component of women's progress. The change from the 1960s percentage to that of the 1985 figures may also be a reflection of improved education for women.

Current figures for women in manual trades

Figures released in January 2008 by the Australian Bureau of Statistics (ABS 2008) state that, of a total of 349 700 construction tradespersons, 4300 are women. To indicate the proportions of women in the manual trades, table 1 includes three other categories of tradespeople.

Table 1 Manual tradespeople, males and females, 2008

Tradespersons and related workers	Female	Male	Total	% of females
Mechanical and fabrication engineering tradespersons	2 500	211 100	213 600	1.17
Automotive tradespersons	2 900	144 400	147 300	1.96
Electrical and electronics tradespersons	5 600	202 900	208 500	2.69
Construction tradespersons	4 300	345 400	349 700	1.25
Total	15 300	903 800	919 100	1.66

Source: ABS (2008).

The same data indicates that only 2900 men are registered as secretaries and personal assistants, from a total of 178 200. In percentage terms this means that 1.96% of men state their occupation as secretaries and personal assistants, compared with 1.25% of female construction tradespersons (ABS 2008). It is often difficult to gauge the numbers of women in all areas of male-dominated trades, as many figures for men and women in trades include the trades of hairdressing, hospitality, beauty etc., which are traditionally female-dominated. Figures for women in trades often look better than they are because of this. The ABS *Social trends 2007* article 'Training for a trade' is a good example of this. Under 'selected characteristics', it notes that 14.4% of all apprentices are women. While male apprentices are employed across all trades, '42% of female apprentices are employed as hairdressers and 47% are employed in cultural and recreational services, and personal and other services industries' (ABS 2007, p.3). This does not include those women apprenticed in hospitality or wholesale trade and retail trade, both areas with reasonable female participation. For this reason, if figures can be broken down into trade areas, or figures for large areas of male-dominated trades, such as building and construction, are examined, instead of figures which include female-dominated trades, a more realistic picture of the numbers of women in non-traditional trades emerges. This is shown in table 1.

WorldSkills figures

The results of the latest International WorldSkills Competition 2007 for the trades were also examined. It must be borne in mind that this competition is restricted to entrants under 21 years of age, and in Great Britain it has been found that women often enter trades at a later age, normally from 25 to 45 (Women and Manual Trades 2002). A total of 815 competitors took part in the WorldSkills 2007 competition, representing 49 trades. Only one trade had no male competitor; this was caring.

Twenty-seven trades, or 57% of the total, had no female representation. In reality most of the female contestants were grouped into the six trades of: floristry; ladies/men's hairdressing; beauty therapy; ladies dressmaking; restaurant service; and caring. Only two trades had an almost equal

balance of males and females—graphic design technology and confectioner/pastry cook. The only construction trade to have noticeable female representation was painting and decorating, which had five women (35.75%) to nine men. The only other manual trade with a higher-than-average number of females was landscape gardening, with four women (13.36%) and 26 men. It is interesting to note that, in 2007, Illawarra Institute had female enrolments of 37.56% in horticulture; however, horticulture was not considered gender-dominated for this report.

Research methods and enrolment figures at Illawarra Institute

To identify female students in non-traditional trades, enrolment figures were obtained from student records at Illawarra Institute (2007). As I knew some departments very well and was aware of female students in these areas, I quickly realised that the official figures on gender balance were misleading. Trade departments often run a variety of courses, many of which are not trade certificates. To clarify these figures, head teachers for the different sections were contacted to find out how many women in their sections were enrolled in trade courses. For example, in carpentry and joinery the official figures showed 139 women enrolled, whereas only two women were actually participating in the trade courses. The official enrolment figures were affected by courses such as the occupational health and safety ‘green’ cards, a six-hour workcover course conducted in the carpentry section. The cards are completed by anyone enrolled in a course who uses a workshop on campus grounds; many non-trade courses for women require green cards.

The enrolment numbers in metal fabrication and welding are affected by art students working in the foundry to create sculptures. In some sections, such as vehicle painting, three women enrolled at the beginning of the year, but only one remained by semester two, which reduced the completion percentage from 5.1% to 1.78%. The initial figures of 210 enrolments were reduced to a maximum of 46 women, with 22 in the Painting, Decorating and Signcraft Department (see table 2). The reasons for this cluster are discussed further in this report. Twenty women who were engaged in training in trade courses at Illawarra Institute were originally interviewed for this report. The trades included building and construction, fitting and machining, welding, auto spray, electrical, refrigeration and butchery.

The majority of the research was qualitative, with the women questioned about why, and how, they had entered their trades, the length of time in their trades, the negative and positive aspects, and what had helped or hindered them. Initial interviews were conducted with most of the women. The second interviews were all conducted face-to-face during the women’s attendance at the TAFE institute. Only one woman did not wish to participate in a second interview. The final interviewing process was conducted over eight months and, because of time and funding constraints, the number was restricted to 16. The number of women in the Painting, Decorating and Signcraft Department are noticeably much higher. The reasons for this are highlighted in this report, so only four women were interviewed from this department, two from each discipline: one apprenticed and one non-apprenticed in both trades.

Table 2 Enrolments Illawarra Institute, 2007

Department	Enrolments			
	<i>Female enrolments</i>	<i>Female trade enrolments</i>	<i>Male enrolments</i>	<i>% of female trade enrolments</i>
Metal Fabrication and Welding	22	2	996	0.2
Fitting and Machining	3	3	6	1.3
Plumbing	1	1	39	0.8
Carpentry and Joinery	139	2	849	0.2
Bricklaying	3	3	332	0.9
Painting, Decorating and Signcraft	22	22	159	12.9
Vehicle Painting	3	3	56	5.1
Meat and Allied Trade	9	2	139	1.4
Electrical	8	8	720	2.0
Total	210	46	3776	1.2

Source: Illawarra Institute (2007).

Findings

Pathways into apprenticeships and training

The pathways into apprenticeships and training for the women were varied and generally followed informal routes. This is also normally the case for male apprentices, who regularly acquire apprenticeships via network connections as apposed to responding to formal advertisements. The major difference for the women was the amount of time and tenacity it took for many of them to acquire their apprenticeship and/or training. Only four of the 16 women gained their apprenticeship through an advertisement. Three of these women worked for the same major steel company in Port Kembla, Wollongong. During the 1980s a successful class action was bought against Broken Hill Propriety Company Limited (BHP), challenging the Australian iron and steel employment policies that discriminated against women entering the Port Kembla Steelworks (McMurchy et al. 1983). While only temporary success was achieved at the time, BHP has since been separated into separate companies, all of which have very active equal employment opportunity policies and a strong management culture of acceptance. This ensures that the best applicants for apprenticeships, irrespective of gender, are gaining positions. The three apprentices working in Port Kembla, Jeanette, Melissa and Monica, had the most direct pathways.

I saw an ad in the paper and I sent in an application letter saying that I was well suited for the job and a hard worker. I got a phone call asking me to go to the Ribbonwood Centre in Dapto to do aptitude tests. There was a whole bunch of tables set up with tests on them but it was just before my HSC so that didn't freak me out; I was used to tests! I did really well, scoring 99%, I think someone got 100% but I was really pleased with my results. We had interviews straight away but I had to wait until the day after my fist HSC exam to hear that I had got the job. I was tempted not to finish my exams, but my Mum would have killed me.

(Jeanette, electrician)

Another woman, Renee, talked her employer into giving her a three-month trial job when she met him at the local pub. She secured an apprenticeship at the end of that period. Teneal was already working for a large supermarket chain as a till supervisor and was asked to move to butchery due to staff shortages. She was also instrumental in gaining her apprenticeship, suggesting to her employer that she be taken on as an apprentice. Only three of the women were apprenticed in family businesses, with one going directly into an apprenticeship. The other two women had worked for periods of one year and three-and-a-half years before entering a formal apprenticeship.

I have been working in the trade of butchery for two years. My husband is a butcher and I started working with him for financial reasons. To begin with I was just helping him packing mince and placing stuff out on the counter. As far as I understand, I couldn't cut anything because of work cover and safety issues so I started an apprenticeship.

(Tracey, butcher)

My step-dad was a signwriter and I probably wouldn't have thought to explore that avenue if it wasn't in my face as much. I did my work experience during year ten at my step-dad's signwriting business and loved it, so I left school and started as a shop assistant in the sign shop. I did this for two-and-a-half years. I did leave and try a few other things such as retail

but didn't enjoy it as much. I decided to go back and worked for another year in the shop front then I asked for an apprenticeship and got it. (Tara, signwriter)

One woman used friends to secure a group training apprenticeship after trying to gain an apprenticeship for an extended period of time and being rejected.

I started doing handyperson stuff for my friends and myself which I was good at and enjoyed. I applied for so many ads for carpentry apprenticeships but they didn't even respond or if they did, they tried to talk me out of it by telling me I would have trouble driving from here to there etc. Finally I contacted the Master Builders Association (MBA). They won't take you on unless you have work with someone so I got all the paper work and found someone who would take me on for three months. In fact it was the partner of a friend and I stayed with him for a year until I moved on to another job.

(Emma, carpenter)

In the student apprentice survey conducted by Illawarra Institute's Counselling and Careers Service in 2006, it was noted that the use of networks of family and friends was very important in securing an apprenticeship.

The importance of family and friends must be stressed. Together they are clearly *the* most successful method of job seeking. Note that this does not usually mean that family and friends employed the apprentices. It means that family and friends helped find potential employers through their networks.

(Illawarra Institute's Counselling and Careers Survey 2006)

Five women were able to enter TAFE and begin training without a job or apprenticeship in their trade. This took a degree of persistence, as it is currently difficult in most trades to gain TAFE training without an apprenticeship. Within this group of five, one gained a job in her trade working with appropriate wages, but not an apprenticeship, and paid for her own trade training, taking unpaid leave to attend TAFE. Two women in this group gained apprenticeships, but not until they were halfway or further in their TAFE training.

I have been in the trade of boilermaking for nearly four years now but it took a while to get established. I had a really good relationship with my school careers advisor, Miss D. I didn't do really well in Year 11 and I went to Miss D. and said I wanted to leave but I didn't know what I wanted to do ... Miss D. took me to a TAFE taster. I tried welding and loved it. I did the test for the pre-vocational course and five minutes after walking away from the TAFE they phoned me to say I was in ... To support myself during this time I was also working in a kebab shop. Then I got my first job in the trade from March to September 2006 but unfortunately was laid off. I did casual work and then I got a phone call out of the blue from my current employers, who had heard about me by word of mouth because I was unusual. (Adrianna, boilermaker)

The remaining three women were either self-employed or intended to be self-employed on completion of their training.

I've already got a cement mixer and I'm buying my tools—if no one will give me a job then I will make my own. (Tammy, bricklayer)

Only a couple of the women considered joining their trade as a career move.

I had had previous jobs working in [fast food] etc. but I found them boring and not challenging. My partner is a boilermaker and he knew that some new apprenticeships were coming up, so I watched for the ad in the paper. There were a number of different apprenticeships available but I decided I wanted to be an electrician as it gave me a chance at a real career. I didn't want to rely on my partner having a better job. By finding my own career I was more independent which I liked. (Monica, electrician)

Ten of the women had worked in different areas before joining their trades—ranging from fast food service and journalism, to flight attendant. Jacqueline had a number of career shifts before she started her trade at the age of 40.

My interest in painting and decorating began in childhood with memories of my mother painting well into the night with her dust coat and head scarf on ... I was always encouraged to lend a hand and have been interested in this field from an early age but it didn't seem a possibility as a career when I was younger. I worked in an office which I didn't enjoy and then became a flight attendant which I loved and which opened up a whole new world to me. Once I had children, however, it didn't seem such an alluring career. It wasn't until I was 40 that I considered this drastic change in direction.

(Jacqueline, painter and decorator)

The British Women and Manual Trades conference report, *Building bridges, demolishing myths*, noted that women registering for apprenticeships were more likely to be within an age bracket of 25–45 years than in the 16–18 age range of apprentices in general (British Women and Manual Trades 2002, p.3).

Factors which helped the women enter and remain in their trades

Trade families and the importance of family support

The majority of women in the study identified family support, particularly support from their fathers, as being of major importance to their entry into the trades. Although fewer women than I expected were working in family businesses, almost all the women came from strong trade families, with almost all members of their family working in trade occupations or similar employment. Their families reflected a variety of trades, which were generally trades different from those the women engaged in. All but one of the woman commented on the support of their families for their endeavours. Many of the women had been allowed to tinker with tools and not told 'this is men's work' as children and their fathers were often particularly influential in this respect.

I was brought up with two older brothers so it doesn't bother me to work with mostly guys—I'm well used to that ... My Dad especially encouraged me to enter trade; Mum was more on the lines of so long as you've got a job. They are both really supportive. My Mum is a midwife, Dad is a fitter and machinist, my brothers are apprentice electricians and boilermakers. Having a strong trade family definitely helped because I didn't think I couldn't do it.

(Jeanette, electrician)

My Dad is a carpenter and my brother is an apprentice carpenter. My sister now runs her own food shop. Mum was a welfare worker and now she is a nurse.

(Shandi, automotive spray)

My Mother is a landscaper and I never thought about the fact that I was entering a man's domain, I wanted to expand my creative horizons and this was a way to do so.

(Charmiane, painter and decorator)

My partner is a boilermaker ... Two of my uncles are electricians and my Dad is a fitter. My brother used to work with me at work.

(Monica, electrician)

Teaching support and encouragement

Some women found teaching staff instrumental in encouraging them on their pathways. Adrianna, a boilermaker, talks about a school teacher who took her to a TAFE trade taster and TAFE teachers as being really supportive. Shandi, training in automotive spray, gained her apprenticeship through her TAFE teacher, but not until her third year of training. Melissa, who is a fitter and machinist, also comments on the supportive nature of her school teachers:

The metal work teachers were the best. Whilst I was at school I saw an ad in the paper looking for apprentices. I had to send in a one page letter of interest. At the interview I couldn't remember what I said but they asked me questions like 'why would you be good for the job?' and 'what can you provide for the company?' My metal work teachers wrote really supportive letters for me and I had to do a test which I did quite well in.

(Melissa, fitter and machinist)

Passion and tenacity to keep going in the face of adversity

All of the women talked of a love or passion for their trades, which became even stronger as they trained and helped them cope with difficulties. This was also a major factor in survival for the American Journeypersons; all 28 women in Susan Eisenberg's book commented on their passion for their trades and how this helped them (Eisenberg 1998, chapter 6). The women also had tenacity and persisted when they didn't secure apprenticeships or jobs, sometimes funding their training themselves. Currently it is difficult for women to gain training without apprenticeships, as most positions in TAFE trade courses are filled by apprentices. Most of the women in trade courses are high achievers and this was highlighted by the heads of departments.

The following are some of the comments from the women and reflect their passion and enthusiasm for their trade.

I have always been a tomboy and I have always loved cars. It was cars and the colours—the colours you can paint cars—the pearls and the sparklers that drew me to my trade. I started on this course with my sister, she did the first two years with me then she got another job. It took a while to get an apprenticeship but I got one four months ago through my TAFE teacher.

(Shandi, automotive sprayer)

I haven't been able to get an apprenticeship but when I finish my course I'm going to do the Builders Licence and a short business course. I want to get a cheap ute and start up by myself.

(Tammy, bricklayer)

I am just moving up to the North Coast now so have just left my job and am about to try and get some work up north so we'll see how it goes but I am pretty persistent. You have to be just to get your foot in the door—as a woman you normally need to work harder to remain even in the trades.

(Emma, carpenter)

... sometimes I would finish as late as ten o'clock at night. They said it was unusual to see a girl this determined to do welding ... I've been working there for nearly a year now and I'm loving it. It's just fun to go to work. I got the apprenticeship three months after I started. In fact I asked them and they thought it was a really good idea. My previous employer had said 'no' because I was a girl and might get married and have kids.

(Adrianna, boilermaker)

Originally I applied for a pre-apprenticeship and I have had trouble getting a job. I thought I had a job a few months ago; they were going to put me on part-time then it didn't happen. During my first year I did some work experience which was excellent and I learnt heaps. I would like to be employed as a cabinet maker You have to have a passion for your trade—a passion for wanting to do it. When I'm not coming to TAFE I get down. You have to have perseverance and don't give up.

(Margaret, carpenter)

This is the first job I've ever had and sometimes I'm surprised at how far I've come. I think that if you want to do something, do it, there's nothing to stop you and nothing you can't do. (Annalisa, signwriter)

The importance of employer support to the women's survival

Employer support is widely recognised as vital for the survival of female tradespeople (Scripps 2006, *Women and Manual Trades* 2001, 2002; Eisenberg 1998; Martin 1988). One of the major difficulties for the American women during the 1980s was their lack of employer support. Eisenberg comments that the essential basis of the apprentice system, with its roots in the medieval practice of master–apprentice relationship, was still prevalent and that the female apprentices 'were still dependent for the core of their training on their relationship with their supervising journeyman (Eisenberg 1998, p.59). Very few women reported a good relationship and good training. Other major factors were lack of higher management and union support, which essentially left the women marooned and isolated. The importance of employer and management support was noted by eight of the women in the Illawarra group, all of whom were in traditional apprenticeships. Tara, the signwriter, experienced bad harassment which initially went unreported.

It hasn't all been plain sailing, I've been harassed and bitten—I didn't talk to anyone about being harassed but when I was bitten I told the boss and the guy was sacked immediately. Mostly I ignore any bad stuff but you've got to be physically strong. You've got to be keen as the men, in fact probably keener. (Tara, signwriter)

I love my workshop, my boss is really good, he doesn't treat me as a girl just as someone doing a job. It is really good because if he did I think there would be a problem. We've had our differences but we work them out. (Shandi, automotive spray)

When I finished school I talked to my Dad (by trade he is a bricklayer, rigger, scaffolder and in the demolition/construction business), he is a foreman for a company and he put me on as an apprentice with a guy who has been really instrumental in helping and influencing me. He trains me really well, shows me how to do things but is also very interested in my input. (Hannah, boilermaker)

When I started some of the lads expected me to clean up after them, they even said 'you should be doing that', I just walked away and left it. Luckily one of the bosses overheard and they had a word to them and they were alright after that. (Melissa, fitter and machinist)

[My employer] has a very strong policy on equal opportunities and all the guys know they have to be aware of their language etc. is really great. I have no problems at all; everyone is treated the same. (Monica, electrician)

Dispelling the myths and gender-based discriminatory statements

Certain statements regularly crop up when women attempt to move into male-dominated occupations. These statements are held up as truths, but on closer examination they have little or no foundation. In the literature examined for this report, they were regularly referred to as myths (Lewis 2004; *Women and Manual Trades* 2001, 2002; Eisenberg 1998) or gender-based discrimination (Scripps 2006; Martin 1988). Even if, through soundly based argument or experience, these statements are exposed as being groundless, this doesn't prevent people from retaining these beliefs. Even if unspoken, the myths can continue to gain surreptitious support. Discriminatory attitudes are regularly cited as the most significant barriers to women entering non-traditional trade areas or employment (Scripps 2006; Lewis 2004; *Women and Manual*

Trades 2002, 2001; Eisenburg 1998; Martin 1988; Schroedel 1985). The research for this paper also found that the women had experienced discrimination of this type, which added to their difficulties in gaining apprenticeships, work or training.

Managing family commitments

The management of family commitments in male-dominated employment is regularly seen solely as the women's responsibility. A commonly held discriminatory view is that 'there is no point in training women because they will get pregnant and leave'. Adrianna, the boilermaker, experienced exactly this kind of discrimination and was turned down for an apprenticeship based on this idea. It is well recognised in the trades that large numbers of men leave their trades within a few years or do not complete their training, adding to the skills shortage, yet it is not considered a waste to train them. In today's society women return to work more commonly than not after childbirth, and men participate in their children's upbringing. Judy Llewellyn-Burke, a keynote speaker at the Women in Construction Conference in 2001 commented that, traditionally, women tend to have responsibility for childcare but that in her organisation (The Llewellyn Group) there were two single parents 'who happened to be fathers and they juggle with childcare as any woman would' (Women and Manual Trades 2001).

The manual trades have traditionally had very rigid hours, and part-time work or job-sharing has not been encouraged. When women work for their own families in trades (as with Tracy the butcher, for example) the family is very supportive of flexible hours. There have also been changes in industries such as mining where women are now targeted for work as truck drivers. This was initially due to a shortage of workers but is now deliberate policy because of the women's record of safety. These women are given hours to accommodate school times. For others, the lure of self-employment enables them to manage their commitments and control their environment. The 2002 Women and Manual Trades conference 'identified the tendency of tradeswomen to be sole traders' (Women and Manual Trades 2002, p.7). The painter and decorator, Jacqueline, is a good example of this. She is already working with another woman, Diane, whom she met at TAFE and who had followed a similar pathway. Diane is now licensed and they work together combining their skills. Jackie used to be a flight attendant, so has very good people skills, but her children are young, while Diane's children are grown up and independent. Their husbands are both very supportive of their work, a comment made by several of the women, particularly regarding shared management of children.

Painting and decorating is hard work but it is also very rewarding and I always aim to do my very best in my trade by being professional and working to a high standard. Diane is the same so we work well together. We have had a great response from clients and we have also done some volunteer work in the community such as some painting at my daughter's school. Our business is growing and my kids are at school so I manage the same as any working mum with the support of my husband. (Jacqueline, painter and decorator)

Five of the 16 women have children (from the ages of five to 16) and had no problem being working mothers.

I have two children aged 15 and 13 and my boyfriend is very supportive helping me with them. (Margaret, carpenter)

When my daughter finishes school for the day she comes to the shop and does her homework and plays outside with other kids or chats to adults that she knows. Depending on what needs doing in the afternoon, I can leave at three if I need to, such as if my daughter has a special event. My hours are flexible, which works well. (Tracy, butcher)

I have a young son who is five and I manage the same as anyone else that works. I start work at 7am so we just have to be organised and my partner helps pick him up and drop him off—we share the load as do most parents these days. (Emma, carpenter)

A sixth woman from the group has become pregnant since the research was undertaken, but is still training as a signwriter and intends to return to her trade with her new partner, who is also a signwriter.

Physical factors

Another commonly held discriminatory attitude in a wide range of male-dominated employment areas is that women do not have the strength to do the job required (Scripps 2004; Lewis 2004; Women and Manual Trades 2001; Eisenberg 1998, Martin 1988). None of the women in the study had issues with the physical aspects of their jobs. Any physical job requires training of the muscles for that job, whether it is working in a café, or as a nurse or as a welder. What may be hard in the first year of an apprenticeship is accommodated by the following year through improved technique and fitness. The only women who commented that their trades could involve heavy weights were the two butchers.

I have worked with family most of my working life. My father's business was parquet flooring and I did all the business/office side of the business, which has helped us. There is also a lot of heavy lifting being a butcher so it helps being part of a team. (Tracy, butcher)

And a comment in relation to the physical hard work:

Where I work there is no time for colours. You smash your car, you want it fixed really quickly, it's hard work but what isn't? ... I went with my teacher to a careers thing and a girl said to me 'I don't know if I can hack it', I said if you don't try, you're never going to know. (Shandi, automotive spray)

Sometimes the physical aspect had nothing to do with strength:

I have never had any issues, although not long ago I was driving around with the first year apprentice and people just assumed that he was the tradesperson and I was the apprentice. (Emma, carpenter)

Learning types

In my experience the women who engage in trades are just like their male counterparts: they are hands-on people, they don't want to be confined to an office and they get immense satisfaction from seeing something they have made with their own hands and skill. They are proud of what they can do and they want to contribute to society in a very practical way. Many tradespeople, irrespective of gender, will take their family to see the house they wired/painted/built. This aspect of satisfaction of creating something tangible was also a factor for the American Journeywomen (Martin 1988; Eisenberg, 1998). Variety and the need to think about ways to tackle a job or solve a problem were also important.

I didn't want to go to uni as I wanted a hands-on job. I figured that if I got a trade I'd be set for life—I'd always have something to do. (Jeanette, electrician)

I'm a hands on type and I just get in there and get on with it, but you do need a good memory for the breakdown of carcasses so that you don't cut into the wrong section of meat. (Tracy, butcher)

I wanted to be outdoors and I didn't want to do office work. At least with bricklaying you're on different sites and meeting other people interested in building. (Tammy, bricklayer)

I've done bathroom rough-ins, hot water systems, maintenance work, roofs and gutters. There is so much to learn and you have to use your brain. We go in and fix your hot water system or a leaking ceiling but we may have to track down leaks or whatever. You don't

have to be a genius at maths but you need a far idea. I love it ... I've always been an outdoors person; not one for sitting in front of the TV. (Renee, plumber)

When I was at school I loved metal work, PE and health, woodwork and I did alright at maths. I've always been a hands on person and I wasn't much good at other subjects.

(Melissa, fitter and machinist)

Cluster in painting, decorating and signcraft

It is often claimed that women don't want to enter the trades. When the opportunity to enter a trade is offered, many women enrol but generally they don't get offered the opportunity. The Painting and Decorating Department at Illawarra Institute, with funding and strong consistent support from the Outreach Department, has had thriving and steady enrolments for the introductory basic courses offered in painting and decorating—courses also aimed at raising women's self-esteem. The original purpose for the course was to target a particular disadvantaged group and bring them into TAFE, thus enabling them to realise their potential. These people were then assisted to move to whichever educational pathway was best suited to them. Two of the women interviewed for the research studying painting, decorating and signcraft belonged to targeted groups—a women's group and a youth at risk group. During these courses a large number of women discovered a passion for painting and decorating and they really wanted to continue and to make a living from this trade. Through the support of the Outreach Coordinator and the Head of Painting and Decorating, it has been possible to continue to train these women, and many have now progressed into the trade courses. While there are still not large numbers of women in painting and decorating and signcraft trade courses, the department has 12.9% females in trade courses and about 40% participation over all courses, trade and non-trade. This compares with a participation rate in other areas in Illawarra Institute, which ranges from 0.2% (metal fabrication and welding) and 0.23% (carpentry and joinery), to 3.46% (vehicle painting).

Almost all the women who progressed in painting, decorating and signcraft from basic courses through to trade courses participated in two or three introductory courses over the span of a year to 18 months before entering the trade courses. The staff in the Painting and Decorating Department found that these courses equipped them with good skills and increased self-esteem for entry to the trade course and assisted in making up for the lack of industry experience for the first year of the trade course. Due to a lack of industry experience, the women were also advised not to seek recognition of prior learning (RPL), and for the first year their skill level was almost always higher than their male counterparts. By the second year and beyond, most of the female non-apprenticed students were gaining experience painting and building portfolios of work experience. It was also found that the female students influenced the male apprentice students—their positive experiences with their fellow, female students meant that the male apprentices held positive perceptions about women as painters. The calibre of the work completed through the outreach introductory courses was also consistently high and strengthened the men's perception of the women as being capable painters. As many of these male students are likely to become future employers, this may mean a hopeful outlook for future employment for women. The male apprentices also took this culture into their workplaces and there has been a noticeable increase, by staff in Painting and Decorating, of employers trying out female students on a merit basis, which has not been widespread in the past.

The future

Despite the current skill shortages, women, who represent half the population of Australia, are currently being ignored as a potential workforce. Migrant workers are targeted to fill the shortages, but migrant workers coming into Australia can no longer meet the demand. At present many migrant workers who enter Australia on the strength of their trade qualification discover that their trade certificates are not recognised by the Department of Fair Trading for the purpose of gaining Australian trade licences, so they are forced to return to training or work as unqualified labour. This does nothing to encourage others to join them. Skill shortages are also an international problem, not merely an Australian problem, so it is not necessary for skilled tradespeople to move countries to gain employment.

If the 2006 research by the British Equal Opportunities Commission is correct and trade shortages correlate to areas which are male-dominated, then Australian employers are potentially missing out financially by maintaining the status quo. It is, however, unlikely that there will be a single solution to fix the problem. Different trades respond to different innovative ways of training and they may require different approaches to improve gender parity. Research into the strategies adopted by successful equal employment opportunity employers is likely to establish what they believe is required to change managerial and workplace culture. Their experiences would provide insights for engaging employers to take on female apprentices; this research found that employer support was crucial.

Currently other strategies are being proposed for solving the skills shortage. Accelerated and truncated training, using recognition of prior learning and skill sets are filling some of the gaps. The Painting and Decorating Department at Illawarra Institute is currently graduating more students per year who have not participated in traditional apprenticeships than apprentices. These are students who have worked in the painting and decorating industry informally for periods which span five to 25 years. They produce evidence of their capabilities and are trade-tested to establish any training gaps. They are then provided with training to fill these gaps. The age range of this group is significantly wider than the apprentices, and women are regularly included. As students they are highly motivated and produce high-calibre work. As noted earlier, women often enter the trades later than traditional apprentices. Currently the demand for this form of training is increasing and not just at Illawarra Institute or in the area of painting and decorating.

Women can work in the trades; they have done so before and they can do so now. The United States and Great Britain have provided support and different pathways to facilitate women's entry into the trades and this needs to be given due consideration in Australia. New Zealand intends to set up a Women's Trade Academy in the near future to support and train women for entry into the trades (Scripps 2006). Each trade may require different pathways to encourage women's participation—just as one solution can not meet the training requirements of all trades. A number of common denominators determining success were apparent amongst the research group, such as trade family backgrounds and a desire for hands-on learning. Changing the outdated gender beliefs is important, but active equal employment opportunity policies are also crucial to changing the numbers of women entering the trades. The women benefit from strong employer support, something which was lacking in the 1980s for the American women identified in the literature.

Anticipation of change is often worse than the change itself. Pathways can still be provided in a number of different ways. In the past the government provided significant trade training opportunities through large public sector organisations such as the Electricity Board or the Gas Board. Those days are gone, but the Defence Force train and employ many tradespeople and is an active equal opportunities employer, where women could train in the trades. Women can set up as sole traders or work together if provided with training at registered training organisations. Work experience could be incorporated into courses for both men and women without apprenticeships. Pre-apprenticeship courses are a well-established and proven method of gaining entry into the trades and consistently have excellent outcomes; women could be encouraged to enrol in these courses. Their future successful participation in the workforce could then be encouraged through the education of employers and by networking with TAFE teachers, family and friends to open up job opportunities. This would require commitment, dedication and support from industry, particularly if the traditional apprenticeship route is maintained as the prime means for skilling the trades.

Women can enrol in introductory courses, enabling them to gain skills and confidence to continue on to certificate III trade courses. Changing the culture within the Painting and Decorating Department has had an immense effect. The recommendations from Sue Lewis's research into the gender issues in the fire brigade support this. Her research also highlights the requirement for at least one female trainer on recruitment training courses and for female recruits to be clustered to provide them with peer support (Lewis 2004). There are more female fire fighters than female tradespeople, which possibly signals a more discriminatory culture in the trades. There are currently very few female trade teachers in areas of non-traditional trades for women.

Initial training, such as is conducted in the Painting and Decorating Department at Illawarra Institute, is extremely beneficial in supporting women's entry into male-dominated trades. The first women to follow this pathway are licensed and are gaining an excellent reputation for the high quality of their work, which has led to steady employment—often self-employment. The women in this research who have trained but who are without employment are also finding their way. They are banding together and working as teams. Both the major and small employers, and the women's partners and families have demonstrated their belief in the women and their abilities. The women who participated in this research have shown that women have the capability to train and work in the trades. They have all exhibited passion and a drive to succeed in their trades, but they have also shown determination and persistence, often in the face of rejection. It will take persistence and determination to change attitudes and provide pathways for women to enter the trades. The United States and Great Britain have proved that it can be achieved.

References

- ABS (Australian Bureau of Statistics) 2007, 'Training for a trade', in *Australian Social Trends*, cat.no.4102.0, ABS, Canberra, viewed 8 February 2008,
<[http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/DBE770EA4F64E6D4CA2573CC000F46C1/\\$File/61050_jan%202008.pdf](http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/0/DBE770EA4F64E6D4CA2573CC000F46C1/$File/61050_jan%202008.pdf)>.
- 2008, *Australian labour statistics, January*, cat.no.6105.0, ABS, Canberra.
- Australian Institute of Health and Welfare 2005, table T1.2: All registered medical practitioners: employment status and sex, states and territories, viewed 2 March 2008,
<<http://www.alhw.gov.au/publications/hwl/mlf05-xx-all-employed-practitioners.xls>>.
- Bethlen, J 2001, *Building the future: 25 years of women and manual trades*, Women and Manual Trades, London.
- Egan, J 1998, *Rethinking construction*, Department of Trade and Industry, London, viewed 20 March 2008,
<<http://www.ciob.org.cn/resources/download/Rethinking%20construction%20the%20egan%20report.pdf>>.
- Eisenberg, S 1998, *We'll call you if we need you*, Cornell University Press, New York.
- Equal Opportunities Commission 2006, *Free to choose: Tackling gender barriers to better jobs*, EOC, Manchester.
- Illawarra Institute 2007, 'Enrolment figures', 2007, Illawarra Institute, Wollongong.
- Illawarra Institute, Wollongong Campus, Counselling & Careers Service 2006, 'Apprentice Survey 2006', Illawarra Institute, Wollongong.
- Latham, M 1994, *Constructing the team*, a joint industry-government review, HMSO, London.
- Lewis, S 2004, *Gender and firefighting training*, research paper two, Institute for Social Research, Swinburne University of Technology, Melbourne.
- McCarthy, L 2006, 'Filtered images: Visions of 'pioneering' women doctors in twentieth-century Australia', *Health and History*, vol.8, no.2, viewed 19 February 2008,
<<http://www.historycooperative.org/journals/hah/8.2/mccarthy.html>>.
- McMurchy, M, Nash, M, Oliver, M & Thornley, J 1983, *For love or money: A pictorial history of women and work in Australia*, Penguin, Melbourne.
- Martin, M 1988, *Hard batted women: Stories of struggle and success in the trades*, Seal Press, Washington, DC.
- National Geographic Magazine*, April 2005 issue, National Geographic Society, Washington, DC.
- New South Wales Fire Brigade 2007, *Annual report 2006/07*, appendixes 6 and 7, viewed 2 March 2008,
<http://www.nswfb.nsw.gov.au/gallery/files/pdf/annual_reports/2006_07/06_appendices.pdf>.
- New South Wales Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.police.nsw.gov.au/__data/assets/file/0019/111277/2006-07_Annual_Report.pdf>.
- Northern Territory Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.nt.gov.au/pfes/documents/File/police/publications/annrep/Annual_Report_2007_FINAL.pdf>.
- Northland Polytechnic 2006, *Polytechnic Regional Development Fund report on the Women's Trade Academy Project*, Northland Polytechnic, Whangarei, New Zealand.
- Queensland Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.police.qld.gov.au/Resources/Internet/services/reportsPublications/annualReport/2007/documents/06-07_OurPeople.pdf>.
- Schroedel, J 1985, *Alone in a crowd: Women in the trades tell their stories*, Temple University Press, Philadelphia.
- Scripps, J 2006, *Why don't more women go into the vocational trades?*, appendix 1, Women's Trade Academy Project Report, Northland Polytechnic, Whangarei, North Island, New Zealand.
- South Australia Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.sapolice.sa.gov.au/sapol/about_us/publications.jsp>.
- Tasmania Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.police.tas.gov.au/__data/assets/pdf_file/0016/25612/Annual_Report_2006-07.pdf>.
- United States Department of Labour 1999, *Women in the construction workplace: Providing equitable safety and health protection*, viewed 2 March 2008, <<http://www.osha.gov/doc/accsh/haswicformal.html>>.
- Victorian Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.police.vic.gov.au/content.asp?a=internetBridgingPage&Media_ID=22967>.
- Western Australia Police Force 2007, *Annual report 2006/07*, viewed 2 March 2008,
<http://www.key2design.com.au/realView/index.php?client_name=wap_2007>.

Women and Manual Trades 2001, *Women in construction conference report*, Women and Manual Trades, London.
———2002, *Building bridges: Demolishing myths*, Women in construction conference report, Women and Manual Trades, London.
World Skills 2007, 'Official results', viewed 2 March 2008,
<<http://www.worldskills.org/site/public/?pageid=1240>>.

Websites

Hard Hatted Women: <<http://www.hardhattedwomen.org/>>
SkillsOne: <<http://www.skillsone.com.au/>>
Tradeswomen Now and Tomorrow: <<http://www.tradeswomennow.org/resources/publications/Labor.pdf>>
Women and Manual Trades: <<http://www.wamt.org/>>