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**The Participation of Women  
Employed in Traditionally Male  
Dominated Occupations  
including Plumbing: 1975 - 2013**

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# The Participation of Women Employed in Traditionally Male Dominated Occupations Including Plumbing: 1975 - 2013

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## Abstract

In 1975 employment in the majority of trades' areas was dominated by men, and this fact, associated with a significant wage disparity, generated considerable social debate at that time. A number of newspaper articles in New Zealand highlighted the lack of female participation in traditionally male occupations. Using an intensive literature review and statistical analysis of available records, this paper investigates whether the numbers of women employed as plumbers in New Zealand have changed between 1975 and the present day. Having established that the proportion of female plumbers is almost unchanged during this period, this research then compares this information with data gathered from other trades and exposes the widespread nature of this trend across traditionally male dominated industries. This data is also compared to gender-based employment rates in the non-trades professions. The potential causes underlying this tendency are discussed. Finally the paper reflects on what, if anything, could to be done to alter this situation.

## Background

In 1975, the lack of female participation in many fields dominated by men, associated with a significant wage disparity had stimulated on-going social debate, and

a number of newspaper articles in New Zealand highlighted this issue. The discussion had been triggered by the United Nations which had declared 1975 as International Women's Year [IWY], to promote women's social and political rights. This led to the establishment of the United Nations Decade for Women, from 1976 – 1985, and since that time, March 8<sup>th</sup> has been celebrated as International Women's Day.

During the Decade for Women increasing pressure from the Women's Electoral Lobby [WEL] and other groups resulted in the Ministry of Women's Affairs [MWA] being established in 1984. Its focus was on developing policy highlighting gendered social differences between men and women in New Zealand.

The lack of improvement in this situation in New Zealand over the intervening 40 years has recently led the MWA to conduct the research *Women in Trades* (Ministry of Women's Affairs, 2011) which looks at this phenomena from a different perspective, interviewing a small number of women who were employed in traditional trades, as well as their employers. The MWA also commissioned a major report on the subject titled *Trading Choices - Young peoples' career decisions and gender separation in the trades* (Roberts, Gilbert, Vaughan & Gardiner, 2008). In this report an attempt was made to identify barriers to female participation in trades, and the reasons particular employment choices were made by young people.

These reports, along with a range of other data (indicated below) demonstrate that since 1975, very little appears to have changed in New Zealand, leading Carl Walrond (2012) to state that "One measure of the future shape of an industry is apprentices. In 2008 there were 2,057 building and construction apprentices, but just nine

Sue Davidson, plumber



**Figure 1.**  
**Plumber, Sue Davidson.**

Ref: EP/1975/1066-F. Alexander Turnbull Library, Wellington, New Zealand.

were women. In 2006, of 146 plumbing apprentices, none were female.”

Walrond used the above photo of a female plumbing apprentice at the time to demonstrate his point. However, it should be noted this quote from Walrond, while heartfelt, demonstrates how important it is to examine the authenticity of statistics, as in 2006 there were actually over 450 plumbing apprentices enrolled at Unitec alone (Unitec New Zealand, 2014).

**Sue Davidson, above, is identified as being what was believed to be the only Female Plumber in the country (Evening Post, 1975). It is interesting to note that there is no record of Ms Davidson ever completing her qualification.**

### **Methods of Data Collection and Analysis**

A literature search was used to gather and analyse data for this paper. To do this the following sources were accessed:

1. Oral sources – interview officials from Plumbers, Gasfitters and Drainlayers Board and Ministry of Women’s Affairs.
2. Photographic – photo of female plumber from 1975.
3. Graphs and statistics supplied by the Skills ITO (Industry Training Organisation), Ministry of Women’s Affairs (MWA) and Unitec student records department.
4. Archival and documentary sources.

## 5. Library (printed and digital) subject specific periodicals and books.

The researcher also contacted a number of organisations asking for any figures they had on the subject of female participation in trade training during the period in question. In two cases (the Skills Organisation, and Unitec) this was readily given, though in the case of Unitec the information was not in a readily digestible format and needed considerable interpretation. Changes to programme descriptions and course names meant significant time had to be spent in re-working the numbers.

The Department of Labour and the New Zealand Armed Forces failed to respond to all requests, and so no information was gleaned from those sources, so statistics on the Armed Forces were eventually gained via the 2013 Census.

Statistics New Zealand were able to supply raw data, but had not completed a breakdown in employment statistics from the 2013 Census, so this information was eventually sourced from the MWA. The spreadsheets and two publications from the MWA proved the most useful source of data in the end, where an array of useful research has been done yet is not well broadcast.

Once the statistics from various sources had been gathered, they were analysed to determine commonalities and differences. As different and sometimes unknown bases had been used, for example sometimes the figures included only plumbers, sometimes gasfitters and drainlayers were included on the numbers giving different results, and as numbers also differed between data sets, this caused some difficulties. However, in the end the numbers of women were so small as to not make a significant difference in any case, and the emphasis was then able to be placed on the 'why no change?', rather than 'what changes have there been?'. Interpreting and analysing data from other research done by the MWA in

New Zealand and by the Government of New South Wales also proved very instructive and illuminating.

## Findings

### Gender in Plumbing and Gasfitting Trades in New Zealand

Data about the numbers of currently qualified plumbers and drainlayers is held by their registration body, The Plumbers, Gasfitters and Drainlayers Board [PGBD], and their records show that there has been an overall increase in licensed and/or qualified tradespeople of just under 11% between 1975 and the present day ([www.pgdb.co.nz/public register](http://www.pgdb.co.nz/public_register)) compared to a general population increase of 43% in the same period. Unfortunately the Board does not document details of employees' gender as there is no requirement for them to do so under the Plumbers, Gasfitters and Drainlayers Act 2006. Nevertheless, it is a relatively small industry, and the board has frequent interactions on a regular basis with registered tradespeople.

In a personal communication Deputy Registrar Paul Costeloe said that *"We do not really know the exact number, but we have a good idea based on our own knowledge and industry feedback and regular contacts. We believe there are about 10 or 12 women currently licensed, including apprentices"* (Costeloe, 29/06/2014).

Current figures show that in 2012 there were 829 plumbing apprentices enrolled through the ITO (Industry Training Organisation) of whom 711 are also doing gasfitting Skills NZ (2014). Of these there are just four females, enrolled in both trades. This is less than .5% and in total in 2014 less than 0.03% of plumbers, gasfitters and drainlayers are female.

A similar picture shows up in the Unitec enrolment statistics for the National Certificate in Plumbing and Gasfitting. Only one female successfully completed the programme between 2009 and 2013 and there are currently two females enrolled in this programme.

The number of males graduating over the same period of time is 133.

Nationally the MWA has taken the most recent Statistics New Zealand data and compiled figures from them, which were supplied to this researcher. Their data showed that out of a total of 5,397 people identified themselves as plumbers in New Zealand in 2013, 33 were female (Heaney-Yeatts, 2014). This is 0.06%.

At the same time, the PGDB showed 6,026 currently licenced plumbers and gasfitters, with as many as 15,000 in total appearing on the Register. Somewhere between 10 and 33 of them are female. The numbers at the female end of the scale are so small that it makes no statistically significant difference. There were none in 1975, and less than 1 per year have qualified since then. This means that women currently comprise between 0.16% and 0.50% of the total. To increase the participation rate from 0% to 0.5% over 39 years does not constitute a successful strategy by any measure.

### Gender Across a Range of Male-dominated Trades in New Zealand

Similar figures are demonstrated by data from a range of industry training organisations (see Table 1). The figures in Table 1 do not separate out the specific trades, and include a number of heavily female based occupations. However, a closer examination of industries such as boating and construction reveal that females were poorly represented. In 2012 only 30 females were employed in these industries in comparison with 2,798 males.

The same result can be seen in the electricity supply grouping where 1,275 men were employed in 2012 compared to 108 females. This lack of improvement in participation rates is not confined to one trade however. The following table is from the 2013 census as extrapolated by MWA (Heaney-Yeatts, 2014).

**Table 1.**  
**2013 Census details in traditional male-dominated trades**

Occupation	Female	Total	%
Bricklayer	54	2754	1.96
Carpenter	144	14,481	0.99
Builder	243	23,769	1.02
Electrician	123	12,180	1.00
Boilermaker	6	798	0.75
Motor Mechanic	126	13,032	0.97
Roofer	27	2436	1.11

**Table 2.**  
**2013 Census details in non-trade occupations**

Occupation	Female	Total	%
*Senior education manager	5889	8490	69.36
Human resources manager	2481	3723	66.63
Microbiologist	1092	1578	69.2
Medical pathologist	75	144	52.08
General practitioner	2421	5184	46.70
Veterinarian	1035	1986	52.11
Optometrist	342	618	55.34
Accountant	13,725	25,383	54.07
Funeral Director	240	666	36.04
Police officer	2292	10,254	22.35
Armed Forces	708	4995	14.17
*Careers, Transition and Employment Advisor	735	1,125	65.33

When these figures are compared with a range of non-trade occupations, the differences are striking (see Table 2). It is clear from Table 2 that the majority of 'white collar' professions have over 50% female participation, the only exceptions being funeral director, Police officer or member of the Armed Forces.

In the second table it is also worth making note of the first and last occupations in particular (starred in Table 2), as this paper argues that these figures potentially point to the source of the overall gender discrepancies between male-dominated trades and the non-trade professions. Women are well represented in management, education, sciences and medicine, as well as most other professional categories. They are over-represented in traditional areas such as nursing and teaching, but remain almost invisible in traditional trade areas. Why is this, and should we be worried?

### Significance of the Gender Discrepancy

There was an assumption evident in most of the literature of the 1970s and 1980s, that if women were given equal rights, treatment and opportunities then they would embrace their chances and eventually be represented in significant numbers across all endeavours. This does not appear to have happened, and the question of why has exercised many minds.

In Roberts' et al. (2008) report *Trading choices, young people's career decisions and gender segregation in the trades*, the following question was asked:

"Existing research shows clearly that women are under-represented in trades-related occupations, and in particular, that they are under-represented in trades with high wage-earning opportunities. Why are women under-represented in these areas? Are the male-dominated occupations unsuitable for women, or do people in general just think they are? Are women actively prevented from entering them, or do they choose not to enter them? If they choose not to enter them, what are their reasons? Are they not

interested? Do they not have the entry qualifications?" (p1).

In a wider social context, the report differentiated between sex and gender; sex – as a fixed biological category, and gender – as the socially constructed set of features 'added onto' each sex via socialisation. It attempted to differentiate between pressure applied to choices by physical differences and abilities and that derived from perceived social constructs.

One of the initial barriers was seen to be the sheer complexity of choices that young people need to navigate. Competing providers, organisations and funding availability means that it is difficult to get consistent and relevant advice. Roberts et al. (2008), distinguished between nine different initiatives and organisations relevant to trades training and work transition. These were:

- Secondary Schools
- Secondary-Tertiary Alignment Resource (STAR)
- Gateway
- Industry Training Organisations (ITOs)
- Industry training providers
- Modern Apprenticeships Scheme
- The Tertiary Education Commission
- Career Services.

Roberts et al (2008) suggested that the almost bewildering variety of options may have tended to confuse rather than assist in decision making:

"While these initiatives are designed to support young people's career decision making, and enable seamless and multiple connections between different possibilities, young people are effectively 'responsibilised' with expanded school subject choice and more pathway decisions" (p. 4).

Roberts et al asked a series of questions of their research subjects to determine whether males and females experience the process of career decision making differently and/or inequitably, to determine where the problem was primarily located. Following the answers to the above questions, they subsequently sought to discover what policy or changes could be applied to create a better gender balance in the trades.

By using a combination of focus groups and individuals (86 in total), broken into four primary groupings, the main influencing factors on career choice were explored. These included family, media and peers. In addition they also looked at school structures and filtering (streaming) of subjects.

1. Family influences were determined to be significant, but not the most determinant feature, and more likely to influence males: *“Although gender differences are not clear cut, it seems that young men receive more support for trades-related pathways than young women”* (p. 20-21).
2. Roberts et al decided that the influence of media (especially television) should not be underestimated. Many perceived the media to conflate sexuality with non-traditional gender roles, especially for men. Pointing out the ongoing debate about how television violence and junk food advertisements potentially influence young people’s behaviour and eating habits, it was posited whether the same could be said about how media portray gender and careers. It was concluded that the media (in terms of advertising for trainees/students) was a huge missed opportunity, with unrealistic portrayals having a negative effect on young peoples’ perspectives: *“It is a powerful medium that could be used to portray realistically a range of occupations, including the trades, which could*

*reduce the level of gendered thinking around careers”* (p. 28).

3. It was further determined that peer reaction while on the surface was supportive of non-traditional careers, in practice, teasing and disapproval from peers had a major effect on decision making, especially on the decision to quit training part way through. These findings supported Osgood, Francis and Archer’s (2006) statement:

“Stereotypical views held by teenagers at a crucial stage of adolescent development, when they are seeking to construct ‘acceptable’ and normative constructions of gender identity combined with neoliberal, individualistic ‘freedom of choice’ approaches to equal opportunities has resulted in persistent gendered attitudes and experiences of work” (p. 318).

4. The report studied the effect that the way timetables were structured may have a major effect on student choices, and quoting several studies on the subject concluded that in fact, students were often forced to choose between academic or vocational ‘clusters’ if they chose a single practical subject such as woodwork. Clashes between academic and other subjects mean only one group of subjects can be taken.

It is also made clear by the research that Senior Administrators (Deans for example) perpetuated this system, for what is referred to as ‘logistic expediency’. The report states:

“Deans generally fulfill a role involving a mix of subject administration, student support, and behaviour management. Conflation of these roles can colour the way they see students’ options, especially when timetable clashes arise for students who have been in trouble for one



reason or another. Perceptions of what is appropriate for more 'academic' and more 'vocationally - oriented' students undoubtedly also act as a filter. Already built into the timetable structure, they are given additional impetus via the thinking of those who help students 'choose' (p36)."

It is perhaps worth noting at this point that as shown in Table 2, most of these positions (69%) are held by women. As will be shown subsequently, I believe this to be a major factor in choices made by young women at secondary schools.

"The overall impact of this perceptual filter is that there is a strong preference in schools for young people to pursue more academically-orientated pathways. Students are exposed to a range of negative stereotypes about the types of people that take vocational subjects, the value of those subjects, and the robustness of assessment occurring in those subjects. In schools this can result in academic options/pathways being more visible and accessible to large numbers of students while vocational subjects are seen as an 'easy option', targeted at smaller groups of students who are perceived as not 'having what it takes' to succeed in the academic subjects" (p. 37).

Further, the influence of guidance and career counsellors also came in for some attention. It was universally believed by the participating students that career advisors were prejudiced against trades and towards academic or more traditional roles for women, and actively discouraged girls from taking non-traditional pathways. This is termed "gendered thinking" (p. 39).

Other New Zealand studies have found evidence that haphazard school-based careers guidance and poor advice from careers advisers, for example, about industry and trades, inhibits young people's ability to make gender neutral career decisions (Higgins & Nairn, 2006; Vaughan & Boyd, 2004; Wilson & Young, 1998). A longitudinal study by Scott Ussher of 53,000 students who left school in 2004 found that the predicted odds of a male school leaver transitioning into industry training were almost

300% higher than the predicted odds for female school leavers (Ussher, 2008).

In addition, both explicit and implicit sexual discrimination was reported by students of both genders as an on-going reality. While not always putting women off (several reported an increased determination) it nonetheless had an impact on some who were unsure whether or not to continue once they had started.

There were several other factors which were addressed. These included employer attitude and resistance, and noted that there was both positive and negative discrimination, and in the end it seemed to even out. There is far less discrimination than there once was, but some efforts to compensate for perceived inequalities sometimes backfired and became resented by the females who felt patronised.

McGregor and Gray (2003) conducted a Human Rights Commission report into Modern Apprenticeships. This discussed the low female participation rates of the Modern Apprenticeship system (then in place for 2 years) and stated:

"Since the introduction of the Modern Apprenticeships Scheme females represent 6.6% (381) of total participants (5739). European males, alone, represent 76.4% of total apprenticeships, while Māori represent 14% of total apprenticeships compared to 1.9% for Pacific Peoples" (p. 2).

The report went on to say that the United Nations Committee on the Elimination of Discrimination Against Women (CEDAW) in its latest report from 2002 had expressed direct concerns about the Modern Apprenticeships Scheme and the "apparent reinforcement of stereotypical gender roles" (ibid, p. 2). In the report these low rates were blamed on three main historical factors:

1. Participating industries have strongly entrenched gender barriers which make them particularly unattractive to young women.
2. The parents of secondary school children have traditionally seen apprenticeships as a pathway for non-academic young men.
3. Secondary schools have promoted tertiary study in the form of University or Polytechnic as their priority and young women, in particular, have chosen educational pathways.

It reported that many countries experienced similar problems, even if strenuous efforts were made to overcome them. The report used Germany as an example, stating that “Experience in Germany with a large vocational training system shows that certain industries such as construction, maintain gender barriers regardless of efforts” (p3).

The initial solution suggested however, was not as might be expected to make further efforts to promote female participation in traditional male dominated areas. The solution was to change the statistics by altering the mathematical basis, that is by redefining what an apprenticeship was and encouraging women to enter into the new fields. While this would not change how many women were employed in the trades, by including the newer employment fields (where women were more equitably represented) this would skew the figures towards a more favourable outcome. To quote the report:

“Other industries have supported the employment of women. There appears no reason why industries such as Agriculture and Horticulture that create so much of New Zealand’s income could not improve the gender balance of Modern Apprenticeships. Overseas experience of introducing apprenticeships into the office administration, tourism and retail sectors suggests that

while female participation statistics improve on the face of it, there is a great deal of ‘churning’ of participants because of low pay and lack of a genuine career path in these industries. The new industry areas are required to develop qualifications to provide a range of skills ‘lifting’ young people from low paid and low status jobs and propel them into management...whether this will overcome the CEDAW Committee’s stated concern of perpetuating occupational segregation remains to be seen.” (p.3).

Some doubt was expressed as to whether this would work, and so further more specific recommendations were made.

The 12 specific recommendations made in the Human Rights Commission report suggested the government take the lead in positively encouraging the recruitment and employment of females for trade training. This involved everything from reporting to targets (yet to be set) through to financial incentives, but interestingly these recommendations tended to dilute the focus of the report by suggesting these incentives be applied to several groups of disadvantaged people, even though the report subject was gender inequality. The report states, “Support the provision of incentives, including financial incentives, for the recruitment of young women, Māori, Pacific people and people with disabilities, where particular Industry Training Organisations have made a commitment to diversity” (ibid, p. 4).

When reviewing the literature some common themes emerged both across time and across countries. Similar issues were shown to be evident in Australia, Britain and other countries with similar values, with a notable likeness evident with Australia. Australia and New Zealand have similar backgrounds in many respects, notwithstanding certain historical differences. These similarities include trade training and qualification systems, with most qualifications receiving reciprocal recognition under the Trans Tasman Mutual Recognition Act 1996.

## Discussion

The key findings of this research can be summed up in two main statements:

1. The actual number of women working in traditional male occupations has barely changed at all, in the case of Plumbing and Gasfitting remaining around 0.06%.
2. While female employment has expanded and flourished in many non-traditional areas, some barrier or combination of barriers is preventing women from becoming employed in certain areas.

In the 39 years between 1975 and 2013, society has changed in many ways, with attitudes towards women and their social place being very different in many ways. Restrictions (both formal and informal) on employment choice have been largely eliminated resulting in freedom of occupational choice to an unprecedented degree.

While there are many factors involved, the conclusion reached by this researcher is that most of those barriers are erected deliberately by women, usually working in an advisory capacity. Whether this is a good or bad thing is open to interpretation, with many believing underrepresentation in the trades a bad thing, but many believing far better options than the trades exist and they should be encouraged to enter an academic pathway instead. Both arguments have some validity, but it should be acknowledged that there is little point in blaming the industries for the lack of female participation, when few even get that far to begin with. The main problem lies at an earlier stage.

The statistics are simple. In 1975 there were no females employed as plumbers in New Zealand. As of 2013 there were a maximum of 33, with as few as 10 depending on which figures are used, around 0.06%. That makes it a minimum 99.94% male dominated occupation.

Throughout this project key themes emerged. These show up, not just in New Zealand, but in overseas publications as well, such as those highlighted in the New South Wales report (Department of Family and Community Services, 2013). The most detailed (and also the most relevant) research was done on behalf of the Ministry of Women's Affairs, (Roberts et al., 2008). All the traditional issues and barriers mentioned by others were covered, but in the end three main themes stood out as contributing factors.

1. Traditional gender based sexist attitudes prevalent in the industries from employers and other workers discouraged attempts to start and made completion more difficult. However, the evidence showed that while this was a reducing problem from the employers' point of view, many girls felt uncomfortable with moving outside their traditional role, and were simply not willing to push that boundary. In other words, it was more of an issue for the young women than for many of the males in the industries. If the woman was determined enough, it was possible to enter the trade, and remain in it. Many employers welcomed women, viewing them as an asset (Ministry of Women's Affairs, 2011).
2. Family and peer pressures are influential. While most young women reported good family support, a close reading of the comments made in response to the questions showed that strongest support came from their fathers and/or brothers, with most opposition coming from their mothers and/or sisters. Mothers, it seems, have a more traditional view on what their daughters should do (and this shows up throughout

their lives) than do their fathers on the whole. As for friends and schoolmates, while there was a lot of support from their peers, there was also a lot of teasing and pressure applied before and immediately after the decision to engage in a non-traditional occupation. This opposition tended to subside after a while.

3. In her book titled *Hard-Hatted Women* (Martin, 1997) Molly Martin interviewed 26 women in America who were working in non-traditional trades areas. Although the interviews did not follow a formal process, several told similar stories and had similar experiences. Most support for their unusual career choices came from their Fathers, and most obstruction came from their Secondary (or College) school teachers and guidance councillors. It is this particular observation which has resonance in New Zealand.
4. Of all the insidious pressures applied, none is more effective at stymieing actual free choice than that applied through schools, especially secondary schools. As detailed above, there are two specific factors at play working together to direct young people down specific and traditional career paths. ***In this researcher's opinion, this is the single greatest factor in perpetuating the lack of change in employment factors despite other societal shifts.*** It is so serious I will address this statement in detail.

In the first case, schools always struggle in balancing student needs with resources, and the resource most lacking is time. There are many subjects on offer, and only a limited amount of time. When drawing up the timetable, Senior Administrators (often the Dean) make

certain traditional systems are applied in almost all cases. Subjects are divided into academic and non-academic, and the two are generally seen as competing rather than complimentary. Students, when choosing their subjects in their first year are given the stark choice (when it is offered) of either an academic or vocational subject, as they tend to run at the same time. Each of these choices then restricts the ability to mix and match even further, and students are then forced into clusters of subjects (Roberts et al., 2008).

In addition, students identified as problematic or slow, are generally put into practical streams, as it is felt they would not be able to cope with the more onerous academic subjects. By contrast, students identified as bright or academically able are encouraged to take subjects deemed more suitable for University, and are actively discouraged from practical subjects. This is a deliberate and long standing policy almost universally applied.

Indeed, the very concept that practical is for slow students and academic subjects for bright ones speak volumes about the attitude of most teachers. *They* went to University, think of themselves as quite clever or at least above average, and feel that is the place for all above average people to go. They are usually quite convinced that they are doing students a favour by directing them away from manual jobs. Students, who wish to do, for example, metalwork as well as physics and chemistry, are often unable to do so (due to the timetable structure) and are forced to make a choice. This is a pity, because those are the very subjects a potential plumber should be taking.

In addition, once a choice of subjects is made in the first year, it is often difficult to change subsequently. Having been set on a path of academic pursuit, women are further discouraged from attempting any practical classes (except perhaps cooking or some other traditional female tasks) by their association with the 'slower'

students. It is almost shameful to do certain courses, according to the study.

The timetabling out of actual choice and the pressure to undertake a more socially acceptable path is the first major push supplied by the education system. It is noted that some 69% of senior academic administrators are women, according to the 2013 census figures (Heaney-Yeatts, 2014) (*See Table 2*). These women bring with them their traditional female perspective and their university backgrounds, and tend to see that pathway as better for bright students and women in particular, and programme the timetable accordingly.

It is arguable that the introduction of Trade Academies into Secondary Schools has exacerbated this issue. They are a government initiative focused on delivering trades and technology programmes to secondary students who are interested in a career in trades or technology. Students are able to combine study at a trades' academy with studies towards their National Certificate of Educational Achievement [NCEA] and a nationally transferable tertiary qualification Level 1, 2 or 3. In practical terms, students identified as being failed by the education system can be separated out and given practical skills which are designed to push them towards a trades or vocational career. This further separates these people from the more academically inclined (Ministry of Education, 2013).

The second deliberate funnelling of females away from the trades area occurs with the Guidance Councillor, although the pro-university (and often blatant anti-trades) leanings are also often applied to males as well. This is clear in many of the interviews and confirmed anecdotally by both students and staff at many training providers. To quote the above report:

“Here again there is evidence that gendered thinking (by careers advisers or by those who design and provide publicity material for schools) constrains schools' ability to help students who are considering non-traditional

choices. There is also evidence that students considering such choices need to be determined and persevering if they are to bypass this kind of thinking” (p. 40).

Furthermore:

“There is also evidence of systemic constraints and weaknesses in the school-based careers education system, i.e., this issue is not solely the responsibility of individual careers advisers. Constraints include a school-based careers workforce with a low level of professional qualifications in the 'careers' field (and limited professional development); the low status of careers positions compared with other management positions; and the association of careers education with (low-status) vocational transition programmes” (Vaughan & Gardiner, 2007).

Table 2 identifies some 65% of guidance and career officers to be women, and they are poorly qualified and under resourced. They associate vocational transition (and thus trades) with low status, and thus direct people away from those areas if they feel there are better options, which they genuinely believe there generally are (especially for women).

In this researcher's opinion, the percentage of females in traditional trades' areas is unlikely to change in any meaningful way until these systemic and institutionalised barriers and attitudes within the secondary school education system are changed.

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## Author Bio:

**Garry Cruickshank** is a senior academic staff member at the Department of Plumbing and Gasfitting at Unitec, being employed there from 1997 to the present except for a sabbatical between 2009 and 2013 when he undertook gas audits and accident investigations for the Plumbers and Gasfitters and Drainlayers Registration Board. He was appointed as a member of the Auckland Apprenticeship Committee for six years from 1981, and the National Apprenticeship Committee for three years from 1983 under the Apprenticeship Act, when all apprenticeships were administered by the Labour Department. It was while he was serving on the National Committee the first female plumber in New Zealand became registered. This project is a result of that event. He has had an interest in training since then, and during his time at Unitec has been personally involved in the training of more than 60% of all plumbers and gasfitters in New Zealand who have qualified over that period.

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