

The Future's Rosie:

Initiatives and pathways for tradeswomen in the United States of America
– an Australian Perspective



Figure 1 Rosie the Riveter, World War II imagery

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EXECUTIVE SUMMARY

Funded by a National Association of Women in Construction International Women's day scholarship and supported by the Illawarra Institute, TAFE NSW Fiona Shewring travelled to the United States of America to conduct research into the avenues for women to enter non-traditional trades and support mechanisms which facilitated this.

Differences in the American system were explored, some of which hindered and others which promoted women's training and participation in the trades such as Proposition 209 and affirmative action. Of particular importance are the tradeswomen's own support organizations, older age brackets for apprentices and the role of the unions once they embraced equal opportunities after a rocky start in the 1980's.

Also part of the research was a survey of tradeswomen from eleven different trades which found a large percentage engaged in physical activities such as gardening and going to the gym. Many had learnt about tools at a very early age (ages 5 -12 years old) and coping with male attitudes at work was still a difficult factor in their work place. Pre-apprenticeship and the unions were the main access vehicles for women into the trades.

Aspects of training which also support the women and are different to that offered in Australia, were components such as construction conditioning, mentoring and specific pre-apprenticeship training for women. The rigorous expectations of the support groups were backed up by training which prepared the women to cope with changes in circumstances and factors on the job site. Many of the aspects of the formal mentoring which supported women during training also fostered a more inclusive culture in the trades which benefits all in the work force.

The biggest barrier to women entering the trades has consistently been found to be the aggressive male culture and its advocates. Affirmative action was found to work but needs to be actively tracked and effectively enforced. Recruitment in America is substantially different to Australian recruitment in that it is more egalitarian.

Recommendations are made for effecting change by:

- Altering women's own attitudes to their abilities with suggestions for very early introductions of tool use.
- Utilizing and extending family support from an early age
- Providing training and changing attitudes in trade training
- Providing support in the workforce

Any strategies or incentives implemented in Australia will need to be long term and consistently supported at a federal and state level to have any hope of implementing change.

BACKGROUND

Funding source

This paper has been supported by the Inaugural National Association of Women In Construction (NAWIC) NSW/ACT International Women's Day Scholarship and the Illawarra Institute, TAFE NSW. The scholarship aimed to facilitate:

An opportunity for women in the construction industry to develop a white paper that can be used as a positive instrument for change in the construction industry. The white paper will have an international component, present ideas to challenge existing industry thinking and present practical tools that can be used to implement the ideas.

NAWIC, NSW/ACT, 2009

In particular I would like to thank Letitia Turnbull, Davina Rooney and Lana Wood of NAWIC, the faculty of Trades and Technology at the Illawarra Institute and all my supportive work colleagues. Particular thanks also go to Valerie Francis of Melbourne University and Vivian Price of California State University and Melina Harris of Sisters in the Building Trades whose advice and help has been invaluable. Finally to my friends and family, who have proof read and corrected my appalling spelling; Lynn Christie and Afiya Levy, fielded questions; Jane Ussher and Janette Perz and my husband Peter and children Farron, Casson, Marek, Afiya and Kiana for their support and love.

Proposal and itinerary

The question asked by the author was *How can we effect change and enable more women to enter the building and construction trades?* The proposal was to visit a number of organizations and events in the United States of America (USA) during a month of research. The USA was chosen as a research venue as, to date, more change has been effected in America because of Government and affirmative action (Martin, 1988, Eisenberg, 1998, Byrd, 2009) and because the society, based in a colonial British past, is similar to Australia. By using research into current American avenues for women into the trades and a survey of tradeswomen it was planned to create recommendations for action appropriate for the Australian building and construction industry.

The research was conducted between 20th April 2009 and 19th May 2009. The States visited were Georgia, California, Oregon and Washington. The intention was to experience different ethnicity and ways of life as well as geographic locations. A number of different organizations were visited including unions, support groups, universities and training programs. A trade fair for women and girls in Oregon and a trade fair for both genders as well as a tradeswomen conference in Los Angeles were attended during the month's research.

The unions visited included the International Brotherhood of Electrical Workers (IBEW), the Carpenters Union and the International Painters and Allied Trades Union (IUPAT). There are a large number of supporting organizations for women in the trades in America with fifty different groups currently listed by the Sisters in the Building Trades

website. The four support groups specifically visited by the author were National Association of Women of Color in Construction (NAWCC), Women In Non Traditional Employment Roles (WINTER), Oregon Tradeswomen and Sisters in the Building Trades. The author also met other support groups such as Tradeswomen Inc, Missouri Women in Trade (MOWIT) and individual union support groups at the Women Building California Conference in Los Angeles.

Unions provide a large section of training in the United States for pre-apprentices and apprentices in the trades and all three unions visited had training facilities for their apprentices. Other organizations which provided training for pre-apprentices were Goodwill Industries, Century Community Training, WINTER and Oregon Tradeswomen. Interviews/discussions were held with Barbara Byrd from Oregon University and Vivian Price from the University of California where the Tradeswomen Archive is housed also formed part of the author's research.

Literature review

There is documented evidence of women working manually in crafts and trades from times as early as the middle ages in Great Britain. Records exist of a female steel merchant, builder, mason, plasterer, cartwright, wood turner, clay and lime worker, glazier, ore miner and silver miner (Saunders cited in Women in Construction Conference paper 2001, p.8). Women in colonial America worked as printers, saw and grist mill operators, furniture builders, eyeglass grinders, leather workers and undertakers but generally did not learn their crafts/trades as formal apprentices (Hernandez cited in Shaw 1998, p.2).

During colonial times women in the Australian bush were also pioneering in nature. Most were in partnership with their men but many worked alone when circumstances dictated; working with what was available to build homes, drove cattle, build fences etc. (Isaacs, 2009, De Vries, 1995). Unfortunately the convict beginnings of Colonial Australia exacerbated the 'men's chattels' way women were viewed and denigrated it further to "damned whores" (De Vries, 1995, p.12). Aboriginal women, convict women – and their offspring for generations – were stigmatised and afforded little in the way of recognition or respect for their contributions to society. It has been stated that most Australians knew more about the female horse, Phar Lap than about any women of significance in Australian history (De Vries, 1995, p.9). The National Pioneer Women's Hall of Fame (ironically housed in an old gaol since 2007) has evidence of female miners but written and pictorial evidence is more available for women who pursued more acceptable lines of domesticity. Women have pushed these boundaries since the beginning but are far less acknowledged and honoured than their American or European sisters (Isaacs, 2009, De Vries, 1995).

Today the countries with the largest numbers of women in construction are the developing countries, in particular India (Price, 2006, Whitlock, 2000), where women are an integral part of construction labour. However they are very unrecognised, even when they are formally trained it is almost impossible to be paid as skilled workers and their work involves the heaviest labour such as moving materials on and around the work site (Price, 2006).

In America and Australia, since the turn of the 20th Century, women's formal participation in manual trades and similar areas of non-traditional employment has been negligible, only experiencing major shifts during times of war and crisis. Women are called upon to fill the gap in the manual trades when men enlist and go to war and then at the end of each period of crisis they have been told that it is now their duty to leave the work force and return to the home.

During the Carter administration in the late 1970's and '80's, the United States of America pushed to change the gender bias in the manual trades. America actively attempted to encourage women into the trades with goals and timetables over a three year time span starting in April 1978. The American women's stories of this time are well documented by writers/tradespeople such as Jean Schroedel (1985), Molly Martin (1988) and Susan Eisenberg (1998).

Table 1 Non-traditional occupations for women in 2008 (numbers in thousands)

Occupation	Employed both sexes	Employed female	Percentage female
Painting workers	183	25	13.6
Construction & Building Inspectors	93	9	9.5
Cabinet makers & bench carpenters	85	6	6.5
Painters, construction & maintenance	647	41	6.3
Sheet metal workers	136	7	4.8
Welding, soldering & brazing workers	598	28	4.7
Construction laborers	1,651	51	3.1
Cement masons, concrete finishers & terrazzo workers	112	2	2.2
Operating Engineers- Carpenters	1562	24	1.5
Operating Engineers & other construction equipemnet operators (heavy equipment operators)	398	6	1.5
Pipelayers, plumbers, pipefitters & steamfitters	606	8	1.4
Electrical power-line installers and repaiars	109	2	1.4
Electricians	874	9	1
Structural iron & steel workers	77	1	0.9
Brickmasons, blockmasons & stonemasons	230	1	0.4

Source: Women's bureau, USA Department of Labour

The aim was to increase women's participation in the building and construction trades to 6.9%. Construction companies with federal contracts over \$10,000 were required to take on women and minorities and faced losing their contracts if they did not comply. This initiative was not backed up by an adequate monitoring system and

"By 1983, women were 1.8 percent of the construction workforce" (Eisenberg, 1998, p.20), less than a quarter of the original 6.9% target. It had been intended that women would represent a quarter of the construction force by 2000 but instead women's participation across the United States stabilised at around 2% (Eisenberg, 1998). Recent statistics for American women in non- traditional employment in building and construction trades range from around 13% to less than 0.5% depending on the occupation.

Even where percentages are low; as for electricians and brick masons, there are still 9000 female electricians and 1000 brick masons in America. Australian Bureau of Statistics figures (2006) analysed by Valerie Francis of Melbourne University show female bricklayers account for 1% of the trade or 233 women with female electricians equalling 1.2% or 1061 women. The Australian figures of women in the construction trades are very small with only just over 5000 women in total to a work force of almost 325,000, a small 1.6% (Francis, 2008, p.5).

The papers written in the USA regarding women in the trades are numerous and cover many different aspects including mentoring, discrimination, pre-apprenticeship training and apprenticeships. They span over thirty years of history and factors which recur as benefiting women's pathways in the trades include pre-apprenticeship training, support networks, mentoring and affirmative action (Byrd, 2009, Ashbrook, 2005, Byrd, 2004, Price, 2002, Shaw, 1998,). However most comment on the continuing difficulty of increasing women's numbers in the construction trades.

The papers written in Australia regarding women in the trades are less prolific but regular. All comment on the difficulties faced by women in combating the male dominated culture which acts as a very effective barrier to any initiatives for change (Shewring, 2009, Construction Skills Queensland, 2008, Master Builders Association, 2008, Shewring, 2008, McGrath-Champ, Crawford et al, 2000, Winning, 1996, Lyall and Hawkins, 1993, Pyke, 1993).

There have been a number of initiatives over the years such as Tradeswomen on the move in 1993 but very little has been achieved as there has been no sustained or continuous effort with centralised backing so efforts have been local and generally short term (Shewring 2009, Master Builders Association 2008,). Today there are initiatives such as in Victoria; Girls Big Day Out, Australian Capital Territory (ACT); Tradeswomen in building and construction, Queensland; Women into Building and in New South Wales (NSW): the support group for women in the trades, Supporting And Linking Tradeswomen (SALT) which is an initiative created by the research for this paper. The armed forces in Australia have recently featured a campaign (2008/9) to recruit women into their trades and offer a mentored approach via their National Candidate Referral Program: Female Recruitment Technical Trades (Alliance People Solutions, 2008).

Why is it so hard to change the status quo? Clara Greed, in her paper 'Women in the Construction Professions: Achieving Critical Mass' has an interesting simile for the construction industry:

..it is helpful to see the construction industry as constituting 'Planet construction'. This is a hostile world inhabited by the construction tribe, which

is itself divided into competitive, aggressive sub tribes, corresponding to the different professional bodies and specialisms within construction'

(Greed, 2000, p.1)

She goes on to note that from this fortress like setting, anyone seeking acceptance must confirm or gain acceptance to the tribe, or be rejected, marginalized and discouraged. She comments that a critical mass of women is needed to achieve a shift in the tribe culture. This is discussed in the section dealing with discrimination and avenues for change (p.36).

The American and Australian systems

One of the difficulties faced on this trip was getting to grips with the differences between the American and Australian systems and people would refer colloquially to specific American conditions, such as proposition 209, the Unions or trade training without realising that it was not the same in Australia.

Apprenticeship differences and the role of the American Trade Unions

Trades in America follow similar apprenticeship guidelines (apprentice/master relationship and on and off the job training) to Australian trade training. In America not all apprentices and journeymen (tradesperson) are union members; you are either a union journeyman or a non-union journeyman. The Trade Unions play a significantly different role to the unions in Australia. Apprentices are engaged by the unions, usually with an annual or biannual testing and screening. They provide training in their own facilities, with apprentices attending via block release or at night and on site training is via union tradespeople and union affiliated companies. Union contractors will only use union tradespeople.

Union apprenticeship programs in construction are administered by Joint Apprenticeship Training Committees composed of employer and union representatives and funded by training trust funds established through collective bargaining agreements. Non-union programs are managed by individual contractors or contractor associations like Associated General Contractors or Associated Builders and Contractors. (Byrd, 2009, p.4)

In Australia the role of the unions is to represent and secure workers interests in areas such as work conditions, pay negotiations and disputes. It is an individual choice to join a union or not.

The closest entity to the training side of the American Trade Unions, in Australia, are the Group Trainers who also take on the apprentice as his/her employee but then place them with a host employer for on site training and normally use a Registered Training Organization (RTO) such as Technical And Further Education (TAFE) or a registered private provider for off site training. The Group Trainer may also be an RTO as well (Harris and Simons, 2005, p.351). Once qualified the Australian tradesperson either gains an employed position with a company or becomes self employed as an individual or as a company. They may sub-contract to other companies.



Figure 2 Carpenters Union, Atlanta, Georgia

Some non-union programs (especially the licensed trades) have their own training facilities; others use community college facilities (Byrd, 2009, p.7)

In some American States certain trades are not subject to licensing (this is also a factor in Australia) and apprenticeships and training are atypical and this also affects the influence of the union. In Georgia, for instance, the trade of Painting and Decorating is unlicensed and has no governing body overseeing the competence of tradespeople. The IUPAT only represent a maximum of 5% of the trade, with the monitoring of the quality of work and control of training described as anarchic (Interview with IUPAT, Atlanta 2009). In the State of Oregon union apprenticeship programs are substantially bigger than non-union programs with, on average, 138 union apprentices to 48 non-unions per program (Byrd, 2009, p.5)

In terms of women's employment during the late 1970's and 1980's the unions were a major negative force which impeded women's entry into the trades. Not only were the tradesmen hostile but so too were their union overseers and hierarchy (Martin, 1988, Eisenberg, 1998).

This negative influence is now seen as having shifted to a positive one if the union supports equal opportunities. It is recognised in the USA that women do fare better as union apprentices with much higher rates of completion than non-union apprentices (Byrd, 2009, Martin, 1988). Byrd has also found that benefits include higher pay, pay that approximates male earnings and increased job stability (Byrd, 2000, p.204). Unions also recruit more women and provide pre-apprenticeships which are also acknowledged as playing a major role for women to gain access to construction jobs (Byrd, 2009, p.12).

Another different factor was the age at which training begins. Formal apprenticeship are normally commenced after the age of eighteen in America and most of the pre-apprenticeship courses, including those for both genders had an older age base than would be common in Australia. The emphasis is still in recruiting young people in Australia, despite a few incentives to take on older apprentices, as shown by the National Centre for Vocational Educational Research (NCVER) (Karmel & Mlotkowski, 2008) figures below.

Table 2 Australian trade apprentices in-training at 30 December by age, 1995 and 2006

AGE	1995		2006	
	Number	%	Number	%
Age 19 and under	57 742	46.9	78 082	42.5
Age 20–24	55 808	45.3	72 595	39.5
Age 25–44	9 145	7.4	29 060	15.8
Age 45 and over	369	0.3	3 895	2.1
Total	123 064	100.0	183 631	100.0

Note: Trade apprentices represent ASCO 4 Tradespersons and Related Workers.

Source: NCVER, Apprentice and Trainee Collection 52.

The majority of Australian trade apprentices are under nineteen years old. The second highest age group of twenty to twenty-four is also the age group which is least likely to complete their apprenticeships (Ball 2005, p.7). Whilst the older age brackets have increased they are still significantly smaller. According to the American Blue Ribbon Report on Women in Apprenticeship sixty percent of the four hundred tradeswomen surveyed for the report first heard about their apprenticeships after the age of twenty five (Blue Ribbon Committee, 2006, p.12).

Affirmative action and Proposition 209

Definition of non-traditional employment in America is occupations which have less than 25% women employed in them. In 1988 the trade of butchery and occupations such as bailiffs and correctional officers were non-traditional but by 2008 had over 25% of women in their employee base (United States Department of Labour, 2008). The building and construction trades remain non-traditional despite the affirmative action of the 1980's and 1990's. Affirmative action is a federal regulation requiring that employers make a good faith effort to employ women and minorities on all jobs that receive federal money (Discrimination and Research Center, 2004, p.7). During the 1990's affirmative action became contentious with claims that white males were being discriminated against and opponents argued that women had made great strides and affirmative action was no longer necessary. Proposition 209 was passed in California in 1996 outlawing positive discrimination.

Other States followed suit; Washington, Michigan, Nebraska and Connecticut all have legislation or have had court cases overriding affirmative action (Bowen 2009). Deidre Bowen in her paper 'Brilliant Disguise: an empirical Analysis of a social

experiment banning affirmative action' comments that the anti-affirmative activists have stated that discrimination was prohibited by civil rights laws and that there is a belief that selection processes are colour-blind and non-discriminatory (Bowen, 2009, p.18). She concludes that this ideal does not appear to exist and conclude:

"...the colorblind ideal is promoting a deeply flawed discourse that that affirmative action causes stigma. It is apparent from this study that the only stigma under-represented minority students encounter is the one created from racial isolation and dominant group hostility."

(Bowen, 2009, p.64)

The decline in numbers of tradeswomen over the years in America has been directly linked to proposition 209 by papers such as 'Proposition 209 and the Decline in Women in the Construction Trades' by the Discrimination Research Center, 2004. Affirmative action is seen as a major contender in increasing women's numbers by Vivian Price who states that "affirmative action increases job opportunities for women, especially where there is added judicial, advocate, or community pressure to set and enforce hiring goals" (Price, 2002, p.106). Lack of enforcement tools and follow up procedures also makes affirmative action ineffective (Discrimination Research Center, 2004, p.8)

METHODOLOGY

Research

The research was conducted over the four week visit across the four states using an individual tradeswomen survey, interviews and a review of secondary data collected and passed to the author. About half of the itinerary was planned before the visit but space was left for contacts made along the way which proved invaluable.

Thirty individual tradeswomen were surveyed with twenty five questions, nine asked for a direct yes or no answer, eleven provided a variety of possible answers for selection with the remaining five requiring comments (a copy of the survey is provided in appendix 1). The survey data was quantitative in results, providing descriptive statistics.

One question in the survey did not communicate as effectively as expected. The question which was unrepresentative in its responses was question 22 which asked if the tradeswoman had any dependants. The choice of the word dependants had been deliberate so that a variety of possibilities could be covered in a non-discriminatory way. However, women who did not consider their children dependant (the children were in high school or the women had plenty of family support etc) answered no to this question. Through conversations later it was recognised that women who had children had responded no to this question. In retrospect it would have been better to be direct and ask for the numbers of children and any other dependants.

Eight training and support organizations were visited:

- International Brotherhood of Electrical Workers, Atlanta, Georgia
- The Carpenters Local 225 & Training Centre, Atlanta, Georgia
- International Union of Painters and Allied Trades, Atlanta, Georgia
- Goodwill of North Georgia Inc, Atlanta, Georgia
- Women In Non traditional Employment Roles, Los Angeles, California
- Century Community Training, Los Angeles, California
- Oregon Tradeswomen, Portland, Oregon
- Sisters in the Building Trades, Seattle, Washington

The interviews were conducted from a basic set of questions but in a less formal way with information paths following a conversational route which allowed for points of interest to arise naturally. These interviews were recorded with the interviewee's permission. The results were transcribed and content analysed for commonly emerging themes and patterns providing qualitative results.

Three events were attended during the research; two trade fairs and one conference.

- Women Build California 2009, Los Angeles, California
- Construction Awareness Day 2009, Los Angeles California
- Oregon Tradeswomen Trade Fair 2009, Portland, Oregon

The Women Build California conference and the Oregon Trade Fair were specifically for women whilst the Construction Awareness day was targeted at both sexes.

Leaflets were also collected from organizations and posted back to Australia, regarding training in the trades and the imagery was noted to be different in gender content to what would be expected in Australia. This led to a review of secondary data and provided a quantitative assessment of female images in comparison to male images in the leaflets.

Academic papers and training manuals deemed to be significant were passed to the author by Barbara Byrd and Vivian Price but also by some of the training/support organizations, an example of this was the paper 'The Trades Mentor network: Mentoring as a Retention Intervention for Women Apprentices in the Building Trades' by Jeanne L. Arvidson which was written in 1997 but still deemed practical and current by Oregon Tradeswomen and Barbara Byrd.

RESULTS

Tradeswomen survey

The original intention had been to use the survey at the Women Build California Conference but it was too long for the time slots available between events and so it was completed by any tradeswomen the author met, who had time to complete it. Thirty three surveys have been included in this data. The support organization Sisters in the Building Trades has continued to send out the survey and they are still coming in.

The women surveyed ranged from the 26/30 age bracket to the 55/60 age bracket with no tradeswomen in the two youngest age brackets.

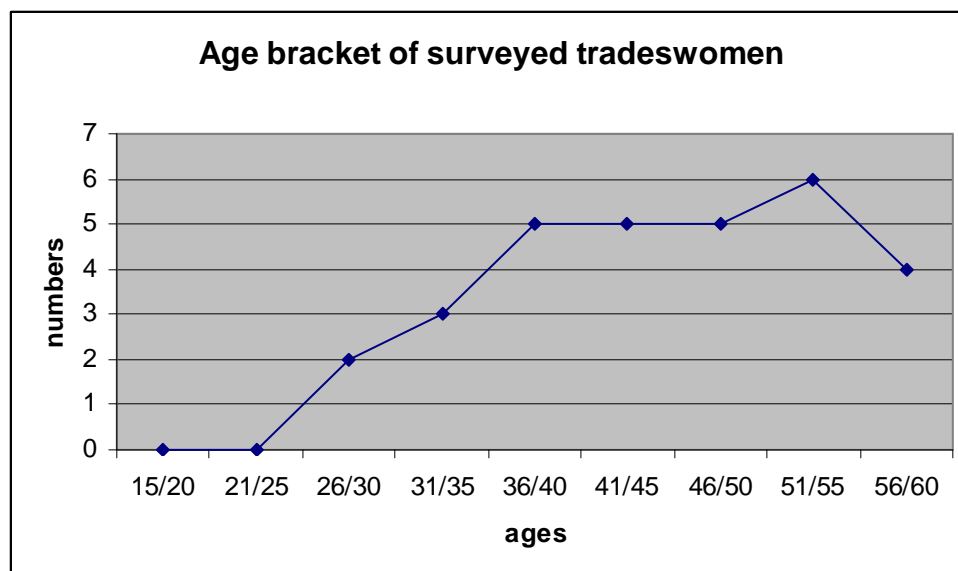


Figure 3 Age bracket of surveyed Tradeswomen

The women surveyed for this report had entered their trades over a broad twenty year age span (15/20 to 31/35) and corroborated that women often enter the trades at an older age. Twenty six of the thirty women surveyed entered trade training between the ages of eighteen and thirty- five years old,

Half of the women were Caucasian American, six were Mexican American, three African American, two had a British background, two were Native American Indians, one French Canadian and finally the remaining two had a Korean and Italian background. They all spoke English with seven also speaking Spanish, one French and one Korean, Spanish and English.

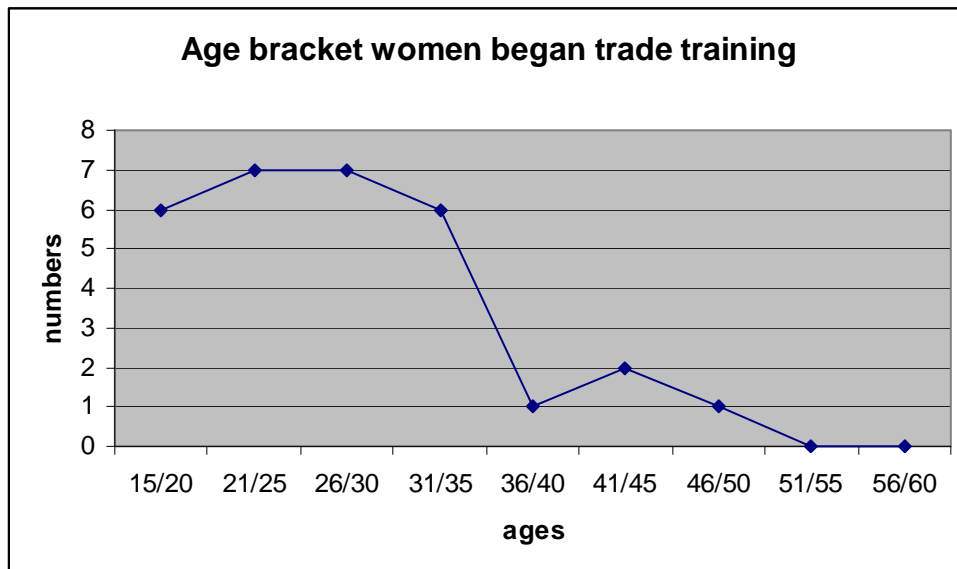


Figure 4 Age bracket women began trade training

The women came from eleven different trades:

Table 3 Women's trades

Trade	Numbers
Carpentry	4
Drywall (Gyprock) fitter	1
Electrical	3
Iron worker	2
Laborers	2
Operating Engineer	2
Industrial Painter	1
Piledriver	1
Pipefitter	2
Sheetmetal	12
Teamster	1
Utility Plumber	1
Heavy equipment operator	1

Of the thirty women researched only nine had knowledge of their trades prior to training commencement, but nineteen said they had done hands-on physical work before entering their trades with most women also participating in gardening, sport or worked out at a gym.

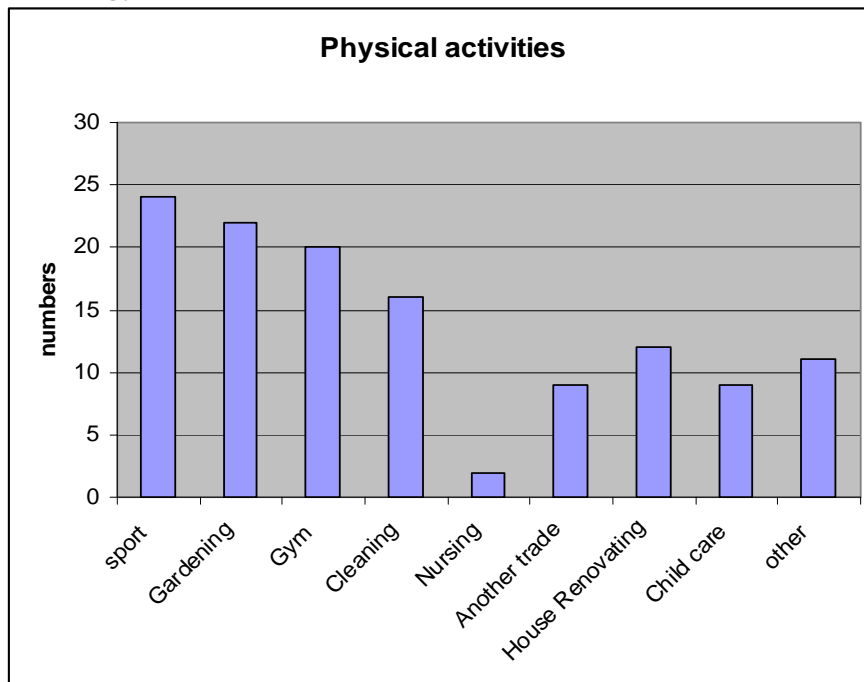


Figure 5 Physical Activities

Twenty one of the women had no prior knowledge of their trade before they began but all had been practical people in their daily lives and involved in physical activities of one sort or another. Only one woman had been involved in just one type of physical activity which was gardening, all the others had pursued a number of different activities. Some of the previous occupations (described under the title 'other') included; a fire fighter, a shake block cutter, a firearms instructor, metal sculptor and working in irrigation.

Barbara Byrd commented on the socialization that young males gain in physical work and tools etc which is also far less likely to occur for young women (Byrd, 2004, p.205). The American tradeswomen surveyed had a very early introduction to tools and their uses with the majority gaining knowledge of tools under the age of fifteen (Figure 6). Noticeably, most learning about tools occurred during the ages of five to twelve years.

This early familiarization with tools would appear to be an important factor in women considering trade training as a possibility, as women's lack of exposure to trade careers was commented on by the training organisations visited. Six did not indicate the age they became familiar with tools but twelve gained familiarization during the early ages of five and twelve years old. Another five had a good understanding of tools before the age of eighteen.

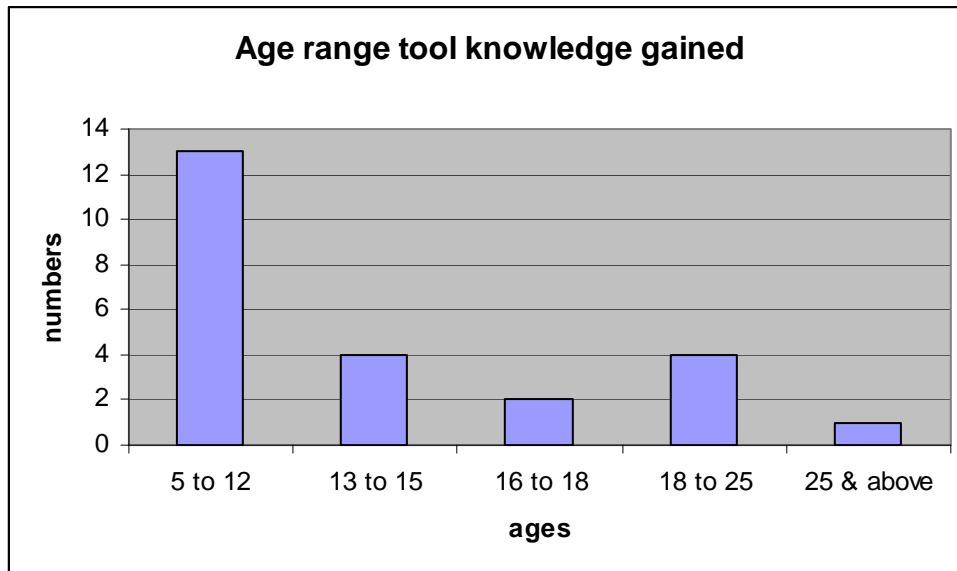


Figure 6 Age range tool knowledge gained

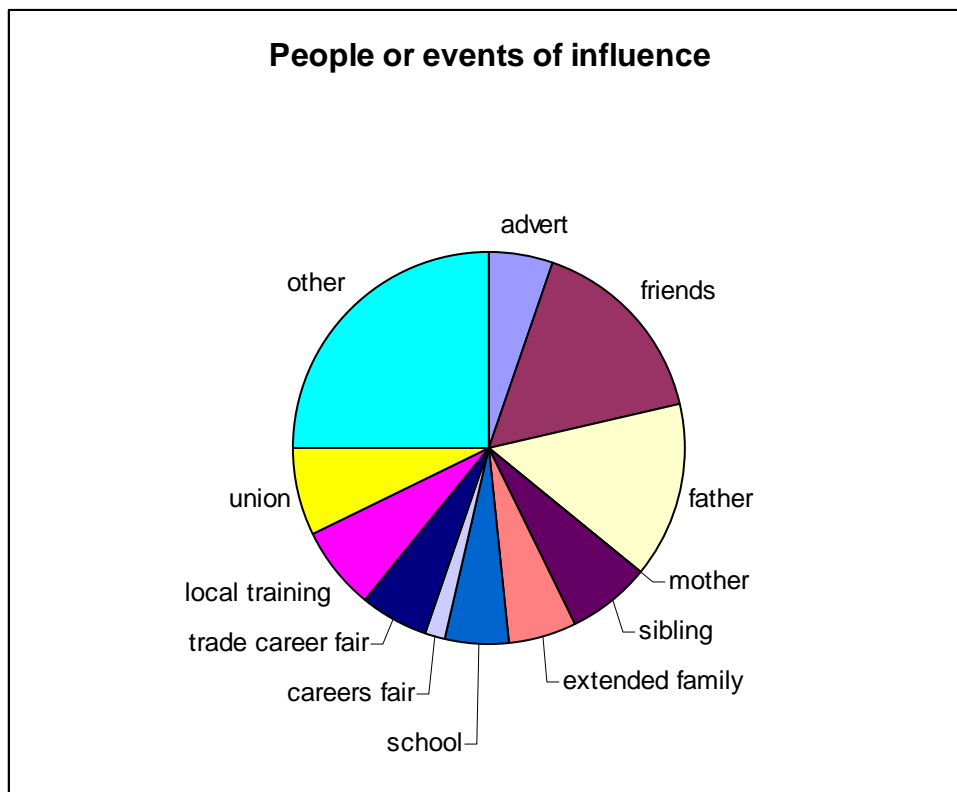


Figure 7 People or events of influence

The influence of family and friends combined as significant in the women entering the trades with eight commenting that their fathers were influential. Commonly more than one influential factor was marked. The largest influence stated as 'other' had a number of descriptors including: five women recruited from government or industry council programs and affirmative action; one wrote independence and money; another cited her husband; three extended an existing interest; two didn't specify and one wrote "I was at Pump Station #6 on the Alaska Pipeline in 1974, I watched the talented welders and said 'I can do that!'. The main vehicle for gaining entry was the unions and/or pre-apprenticeship courses with twenty women entering in this manner. Four transferred from other jobs and others cited family and friends.

Nineteen found the training challenging and the most common aspects which were challenging for these women were learning skills and the male culture. For the others who did not find the training challenging the most taxing aspect of the training was the male culture of the trades. Only seven women had some female instructors during their trade training and they could remember their numbers (one or two) as opposed to the male instructors whom they generally stated as many.

Five found the theory component difficult whilst the majority found it fine or easy, this is interesting as theory is often the onerous part of trade training for apprentices. Less than half found the physical aspect of the training difficult in the beginning. Fifteen women felt that the physical aspect of their work was easier after a number of years. Eight found no change over the years in the physical aspect. Of the six women who found the physical aspect harder than when they began, three were in their 50/60s and had been in their trades since their twenties, the other three had also been in trade since their early twenties and were between 40 and 50 years old. It would be quite normal for men to be finding the physical aspect harder at these ages as well.

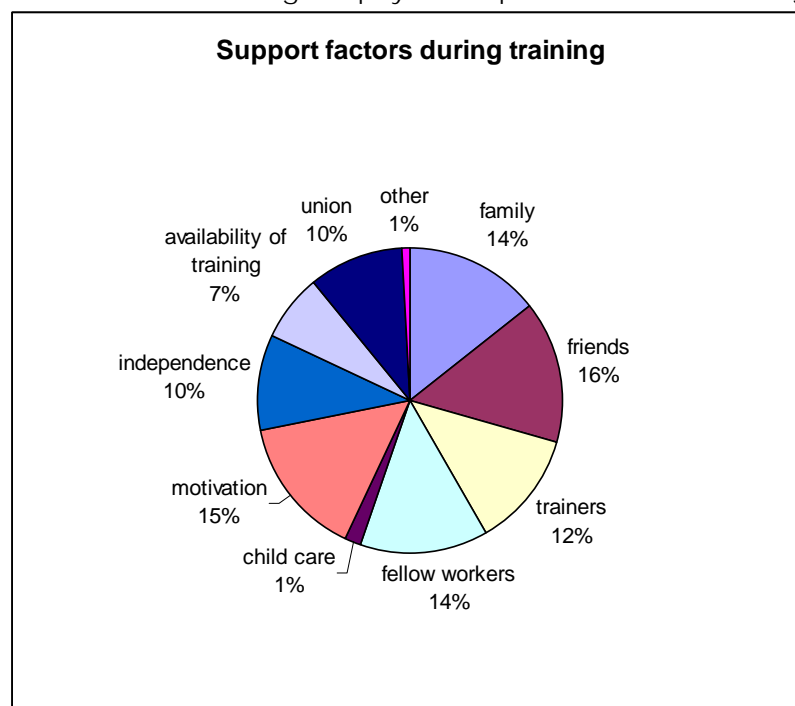


Figure 8 Support factors during training

Twenty six of the thirty women felt that it is easier for a woman to enter the trades now than it had been in the past. Only seven women had remained with the same employer since qualifying as a tradeswoman with many commenting on having numerous employers.

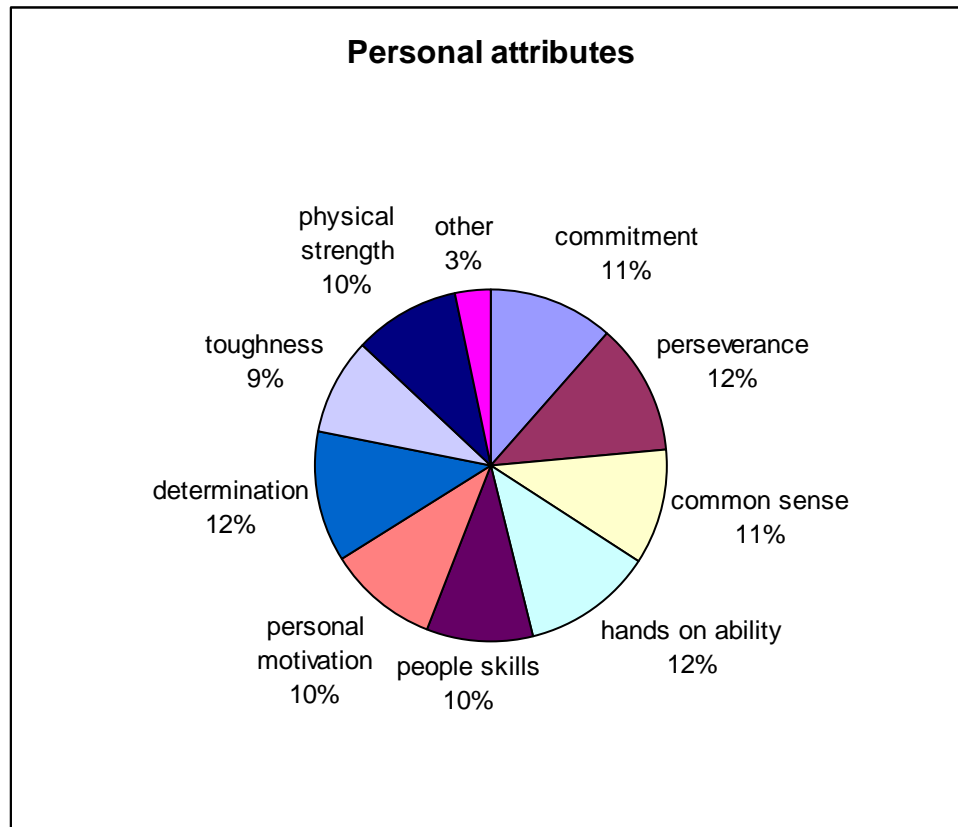


Figure 9 Personal attributes

Determination, perseverance, motivation and independence were cited as the personal attributes which are most needed by women in the trades combined with the support of family and friends. It was interesting that toughness was the lowest scoring personal attribute deemed necessary. Under the heading other the tradeswomen suggested a thick skin and a good sense of humour.

American Trade Unions

The trade unions visited all had their own training facilities for their apprentices and also provided opportunities for pre-apprenticeship training. Training is available for anyone with a union apprenticeship and there are generally no separate training considerations for women. All three unions visited felt that it is not disputed that there is a role for women in the trades.



Figure 10 Carpenters Union Local 225 training facility

An interesting aspect of all the interviews with the union representatives was that they all felt there were significant numbers of women in the trades.

The ratio of men to women in the trades varies depending on the area with more women engaging in commercial work than industrial. In a very industrial based area the percentage of women can be as low as 1 or 2%. In a more commercially oriented area Chuck felt that it was close to 23%.

(IUPAT, Atlanta, interview 2009)

B: No, the men outnumber the women. So, for every... So, how many have we got? We've got 100 women in trade, we've got 3700 members.

F: Well in Australia we've got 88771 men electricians and we've got 1061 female electricians.

J: So, it's like 80 to 1.

F: So, you've got double what we've got.

B: But, so you go from state to state it varies. But I worked in Alabama I didn't see but like two women when I was down there and I worked in Homewood Alabama. I worked there as a welder.

(IBEW, Atlanta, interview 2009)

In fact the ration of 1:37 gives 2.7% although this is still significantly larger than the Australian ratio 1 :< 88 or 1.19 % in 2006 (Francis 2008, p.3). The Carpenters union also felt that their apprentices had a ratio of 20% women to men. The US Department for Labor figures for carpenters in 2008 gave a very different percentage of 1.5% although cabinet makers and bench carpenters were listed as 6.5% (Australian figures for carpentry and joinery in 2006 were 86358 men to 677 women or 0.78% (Francis, 2008, p.3,).

The IBEW, Georgia felt the unions were playing a significant role in integrating women into the trades, which is supported by Barbara Byrd's research (Byrd, 2009).

There are a couple of reasons for that; a) we are the premier training facility so we are funded by the employers generally and the training is free.....But another reason is because, we call it the collective bargaining system, there's pay equity for women in the union crafts and that pay equity doesn't exist in the non union crafts.

(IBEW, Atlanta, interview 2009)

Aspects such as lack of licencing and regulation affect some trades badly such as the painters and the IUPAT. The strength of the union affects its ability to direct training and the IUPAT, Georgia also stated:

The state of the trade here (the south) has eroded in the last ten to fifteen years with a reduction in quality of the work, because of the lack of training..... I think the main obstacle for anyone to get into the trade is the pay. Since the union is so weak in the south, the pay is not good here. The north east, Midwest and western parts of the country where we have a better market share, the pay is a lot better. And probably attracts more women, and men to the trades.

(IUPAT, Atlanta, interview 2009)

The general view expressed by the union representatives, even though it was unsubstantiated by figures, was that women were becoming represented in the trades and there was no concept that women could not do the work. The IBEW in Atlanta, Georgia actively recruited women from church groups, sports teams, gyms etc and supported and mentored women.

Support groups and non-profit organization training

Five support groups and non-profit training organizations were visited in the four different states.

- Goodwill of North Georgia Inc, Atlanta, Georgia
- Women In Non traditional Employment Roles, Los Angeles, California
- Century Community Training, Los Angeles, California
- Oregon Tradeswomen, Portland, Oregon
- Sisters in the Building Trades, Seattle, Washington

Support groups for women in the trades are well established in America with over fifty listed on internet sites such as Sisters in the Building Trades which is a networking support group based in Seattle, Washington. As well as general trades groups which may be area based such as Chicago Women in Trades, individual trades also have support groups such as Women Ironworkers and the National Association of Women in Masonry. There are also support groups within the unions such as IBEW Local 46 Women's Group, a Seattle based electrical union.

Many groups began in the 1980's and new groups are still being established such as Missouri Women in Trade (MOWIT) which was incorporated in 2008. Most groups have internet sites and most are incorporated as non-profit organizations. All advocate and lobby for women in trade issues locally and nationally, some such as Sisters in The Building Trades are networking internationally. A selection offer pre-apprenticeship training and some have had pre-apprenticeship training in the past but don't run classes currently although many advertise job/apprenticeship opportunities.

Lack of affirmative action was generally seen by the groups interviewed as a major reason for the lack of progress in women entering the trades and in fact there has been a decline overall in numbers of tradeswomen in recent years in America despite the support groups, advocates and demonstration of women's abilities in the trades.

The state of California has an issue because we passed- we the people passed a law about eight or ten years ago, it's called the 209. The 209 took out all of the affirmative action policies that we had in the universities, in the workplace because some white folks were complaining that they were discriminated against because they were white so they abolished the affirmative action.

(WINTER, interview 2009)

Century Community Training (CCT), a non-profit training organization, has provided training and assistance since 1979 as part of a court ruling created as a result of Keith v Volpe specifically for the Century Freeway Project (CCT interview, Los Angeles, 2009). In 1986, a women's program was initiated because few women were being recruited or trained. Women advocates approached Judge Harry Pregerson with

their findings of poor inclusion of women and a plan to enforce the goals for women that he included in his consent decree.

The Women's Employment Program (WEP) was launched, running from 1986-1994, when the women's support group of WEP became the foundation of WINTER (Price, email, 2010). Contractors on the project were given goals of 10% female employment in the construction of a seventeen mile freeway and over five thousand two hundred units of affordable housing (Century Housing 2001 & CCT interview 2009,). This was backed up by monitoring by the CCT with an affirmative action watchdog to ensure that targets were being met. This resulted in 9.2% of the construction workers being women and minorities. In Vivian Price's movie 'Hammering it out' Judge Harry Pregerson states "if anybody tells me that affirmative action doesn't work, I say that is total nonsense – I have seen it – I have lived it – it works" (Price, 2000).

Century Community Training pre-apprenticeship training is now non gender-specific but they still target women and minorities for employment and training opportunities (CCT interview, Los Angeles, 2009)

Goodwill North Georgia runs courses for women in highway construction although its general pre-apprenticeship courses are no longer gender specific. WINTER (Los Angeles) and Oregon Tradeswomen (Portland) were running women only pre-apprenticeship courses using a variety of community college facilities and their own venues.

Structure of women's pre-apprenticeship training

As discussed previously American apprentices are generally older. The pre-apprenticeship courses visited generally expressed the opinion that young people did not have the motivation to work hard and consistently, which they demanded from the students on their courses. Self motivation was a very important aspect of the pre-apprenticeship training researched and all the training organizations were very clear, from recruitment and orientation to their courses, that they expected the women to be very self motivated. Training in the pre-apprenticeship programs in both non-profit and support organizations generally followed trade practice with eight hour days to ensure the women were organized and orientated around working hours.

The Oregon Tradeswomen program is a state certified pre-apprenticeship which is recognized by apprenticeship programs and construction employers. Oregon Tradeswomen Inc. have a number of full time employees and work from a shop front in Portland which makes them very visible to the public and women regularly walk in off the street to enquire about becoming a tradeswoman.



Figure 11 Oregon Tradeswomen staff and students

Their pre-apprenticeship course runs for six weeks over three days a week. One day concentrates on theory covering things such as tool familiarisation, Occupational Health and Safety and other generic components of the trades with an hour of physical exercise at the end of the day. Another day was spent visiting industry and may consist of an excursion to a trade union for a particular trade and finishes with another session of physical conditioning. On the third day practical skills were project based with the women working with female instructors (with a general on site ratio of about one instructor to four or five students) on a real project such as refurbishment of a women's refuge in Portland. On these projects the women worked with their instructors along side other tradespeople and gain valuable insights into trade practise.

During the sixth week attendance is for five days and is a certified Hazardous Waste Operations and Emergency Response (HAZWOPER) course. Students are drug tested during the program and 100% attendance is expected. If any days are missed the student is expected to call in and to make up the time. Any re-occurrence of absences is treated as a reason for the student to leave the course. Counselling sessions are provided for the students from the very beginning of the course and weekly goals mapped out for each student and tracked by Oregon Tradeswomen staff members. The Oregon students are also advised to volunteer for work experience and many work on projects such as Habitat for Humanity.

In 2007 Oregon Tradeswomen Inc screened and counselled 206 applicants for suitability and preparation for trade careers. They graduated 79 women from their pre-apprenticeship program and provided job or apprenticeship placements for 60 women in the same year (Oregon Tradeswomen, 2008). At the time of the research 21 of the 24 students who started on the May/June 2009 course were due to graduate.

Added pressure is being exerted by the economic recession in the USA and another organization visited, Goodwill North Georgia is under duress to place people into jobs with markedly less jobs obtainable and generally less funding available for training (Georgia is a right to work state). Goodwill still provides a seven week training course in building roads, highways and bridges (funded by the Federal Highway Administration and the Georgia Department of Transportation) which is targeted at women but its pre-apprenticeship courses are no longer female orientated and most participants are now male. (Goodwill North Georgia interview, 2009).

Women In Non Traditional Employment Roles (WINTER) based in Los Angeles, California only trains women and is also rigorous in its approach to disciplined behaviour by its students and being very direct about what is expected by WINTER and the construction industry as a whole.

People come and we are very realistic about the jobs we do not withhold anything we say this is a hard, hard job. If you want to have your earrings on, if you want to have jewellery on, if you're going to be worrying about your hands or your make-up or your hair, you can leave now. If you think this is an easy job and easy money, you can leave now. If you're looking for a job, you can leave now these- are not jobs these are careers – that means you have to invest in time and in learning and in hard work to get to a certain point which is a career. People when we tell them that they look at us like 'what do you mean this is not a job?' – No it's not a job, you want a job go work for Wal-Mart (*large department/variety store*) that's a job, these are careers. So we talk very bluntly about what the careers are – now we'll tell them confined spaces is part of what you are going to do so if your afraid spiders, if you are afraid of dark spaces this is not the job for you. We don't want them to go and apply with the electricians and they have to crawl in that tube right there and then say 'Nobody told me I would need to do this' you know, so we are very frank about what the careers are, so somebody says 'I wanna be a welder', so OK this is the equipment you need to use can you handle that? If your claustrophobic and you have to wear a mask you are not going to be able to do the job.

(WINTER, interview 2009)



Figure 12 WINTER offices

WINTER aims to work in a holistic way with their clients taking everything into account such as family situations, living conditions and the goals of their clients. They state that they are very up front and clear about what is involved in their courses and very strict once a student enrolls. WINTER provides specific training for apprenticeship testing such as with the operating engineers and electrical maths classes. Some of the areas their six week environmental education and technical training schedule covers are HAZWOPER; training in safety and workplace culture and problem solving; leadership; sexual harassment and conflict resolution. This course runs six times a year. WINTER also offers consultancy for employers or unions wishing to increase the diversity of their workforce.

Emphasis was placed by both WINTER and Oregon Tradeswomen on time keeping and attendance whilst also planning and actively managing life challenges to ensure that their students develop excellent work practise ethics. This not only helps them get jobs but also maintains their support/training organizations good name for providing well trained conscientious employees which in turn encourages employers and unions to return to them to recruit apprentices.

An interesting aspect which was common to all the pre-apprenticeship training by the non-profit organizations and support groups was the high proportion of people with incarceration backgrounds which is not common in Australia. America has the highest incarceration rate in the world with one in ninety-nine people in gaol (Pew, 2008, p.5). 'We [Americans] are in the business of putting people in gaol' the director of WINTER commented to the author (WINTER interview, 2009). The effect of this is that it is common for half of all students in the pre-apprenticeship courses to consist of previous offenders and most of the trades do not require clean records. The pre-apprenticeship programs also work from the onset in establishing parameters which the women must maintain regarding time keeping, work ethics and commitment. The impression was that this was an opportunity to straighten out and do well, earning a good living as one went.

In 2001 Century Community Training created the Century Women in Apprenticeship "How To" Manual which consists of almost one hundred pages of extremely practical information regarding outreach methods, media coverage, samples of flyers, forms, recruitment avenues, how to case manage, job placement and seeking, sample sexual harassment policies and information regarding union apprenticeship requirements. The Century Community Training Program (CCTP) offers:

Eight-week pre-apprenticeship construction training and employment services at no cost to men and women transitioning from unemployment, welfare, low-income jobs, or incarceration. The program has trained more than 2,200 Southland residents and has placed in construction trades more than 1,600 of them—12% of who are women, almost double the national average. More than 85% of these placements are in high paying union jobs.

Century Community Training website



Figure 13 Tool familiarisation at Century Community Training pre-apprenticeship course

Century Community Training no longer trains women separately but include them as a targeted minority in their pre-apprenticeship courses. They recruit for pre-apprenticeship courses each week and commence a program each month.

The program offered is very comprehensive and includes shop maths, power tool operation, rough framing and construction conditioning (proper lifting, endurance training and safe handling). The training is very project based with students designing

a small building and then building one of their designs. They are then taught job sequencing during the build and are introduced to the different trades during the construction in a very practical way.



Figure 14 Students project work at Century Community Training

Mentoring during pre-apprenticeship and apprenticeship

Mentoring was an active part of the pre-apprenticeship courses (and apprenticeship courses) which were designed for women such as the WINTER and Oregon Tradeswomen courses, and was deemed to make a substantial difference to tradeswomen. Century community Training also runs a specific mentoring program for women in its pre-apprenticeship programs. "Creating a great mentoring program" was also a workshop at the Women Building California Conference. Lack of mentoring is regularly cited as a reason for women dropping out of training (Arivdson, 1996 and Ashbrook, 2005)

The Trades Mentor Network was commenced in 1991 at a time when women and people of colour were dropping out of trade training at twice the rate of white males (Arman in Arivdson, 1997, p.21), and is still active today. Jeanne Arvidson reported on the effectiveness of mentoring and the network in 1997. She showed that dropout rates for women turned around dramatically from 60% in 1992/93 to 12% in 1995/96

(Arivdson, 1997, p.57). The key reasons for women dropping out as listed by the report included the level of physical and mental endurance, the level of life accommodation and sacrifice and the hostility and exclusive and adverse nature of the trade culture. The factors were cumulative with the building trade's culture being the deciding factor (Arivdson, 1997, p.71). The report found four factors which contributed to apprenticeship completion; higher numbers of women within an apprenticeship; personal grit to survive the culture; family and friends support and mentoring.

Most of the support and training organizations visited during the research offered mentoring programs. The Sisters in the Building Trades Mentor Training brochure comments that in the past mentoring was viewed as an arrangement between a wiser person with more knowledge and a generally younger, less experienced, person. Its current mentoring approach sees mentoring as a partnership which is mutually beneficial. WINTER commented about the mentor programs they run for their pre-apprenticeship training and the mentoring programs they establish for others such as unions:

You need to train people to listen to the complainer and then find a solution for them, a solution that they can do them selves because that's how you become self sufficient. By taking care yourself.

(WINTER interview, 2009)

An interesting effect of the mentoring reported in the Arivdson research was the use of male mentors who gained an insight into what the women were up against and who affect change amongst their male colleagues and reduced the tolerance of harassment. The comment made in the report was that people tend to support what they help to create (Arivdson, 1997, p.96). Mentor training not only increased the mentors cultural sensitivity, but also increased their coaching and teaching skills and it was suggested that the mentor training could become part of the teacher training required for apprentice instructors (i.e. tradespeople training apprentices at work as well as trade teachers). The apprentice/master training is so relationship dependant that training is severely affected when relationships break down, it would be a benefit to all apprenticeship training to move it away from the personal realm towards a more professional basis. WINTER and Oregon Tradeswomen also provided training on dealing with harassment. The harassment of apprentices is still prevalent in the trades, with old ways of 'breaking in' an apprentice still rife. Women are more prone to harassment but male apprentices also suffer.

Arivdson found that community and technical colleges could do more and that colleges should confront the issue of harassment and insist that it is not tolerated in the classroom (Arivdson, 1997, p.109). Formally training mentors and trade trainers on mentoring, anti-discrimination and inclusiveness would benefit Australia and have a knock on effect to all apprentices. Inclusiveness needs to be across the board. Changing the culture of the building trades in all areas to one that frowns upon and penalizes all forms of harassment will benefit all apprentices.

Trade fairs and conferences

Three events were visited, two in Los Angeles and one in Portland. The Women Build California conference is an annual event as is the Portland Oregon Tradeswomen's Fair; both events are run by tradeswomen's support organizations. The Construction Awareness Day was an industry based event with a number of large sponsors such as Caltrans, McCarthy Construction and Turner Construction.

Women Build California 2009

The Women Build California 2009, held in Downtown Los Angeles, was a two and a half day event organised by Tradeswomen Inc, California's first support group for women in the trades founded in 1979. The conference was for women working in construction or who are interested in a construction career. Four hundred and fifty women attended who were either at journey level (qualified tradespeople), apprenticed or in pre-apprenticeship courses. There were a number of women who were now retired from their trades and the majority of women had significant experience in their trades.

The conference commenced on Friday 1st May with an informal cocktail evening and continued over the next two days with twenty four workshops which included subjects such as 'Higher education options for tradeswomen', 'Snappy comebacks' (also titled 'What's harassment and what's just a pain in the ass'), 'Building the green future' and 'Preparing for retirement'. Plenary sessions were held on both days with speakers such as Gloria Romero, Senate Majority Leader and Robert Balgenorth, President of the State Building and Construction Trades Council. Stalls providing information on trades, support groups, unions and merchandise were functioning for the course of the conference.

The auditorium is full of about 450 women almost every single one a tradeswomen. The numbers are down on last year and Debra Chaplan, the MC says to me that she thinks it is because of the economy, it seems that there are a lot of construction workers out of work and the women are often the first to be let go which angers them. Their figures have definitely gone down at the moment but whether this is just because of the economy I am not sure, it normally takes quite a long time to collect official figures and the economy crashed suddenly and not that long ago.

Debra begins the conference, after a short introduction, by asking all the retired women to stand up; I am amazed to see about ten to fifteen women stand up. She then calls for women who have 25 years and above, then 15 to 25 (me- just!), 5 to 15 and then apprentices. She then goes through the trades that are represented and I am amazed at the variety from carpenters (largest number at the conference) through plumbers and pipe fitters, electricians (lots of them too), ironworkers, sheetmetal workers, piledrivers, teamsters, operating engineers, the list goes on. When the painters are called there is only a few at the conference and I stand up and join them.

Most attendees are from California but there is a sizable number of interstate people as well and then I am surprised to hear her talking about Australia and saying that I am the first international visitor and I have to stand up to lots of cheering and clapping. This is great for me in terms of people being receptive to me and everyone is very supportive and helpful for the rest of the conference.

Author's personal diary 2009



Figure 15 Women Building California Conference 2009

The atmosphere at the conference was supportive and uplifting, the workshops and plenaries are well attended and maintained attendance to the end of the conference. The conference offered great networking opportunities which the women seized and offered emotional support in tough economic times.

Construction Awareness Day 2009

The First Annual Construction Awareness Day 2009 was a one day event held in Los Angeles in a fenced off section on the construction site for LAUSD Central Region High School No. 16. Over thirty exhibitors and workshop presenters attended including large construction companies such as Turner Construction and McCarthy

Construction, government departments such as Caltrans and the unions. The event is designed to provide information for career planning in heavy construction to youth and young adults between the ages of fifteen and twenty six years old. One thousand and fifty schoolchildren attend from Southern Californian schools



Figure 16 Construction Career Awareness Day 2009

The kids are mostly interested in the free things that most stalls have, from rulers to pens to drink bottles, each with the organisations logos on. Century Community Training has drink bottles (which go very quickly), pens, sweets (which are the first to go), leaflets and carpenters pencils. The carpenter's pencils cause a stir because they can't work out how to sharpen them as they don't fit into a pencil sharpener! We make them take leaflets with the goodies.

What is really good about the whole event is that it is held at a working construction site and there is noise and movement beyond the displays of huge dump trucks, cement pumps etc. The kids respond best to the huge truck which has eight replica cabins inside programmed to show what it is like to drive a four ton truck. It is kept really cool inside, not only for the computers, but apparently because people (more adults than kids) get motion sickness when using the simulators and if it is cool it helps prevent this. Kids are normally better in this respect because they are so used to playing Nintendo etc. This is definitely the most popular thing and I notice that in the other demonstration tents, which are numerous, that the kids are mostly just being talked to and

they quickly turn off. Hands on is the way to go, watching equipment work, seeing demonstrations, anything visual.

Author's personal diary 2009



Figure 17 McCarthy tradeswomen

The Construction Awareness Day was well attended by exhibitors and students of both genders. Male and female tradespeople were well represented with many stands such as Rosendin Electrical and McCarthy Construction having equal numbers of male and female tradespeople to talk to students. Girls were as equally encouraged as boys to consider construction trades as a career pathway. Whilst there was a lot of activity occurring on the construction site behind the event there was a lack of hands on activities and the students appeared to just gather free material from the stalls indiscriminately. The few hands on activities available were extremely popular.

Oregon Tradeswomen Trade Fair 2009

Oregon Tradeswomen Trade Fair is a three day event for middle school girls (first day), High School girls (second day) and a Careers for Women Day (final day), run by Oregon Tradeswomen. It was held at the very well equipped NECA/IBEW Electrical

Training Center in Portland which provided large external and internal display and activity areas and workshops including fully equipped welding bays and training electrical poles.

Seventy-two exhibitors participated ranging from unions representing many different trades to construction companies and training organizations. Thirty four workshops were available with very interactive activities such as electrical pole climbing, welding, operating excavators and pneumatic drills and simulated roofing exercises. One thousand, one hundred and seventy-five women and girls attended. Schools came from as far as 160 miles away and 67 schools from Oregon and Washington attended. (Oregon Tradeswomen, 2009)



Figure 18 Learning to move an excavator bucket at the Oregon tradeswomen's fair

Small objects to take home were made by the attendees at most of the workshops and included solar and wind powered models, a wooden birdhouse, a sheet metal

container, welded signs and a flower pot holder heat welded out of roofing materials. Most of the tradespeople demonstrating and helping with the activities were women and whilst the students ate packed lunches a 'Fashion' show was held with five or six tradeswomen dressed in Personal Protective Equipment (PPE) who talked about their trade, described what tools they used and why they wore their PPE.

....I am blown away; so much hands on activities and very happy and excited girls everywhere. Not all of the tradies are women and the men are just as enthusiastic and happy to share their knowledge and expertise. A lot of the stands provide each girl with a photo of her doing their activity. There are girls everywhere, going up and down in elevated work platforms of various heights, girls being fitted into safety PPE. Girls operating diggers, no body seems frightened or worried about what they are doing and they have all been well briefed on sensible clothing for the event. After lunch I walk with Roberta to get a coffee and discover to my surprise that there is a whole indoor section with unions and companies giving demonstrations and providing interactive activities for the girls from solar power, plumbing and connecting light bulbs through to welding.

Author's personal diary 2009

The first two days cater to school girls of different ages and the final day is for women interested in the construction trades as a career. Fathers are also encouraged to bring their daughters and a father and daughter breakfast is held on the last day.



Figure 19 Watching how to use a pneumatic drill at the Oregon Tradeswoman's Fair

The trade Fair has a renowned reputation amongst American tradeswomen who recommended it to the author as an example of best practise for advocating women in trade and introducing women and girls in a practical and positive manner to trades and apprenticeships. The event was well run with school groups rotating around the activities on organized timetables which prevented queues or bottlenecks at any particular activity. The exhibitors and demonstrators were very supportive and enthusiastic about the Trade Fair and many commented that they had been coming for years.

Other factors affecting public perceptions

Dealing with discrimination and avenues for change

Historically women of colour have faced the double prejudice of racism and discrimination against women. With or without affirmative action it can be overwhelmingly difficult for women of colour to succeed against planet construction. Based in Georgia, the National Coalition of Women of Color in Construction (NCWCC) mission is:

NCWCC exists to focus on accelerating the growth of women of color in the contracting or construction industry from start up & existing businesses by advocacy, social capital, succession planning, education, sustainability strategies, technical assistance.

(NCWCC website)

An area targeted in America by a number of organizations advocating for minority women is highway construction. Goodwill North Georgia's only current program targeting women is a seven week training course in building roads, highways and bridges funded by the Federal Highway Administration and the Georgia Department of Transportation. Goodwill is situated in Decatur, Atlanta and works with a pre-dominantly African American clientele.

The Oregon white paper Solutions for an Emerging Workforce: Strategies for recruiting, training, hiring, retaining and advancing youth of color and women in the highway construction trades, 2005 written by Connie Ashbrook, notes that:

While the issues of minorities and women partially overlap, there are some significant differences in the needs of each group and in the needs of female youth of color who might otherwise be unseen.

(Ashbrook, 2005, p14)

The paper also looks to highway construction as an avenue for change. Whilst only three of the tradeswomen surveyed were African American, half of the surveyed women were from minority groups and half white American.

Nadine, a member of NCWCC and an African-American architect poignantly pinpointed the difficulties faced by African American women in an emotional interview. Nadine is one of 226 black female architects in an industry which nation wide has in the region of 186,000 architects. Of the sixteen female African American architects working in Georgia only four own their own architecture business and the

combination of constantly excelling in her field and fighting to maintain her position is stressful:

N: that's the part that hurts..... Oh God! Wheew...its more out of disappointment than... cause you start saying what will it take? I've got a trade; I've got experience, graduated top of my class. All of my schools teachers... you know I graduated at Georgia Tech which is one of the top schools in Architecture here, I go back and teach there...what does it take? But it's not about technical ability it is about socialization, the social order. The minute you can be valued on technical ability, it's obvious, but that's not what you're evaluated on. You know you don't win a job because of your technical ability, your in a job because you know the guy, he likes you, he knows you, he knows your work, he's willing to put himself out for you, to vouch for you and if you don't have anyone there who will vouch for you, for what ever reason, that might be you get the bum list and especially in a situation like that where it's such a social stigma for a guy to vouch for you to say "No, no keep her on" whatever, he puts himself at a lot of risk for his social networks so nobody is willing to take that risk - to fight for you.

(Nadine, interview 2009)

Whilst Nadine faces prejudice in America the experience is very similar to that currently faced by tradeswomen in Australia with only a few women breaking into the male dominated trades where networking through families and friends is still a dominant way of accessing apprenticeships and jobs in the trades (Shewring, 2008, p.24). For the surveyed women it was the third most common way they gained entry to their trades although twenty four cited friends, fathers, siblings and extended families as the way they first learnt about their trades.

Barbra Byrd, instructor and program coordinator for the Labor Education and Research Center at the University of Oregon also cites networking in her research as a major tool which works against women's entry and sustained employment in construction (Byrd, 2000). It is commonly acknowledged that many apprenticeships are gained through family or friend networks and in the informal word of mouth hiring of tradespeople, networking is a powerful filter. Discrimination since the 1980's has increasingly become less obvious and therefore more complicated to confront, a number of the tradeswomen during the research commented on being sidelined during their training into material ordering or other menial tasks so affecting their training and leading to accusations regarding their lack of skills. Even if this did not happen they felt they constantly had to be better than the men and 39% of the tradeswomen surveyed in the research cited the male culture in the trades as the most challenging aspect of their jobs.

There is a belief that gender issues have been dealt with and that today women can enter into any realm they want. Clara Greed was told "Oh we have done women, you should be concerned with the environment." (Greed, 2000, p.5). Over the years, under threat of equal opportunity legislation, language has been changed to accommodate equal employment opportunity policies but the reality within the construction industry, as the figures show in Australia, has not changed. Greed was told that the construction industry is "rotten to the core, drastic change is needed" and she finds that the main problem is seen by many to be the ancient and

exploitative class structure underpinning the construction professions (Greed, 2000, p.12).

The attrition rates of men in the building trades in Australia are acknowledged to be high at around 40% (Karmel, 2009). Many factors may influence this; the 'master/slave' apprentice relationship; the hands-on, heavy nature of the work; family/ friend network routes which don't give an understanding of the nature of the work; the economic climate and technological and industry changes are all possible factors. The result is the same - almost half of tradesmen have left by about the age of 25years old (Karmel & Ong, 2007, cited in Karmel, 2009). This not only exacerbates skills shortages but represents a huge training cost with a poor return.

Greed comments that although a critical mass of women is needed to achieve a shift in the tribe culture, there is no guarantee that this will be for the better (Greed, 2000, p.3). Jeanne Arvidson states that "Women will not succeed in the building trades by making themselves copies of the men they encounter on the job" (Arvidson, 1996, p.88). The intimidating macho culture of the trades does not need to be added to by women taking on the same ways and becoming pseudo macho men. The culture is not what creates a skilled tradesperson - technical skill, dexterity and intelligent behaviour enable a tradesperson to transfer skills to different problems and remain current with changes in materials and technology. Nadine and the NCWCC stressed the need for women to be abreast of the latest developments in the field such as CAD drawings and virtual reality being the future of building plans, and tradespeople will need to embrace these skills and other emerging trends. They felt that women had no choice but to excel continuously to get a foothold or maintaining their positions in the trades.

Visibility in the public domain



Figure 20 A female splicer working in Los Angeles

It was noticeable during the research that a number of factors contributed to the way women in the trades may be perceived in general. This included the visibility of the women at work, a memorial to tradeswomen and general brochures and leaflets advertising trade apprenticeships. A negative aspect was the language.

It would be very rare to drive past a construction or work site in Australia and notice a female tradesperson working because the numbers in most trades are very small with some trades having very little female representation. Whilst the overall figures in America are not huge and have reduced in recent times, women are still in every trade from industrial painting to iron workers and piledrivers. Driving in California between events and appointments whilst the research was conducted a minimum of one female tradeswoman was seen every day at work or on site.

Women's contribution recognised

Just outside San Francisco at Richmond on the site of the former Kaiser Shipyard no.2 is the Rosie the Riveter Memorial, dedicated to honouring American women's labour during World War II.

An estimated 18 million women worked in WWII defence industries and support services including steel mills, foundries, lumber mills, aircraft factories, offices, hospitals and daycare centers.

RosietheRiveter.org



Figure 21
Rosie the
Riveter,
Richmond

The memorial traces the length of one of the ships which would have been built by women with sculptural interpretations of a ship's hull and smoke stack under construction. Quotes and photos of the women describe and illustrate what they could do. Opened in October 2000 it was the first such memorial in America. The memorial is situated in a very attractive landscaped park amongst modern, waterfront housing and marinas in what was a very industrial area. It provides a visible acknowledgment of women's capabilities as tradeswomen which reaches back to the past, presented in a modern setting.

Recruitment imagery

Whilst conducting the research a large number of leaflets were collected by the author and contained over fifty leaflets from different trades regarding applying for an apprenticeship. These were not gender specific i.e. there were other leaflets aimed specifically on recruiting women into the trades. These were general, current calls to apprenticeship. It was very rare amongst these general leaflets for there not to be a prominent picture of a female tradesperson included in the imagery and women were also part of the general workforce in other pictures used. 51 leaflets were reviewed which contained a total of 475 photos.

In the photos there were 508 men and 150 women. In percentage terms this means the women represent almost 23% of the imaging in the apprenticeship leaflets. This is more than double their actual representation in even the most progressive states, such as Washington. Also in the imagery are 97 people who are non-gender specific, if these figures are added to the pictures of the women the percentage increases to almost 33%.

The leaflets were collected in both 'Right to work states and states with affirmative action and both types had the same positive imagery of women as tradespeople, demonstrating a general acceptance of women's ability to work in this field and a positive response to recruiting women.

Use of generic language

What was intriguing was the use of the word 'journeyman' or journeymen to represent anyone who had finished their apprenticeship. The women had no qualms about using such gender specific language and when asked why they did not prefer more neutral language the majority of the older women became quite agitated saying 'I fought long and hard to get the right to call myself a journeyman and I am not giving it up' (tradeswoman, California 2009).



Figure 22 IBEW Union Portland, Oregon

Unions also used the term 'Brotherhood' to refer to their body of workers and it was only observed at the Portland IBEW (who have supported the Oregon Tradeswomen for many years) that there had been an addition of 'Sisterhood'. It did not occur to the majority of the tradeswomen that the language itself may continue the public perception that these were men's jobs not women's.

Overall, despite this the general public image is that women can and do work in the trades. This is well demonstrated by the imagery in the apprenticeship leaflets. Archives of information are also now being collected and promoted and Viviane Price, an electrician and academic at the State of California University is promoting and gathering information for the Tradeswomen's Archive held at the Dominguez Hills Campus. The internet sites of the support groups and individuals, such as Viviane, also provide a plethora of information and imagery, including films, reinforcing women's history and future in the trades.

Conclusions

Much has been achieved in the United States during the thirty years since the Carter administration push to help women enter the trades began in the late 1970's. Despite proposition 209 and the stagnation in many states of women's numbers in the trades there are multiple pathways for women. There are many dedicated support networks and structures such as women in trades groups, specific women's pre-apprenticeship courses and non specific avenues such as the union apprenticeships and generic pre-apprenticeship courses. These multiple pathways across the different states allow very determined women to enter and train in a huge variety of trades. Women are represented in trades as diverse as industrial painting, pile driving and ironwork which are all very non-traditional work areas for women in Australia, clearly demonstrating that women can and do operate in fields which Australians still consider men's work. Even when figures do not show large numbers of women working in trades in many states, there is a general acceptance that women are capable tradespeople and recruitment is not slanted at men only.

Unfortunately with the introduction of legislation like proposition 209 and the erosion of affirmative action, figures have stagnated in America and in some cases gone backwards, with a few exceptions. This reflects the 'planet construction' mentality which does not want to change the aggressive tribal culture imposed on all who seek entry. This is not just an uneven playing field which many people could negotiate with perseverance and skill; this is an impenetrable fortress which lives by its own rules none of which include anyone who is 'different' for what ever reason. The women who have succeeded have shown immense tenacity and perseverance, almost guerrilla like in their infiltration but this has not generally reached a critical mass and been enough to change the culture. This is possibly even more entrenched in Australia as it has not been challenged to any great extent.

In America, the trades are an avenue for self improvement, the chance to earn good wages for men and women and a decent standard of living with benefits. It is also a way to recover from decisions which lead to prison sentences and so offers real rehabilitation for those that want it. The differences in recruiting i.e. older age brackets and general acceptance of older apprentices and pre-apprentice participants allows for more mature attitudes and, commitment is demanded and expected. This recognition of older apprentices' usefulness works in favour of the women as they are more likely to apply in an older age bracket.

Many attributes of the training particularly in pre-apprenticeship courses run by the unions and support groups, facilitate women's entry into the trades and the well established mentoring programs have made retention rates climb. The use of training for mentors and mentoring itself have not only increased women's retention but could facilitated a less bullying culture to evolve in the construction trades which benefits everyone. The use of construction conditioning in a number of pre-apprenticeship courses was notable and occurred in not only female specific courses but also general pre-apprenticeship courses.

Generally pre-apprenticeship training combined with personal training in work ethics and well laid plans regarding childcare etc. were seen as the building blocks on

which women could gain entry into the trades. The support groups have a very realistic view of the barriers and difficulties women face. Mentoring, personal training and strategies taught in the support group programs armed the women to deal with the trade cultures whilst the support groups also advocated for change and continuously publicised women's capabilities.

Whilst progress has been slow in many states and the undermining of affirmative action has been effective, preventing an increase in the overall numbers of women in the trades, the variety of trades is well represented. The American tradeswomen interviewed during the research were despondent about the lack of increased figures and the recent decline but from an Australian perspective the leap forward in terms of support networks and training outlets was huge in comparison to what is available in Australia. It is entirely possible in the USA for a determined woman of almost any age (two women talked to during the course of the research were in their early fifties when they were accepted onto apprenticeships) and inclination to find an avenue into the trades and to set about earning a respectable living to support her family/herself. It is still a road for the extremely persistent and determined but the pathway is established.

The tradeswomen survey was further evidence of the importance of the support of family and friends which has consistently been found necessary; fathers support again being an important factor for their daughters' entry into a trade. Whilst women tend to enter trades at a later stage than males very early tool familiarization was found to be prevalent and contributed to the women's ability to hold their own whilst training.

In Australia it is very hard for a young woman to enter the trades (never mind as a fifty year old), as women face rejection and ridicule. Australia primarily targets young men as apprentices yet huge numbers of them have left after a very short time frame (by the age of 25), considering the investment in training this is appalling. The training pathways are still male orientated with EEO policies largely theoretically in action but not in practise. There is little or no support for the isolated women that do make it. The Australian tribal construction culture has had almost no challenges since the 1980's; in fact, women have generally relinquished what progress was made at that time.

A few large corporations with strong EEO policies which are active and not just lip-service do provide avenues for some women, as do some family based companies and the group trainers. Unfortunately the group trainers do not have the strength or resources of the American Trade Unions and the power to determine who will be potential employees still rests with the tribal cultures. The recent drive by the armed forces in Australia has opened opportunities for women in the trades within that context. Given the ability to access training a very small number of women can filter through via the training organizations, often as self employed tradespeople, but still face ridicule and can be ostracised in the work force. Changes which make the culture more inclusive and less 'planet construction' could benefit all apprentices and tradespeople, potentially increasing retention of both sexes in the trades.

Whilst overall figures are still low in the United States of America it is still clearly leading the way with the depth and breadth of its support organizations for tradeswomen, multiple pathways for women to enter the trades and the overall recognition that women are capable and contributing tradespeople to the American construction

Industry. Affirmative action works but works best when it is tracked and monitored with actionable penalties for non compliance. It is undermined by all parties with allegiance to the tribal mentality of 'Plant Construction' which has no motivation to change its culture despite the cost of that culture. The male culture has been cited again and again as the major barrier and this was confirmed again in this research. This culture is pervasive across all the parameters and professions of construction which maintain its status quo. Change will need to occur in management through real and enact able employment policies and enforcement of genuine equal employment policies backed up by zero tolerance across the board for breaches of actions and attitudes contrary to those policies. Opportunities will need to be created and opened for women with skilled training which engenders acceptance and diversity amongst pre-apprentices and apprentices, helping to change the culture from the bottom up. Cultural changes which bring diversity stand to benefit male apprentices and tradesmen although the resistance to that change is likely to be very strong and persistent. On a final note, what ever strategies or incentives are implemented in Australia, they will need to be long term and consistently supported at a federal and state level to have any hope of implementing change.

Recommendations

Early introduction to tools and their uses

- Including basic tool familiarization and use in primary schools.
- Using social networks such as guides and scouts to increase young girls' socialization with basic tools, tool applications and building concepts in project driven ways from an early age.

Utilizing family support from an early age

- Encouraging family support and particularly fathers' involvement in socializing girls and young women into construction job consideration. This may be via father/daughter camps which revolve around skill building and tool orientation or advanced tool use with real projects in construction such as small building jobs for the community (decks, barbeques etc).

Providing training and changing attitudes in trade training

- Pre-apprenticeship training is very effective as not only do the women gain trades skills but work ethics and bridging the gaps they may have in socialized education with tools etc.
- It is likely to benefit all apprentices and pre-apprentices if strategies such as 'dealing with harassment' and 'construction conditioning' were built into courses.
- Pre-apprenticeship training incorporating multiple trades, this allows more definitive and knowledge based commitment to a trade which benefits the employee and the employer as the apprentice knows what is required.
- Targets for including women in pre-apprenticeship courses. This will also help women to support each other by having a group of women together on a course.
- Mixed gender courses which lead to a more inclusive atmosphere and change stereotypical attitudes of male apprentices. Male apprentices with a more balanced view will introduce the concept of women in the trades to their work places via discussion.
- Training trade instructors/teachers at Registered Training Organizations (RTO's) in sexual harassment prevention.
- Increasing awareness for zero tolerance for any form of harassment in RTO's.
- Increasing recruitment of female trade instructors/teachers for trade training in RTO's
- More inclusion of female tradespeople in apprenticeship recruitment leaflets.

Providing support in the workforce

- Mentoring women to increase retention rates in apprenticeship and using male mentors as well as women (there are probably too few women to use currently anyway) to help to change the culture from within and increasing men's knowledge of what the women face.
- Formally training mentors and trade trainers (tradespeople in the workforce training apprentices) to increase their training abilities hence increasing the likelihood of success and the caliber of the training.
- In Australia the unions do not provide the training and job opportunities of America but Group Trainers and major companies are probably the closest type of employer. They are most likely to accept the best applicant for the apprenticeship/job in a less discriminatory way as their anti-discrimination policies are more active and it is probably the best avenue beyond the traditional one of the trades of family and friends. Change may be small to begin with but the importance of top down (management support) combined with the grass roots up can not be underestimated. Best practise employers could be show-cased and promoted.
- Increasing acceptance of older age brackets for apprenticeship through reporting and show casing of best practise and increasing incentives.
- Advocating in Australia for women in the trades is available in Victoria, ACT, Queensland and NSW - support groups create a very visible presence in America. Since returning for the research the author has founded a support group called Supporting And Linking Tradeswomen or SALT inspired by the American support groups. Whilst SALT is still very young it already has women from seven different trades as members and meets once a month. The American support groups have shown that even small numbers of tradeswomen can maintain a reasonable number of support groups. Existing Australian support networks could be linked and strengthened by working together.
- Affirmative action has been shown to work in America and is the main method which will really effect change but only if it is backed up by effective tracking and penalties for non-compliance. This would require a watchdog body with operative enforcement powers. It will suffer from powerful derision and undermining from advocates for the 'Planet Construction' culture and this should be expected and prepared for. Affirmative action needs to be in place and supported until a critical mass of women in construction is achieved. This would not be a short term requirement.
- Targets (for example rising over a five year plan) could be implemented prior to affirmative action, giving the building and construction management time to enact change in a more conciliatory fashion. These would also need to be tracked and affirmative action implemented if the targets were not achieved.

APPENDIX 1

National Association of Women in Construction American Journeywomen: pathways to trade

The aim of the research is to find the most effective pathways/training methods to effect change to the status of women in construction. Your participation in this survey is voluntary and will only be used for the purpose of researching best practice pathways/training methods for women into construction trade areas which are considered non-traditional for women. Your generous participation is deeply appreciated and will make a difference.

Regards,

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1. Age bracket, please place a mark in the box below your age bracket:

15/20	21/25	26/30	31/35	36/40	41/45	46/50	51/55	55/60
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Please place a mark in the box below which relates to the age at which you began training in your trade:

15/20	21/25	26/30	31/35	36/40	41/45	46/50	51/55	55/60
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Please describe your cultural background and the languages you speak:

4. Which trade do you work in?

5. Did you know anything about your trade before you began

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

6. Had you done any type of hands-on physical work before?

Yes	No
<input type="checkbox"/>	<input type="checkbox"/>

7. Please tick the boxes of the type of physical activities you have done:

Sport	
Gardening	
Gym	
Office/domestic Cleaning	
Nursing	
Another Trade	
House renovating	
Child care	
Other :	

8. Were you familiar with tools before joining your trade? Yes

☐

No

☐

9. If you were familiar with tools please tick the boxes which relate to times you learnt about using tools:

Child
5-12 yrs

☐

young teen
13-15 yrs

☐

teenager
16-18 yrs

☐

young adult
18-25 yrs

☐

adult
25yrs & above

☐

10. How did you become interested in your trade? Please tick the boxes relating to people or events which influenced you:

Advertisement	
Friends	
Father	
Mother	
Sister or brother	
Extended family	
School	
Careers Fair	
Trade Career Fair	
Local training	
Union	
Other:	

11. How did you enter your trade? Please tick the boxes relating to people or events which enabled you to enter your trade:

Job Advertisement	
Pre- trade training	
Family connections	
Transfer from another job	
School training	
Careers Fair	
Trade Career Fair	
Local training availability	
Union	
Other:	

12. Did you find your trade training challenging?

Yes ☐ No ☐

13. What was the most challenging aspect?

14. Did you have female trainers?

Yes ☐ No ☐

Gender of trainer	number
Female	
Male	

15. When you were training did you have to do a proportion of theory work?

Yes ☐ No ☐

16. Please tick the box which relates the most to how you felt about the theory training:

Very difficult	
Difficult	
OK	
Fine	
Easy	

17. How did you find the physical work when you began in your trade? Please tick the box which relates the most to how you felt about the physical aspect:

Very difficult	
Difficult	
OK	
Fine	
Easy	

18. How do you find the physical work after a number of years in your trade? Please tick the box which relates the most to how you feel about the physical aspect:

Very difficult	
Difficult	
OK	
Fine	
Easy	

19. Please tick the boxes relating to things which have supported you during your training:

Family support	
Friendship support	
Trainers and teachers	
Support from fellow workers	
Child care facilities	
Personal motivation	
Prospect of independence	
Local training availability	
Union support	
Other:	

19. Do you think it is easier or more difficult in America now for women to enter the trades than when you entered?

Yes ☐ No ☐

20. Have you been with the same employer during your time as a Journeywoman?

Yes

☐

No

☐

21. Do you care for dependants?

Yes

☐

No

☐

22. What kind of support has helped you the most in caring for your dependants?

23. What personal attributes do you think a woman needs to train and work in the trades? Please tick the boxes which you think would be the most useful:

Commitment	
Perseverance	
Common Sense	
Hands on ability	
People skills	
Personal motivation	
Determination	
Toughness	
Physical strength	
Other:	

24. What kind of training would you recommend for a woman who wanted to enter the trades today?

Thank you for taking the time to complete this survey, your time and effort are appreciated. If you wish to make any further comments please feel free to do so in the space below.

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