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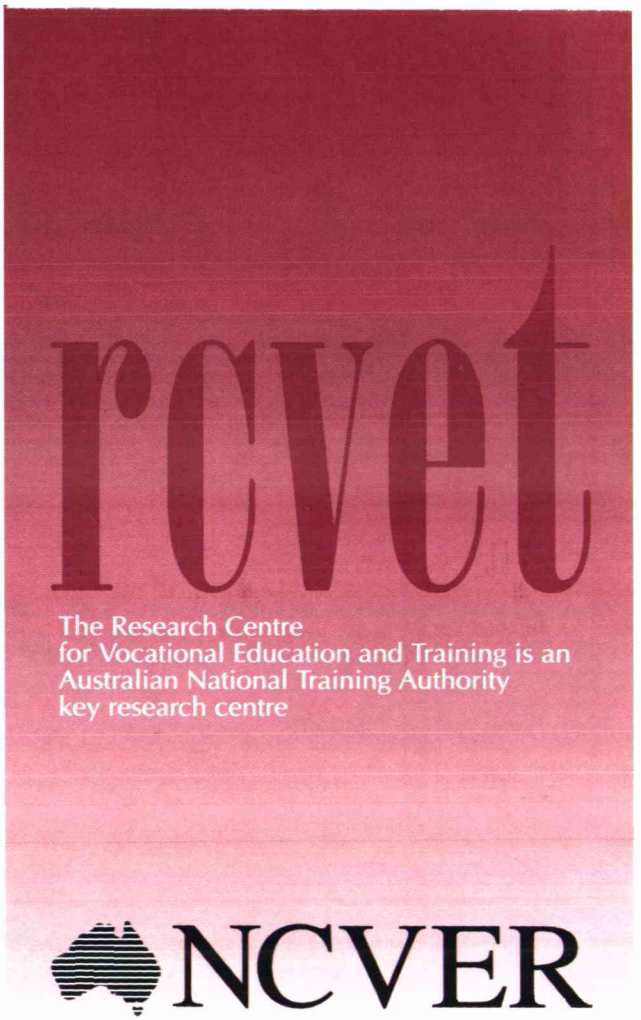

Women in process manufacturing industries: Factors shaping careers in management

Lesley Treleaven

This research was jointly carried out by Manufacturing Learning Australia and the Research Centre for Vocational Education and Training, University of Technology, Sydney.

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This report presents an analysis of what was anticipated as 'a small study' and necessarily grows out of the contributions of Dennis Mather and Bernice Melville as members of the project team with whom I worked during the last year. In particular, I acknowledge Dennis's work in conducting the interviews and undertaking the painstaking work of many hours of transcription. MLA have been generous in their support of this work. I also acknowledge Bernice's significant contribution in undertaking the literature search, preparing its review and the bibliography. Whilst we all engaged variously with the data, I take responsibility for the analysis developed here and formulated in this report.

My grateful thanks to Dennis for his enthusiasm and support in bringing this project to completion. Thanks also to the members of the MLA steering committee—Susan Halliday (BCA), Fay Lamont (Nowra Chemical) and Malyn Robinson (Dow Corning)—for their encouragement and advice.

To the managers who gave most generously of their time and experience in the industry, we thank you and wish you well in continuing to make new career pathways.

Executive summary

In the extensive literature investigating the position of women in management and leadership in the workforce there is consistent evidence of the way structures, practices, beliefs, values and attitudes continue to account for the problem of gender equity in the workforce. Much of the literature to date has, therefore, documented the considerable barriers to women's success in workplace cultures and environments. The emphasis in this study is on identifying the factors that currently shape the career success of women in process manufacturing.

Women in process manufacturing have, historically, been employed on the shopfloor, in laboratories and in clerical positions where the tendency has been to regard the work undertaken by women in such positions as 'just jobs'. This study has its grounding in the very small number of visible women who are developing careers in process manufacturing management and leadership. The aims of the study are to identify the factors shaping their success, and to draw out some of the implications for vocational education and training (VET).

The evidence from this study of 23 women in management points, first, to the finding that almost all the women managers interviewed entered the process manufacturing industry through tertiary education channels, thereby highlighting the lack of entry-level points. A second major finding is that women with successful careers in the process manufacturing industry require complex socio-political/cultural skills to negotiate the masculinist terrain of this industry. A third major finding is that the careers of 'high flyers' often display high career centrality, well-defined career plans, high mobility and flexibility, and supportive spouses whose own careers are not accorded priority. Many of the women progressing towards more senior levels are upgrading their entry-level degrees by undertaking business/management post-graduate training. Few of the 'high flyers' have current responsibilities for young children or elderly parents. These features thereby confirm the conclusions of White (1995) that 'successful women' necessarily still conform to a 'male career model'.

Nevertheless, as more women take up a wider range of positions in the industry, the diversity of women and their varying styles are increasingly changing older attitudes that were held towards women in process manufacturing. The fact that some companies are promoting some women into middle and senior management positions is indicative of changing attitudes. Whilst few women regard themselves as having mentors, many acknowledge the encouragement provided by some male managers, especially their 'initial boss', and, in the case of 'high flyers', often their current manager. Such support provides some indications of ways forward within companies. The value of regular career

progression reviews, informal mentoring, networking forums and post-graduate business training are indicated.

This study suggests, as studies have done in other sectors, that particular attention needs to be focussed on issues concerned with equity and the related area of gender harassment. In the current shift towards competency-based performance criteria and training there are some openings for focussing on these issues. VET offers a significant opportunity for intervention: first, in terms of interrupting the continuity of some prevalent features of the 'blokey culture' within process manufacturing and, second, in terms of its training functions that come with responsibilities to develop required competencies within the complexities of the industry.

Recommendations

1 That the industry develop a plan to assist companies in addressing issues identified in this research report as significant for women developing careers in management and leadership in the industry.

2 That employers encourage women in, or aspiring towards, positions of management and leadership by
- ❖ supporting business/management training that broadens their entry-level science/engineering/arts degree
- ❖ providing mentoring and regular career progression processes
- ❖ developing appropriate cross-sector networks for women

3 That unit/s and/or performance criteria related to equity and gender harassment be
- ❖ included in the set of generic competencies for the industry
- ❖ developed for inclusion in these competencies
- ❖ negotiated for delivery by appropriate VET service providers

4 That case studies be developed as promotional material for careers in the industry
- ❖ from the study's interview transcripts and resumes, especially the career stories and career turning points (with permission from the interviewees selected)
- ❖ that these be distributed to women's groups, unions, and industry associations through their journals and newsletters
- ❖ that these offer potential as a basis for running industry forums concerned with the breadth of issues raised in this study

5 That the conclusions of this study be disseminated
- ❖ as a monograph within the industry
- ❖ as an article for distribution to other industry training advisory bodies' (ITAB) officers for use in their newsletters
- ❖ to policy makers
- ❖ to educators of VET providers and trainers
- ❖ to VET service providers
- ❖ to teachers in schools offering VET programs
- ❖ to group training companies
- ❖ to curriculum and training package developers
- ❖ to New Apprenticeship providers
- ❖ to professional developers for VET programs and delivery

6 That a number of further studies be undertaken with the aim of facilitating change within the industry so as to encourage and retain women in management in the industry, including

- a longitudinal study of these women and their workplace environments to determine critical factors as the more senior women progress to/beyond 'the glass ceiling', as the younger cohort progress with recommended support, and as the industry takes on the challenges to address gender harassment and its effects
- a study of women operators to determine whether findings are applicable to the development of career paths from the shop floor, to supervisor, to production manager to general management (an active participatory longitudinal study could follow to track the paths that these women take)
- identifying progressive companies where women are being appointed in ways that are new for the industry or the company, and undertaking an action research approach with women and management to lead the industry

A number of these recommendations has been put forward in reports by Harding (1997), Hooper and Hillier (1996), Willett (1994) and the Women in Science, Engineering and Technology (1995) Advisory Group. It is to be hoped that there are sufficient data and trends now established for the necessary next steps to be taken. MLA and RCVET are to be acknowledged in recognising the need to initiate the questions addressed in this report.

Introduction: The wider context

There is an abundance of statistical evidence demonstrating both horizontal and vertical segregation in the workforce. Across all sectors of the workplace, participation rates continue to show significant gender segregation. Within industries, women continue to be under-represented at the upper levels of appointments. Australian Bureau of Statistics (ABS) Labour Force Survey (Feb 1997) statistics indicate that although women represent 43.3 per cent of the total workforce, only 24.2 per cent of managers and administrators are women.

The process manufacturing industry is no exception. Indeed, figures show that in the process manufacturing industry, the percentages are even less positive, since women comprise 26.2 per cent of the workforce and 7.8 per cent of the managers and administrators. Process manufacturing includes the following industries: oil and gas extraction; petroleum, coal and chemical product manufacturing; rubber and plastic product manufacturing; non-metallic mineral product manufacturing; iron and steel manufacturing; and electric cable and wire manufacturing. Within the chemical, oil and plastics industries women are employed primarily for line and packing work, and not for more skilled work. The exception is the comparatively high proportion (24.4%) of women chemists, and the gradual increase in the proportion of women production managers (9.7%) who mostly enter via the engineering stream.

In the short/medium term, workforce levels within the process manufacturing industry are expected to decline slightly owing to the introduction of new technology, which is less labour intensive, and to international competition. However, ongoing workplace reform has produced a small number of areas with prospects for some growth. Areas of unmet demand include workers with team building and excellent communication skills; workers with quality skills and the ability to perform with a high-quality focus, particularly at the para-professional, trades and skilled operator levels; and chemical engineers with process manufacturing industry training or experience, including engineers with the 'social and team' skills to manage smaller workplace-based projects (National Process Manufacturing Industry Training Advisory Body [NPMITAB] 1996). These areas may provide women with entry points into process manufacturing.

However, industry projection for nationally accredited training in one of the largest sectors of process manufacturing, chemical and oil (Willett 1994), is for the highest investment to be provided for semi-skilled and skilled operator levels. Little emphasis is to be placed on entry-level training. More significantly for this study, little emphasis is to be placed on nationally accredited training for the upper levels of managers and professionals. Such a direction has implications for women at, or aspiring to, senior levels of appointment within the industry.

Of particular relevance to the context of this study is the report *Women – Shaping and Sharing the Future: The New National Agenda for Women 1993–2000* (Office of the Status of Women [OSW] 1993) prepared as Australia's response to the United Nations Convention on the Elimination of all Forms of Discrimination Against Women. Two of the agenda's 23 chapters—namely the first chapter, 'Women and Decision Making' and the fourth, 'Training'—focus on issues related to women in positions as managers and executives. Such government policy and planning work is indicative of the persistence of gender inequity at work despite nearly two decades of legislation concerned variously with anti-discrimination, equal employment opportunity (EEO) and affirmative action (AA). Even where EEO and AA policies have been adopted more comprehensively in the Australian Public Service than has been the case in private enterprise, women are more likely to be employed at the lower levels of executive management. Of the board membership reported by 154 organisations, 4 per cent of board members are women (ABS 1997).

The stated employment outcomes of the National Women's Vocational Educational and Training Strategy are to have higher numbers of women in management positions and a broader distribution of women across industries at various levels (ANTA 1996a, 1996b and 1997). Drawing on the Karpin report (Industry Taskforce on Leadership and Management Skills [1995] *Enterprising Nation: Renewing Australia's managers to meet the challenges of the Asia–Pacific century*), which points to how only marginal and slow change has taken place in relation to women's representation in management, this strategy recognises that 'this was clearly the area of most urgent need, of highest leverage, and the focus for most urgent strategies'.

The difficulties women face in areas of employment where men share identity, values and interests have been highlighted by the Women in Science, Engineering and Technology (WISET) Advisory Group:

> *[T]he words which constantly occur throughout the literature describing female experiences are exclusion, alien, outsider, different, out of place, resistance, impenetrable, boundaries, barriers, rejection and isolation. On the other hand, words which describe the male experience include group solidarity, inner circle, network, club, camaraderie, bonding and in-group understandings.*
>
> (Office of the Chief Scientist [OCS] 1995, p. 3)

Such indirect discrimination against women is a distinct problem where women are seen to be a non-traditional minority within an industry (OCS 1995, p. 23). In particular, many men and women working in the process manufacturing industry refer informally to its 'blokey culture'. WISET therefore argues for a shift from focussing on what is wrong with women and girls, who do not want to participate in WISET areas, to an alternative approach that questions what the sector does in neither attracting women nor retaining them in the industry (OCS 1995, p. 14). In consequence, WISET stresses that attention needs to be given to eliminating institutional and structural barriers to women's participation as well as to changing attitudes and behaviours of men and boys, and of women and girls. In particular, WISET draws attention to 'gender harassment' as:

> *a range of behaviour by men and boys who predominate in both educational and employment settings of WISET which had a consistently negative impact upon the girls and women wishing to enter, contribute to and progress through higher levels of WISET education, training and employment.* (OCS 1995, p. 3)

Nevertheless, Hooper and Hillier (1996, p. 6) consider the likelihood of such change being initiated within the plastics industry, or its training providers, as low. They conclude that one of the major reasons for these poor prospects of change lies with the VET sector itself:

> *The study found no continuing professional development within the polymer VET or industry-based training sector for lecturers, trainers or learning resource providers in the skills required to deal with the workforce complexity. This is hindering the VET sector's ability to provide professional leadership.* (Hooper & Hillier 1996, p. 8)

A wide range of skills and knowledge is required to deal with the complexity of the current workplace. Industry restructuring is producing far-reaching changes to the national training agenda. However, as yet, the VET sector is not adequately providing industry with the knowledge and skills relevant to tackling such complexity. One of these complex issues—attending to the participation of women within all levels of the industry—requires new knowledge and new skills.

This study is designed to identify issues relevant to this knowledge gap in the process manufacturing industry. Specifically, the study aims to identify factors contributing to career success of women in the industry and some of the implications for VET.

The following report is presented in six sections: a review of literature, a description of the project details, findings made from the data, conclusions drawn from the study, implications for VET, and recommendations to the industry arising from the study.

Literature review

The abundant literature investigating the position of women in management in the workforce derives principally from research studies with orientations towards the corporate world of business. As such they tend to focus on identifying factors in individual women's career success and the considerable barriers in workplace cultures that obstruct their progress into senior management (for example, Marshall 1991 and 1995; Still & Mortimer 1994; Woldring 1994; Guy 1994; Still 1995) and within 'non traditional' areas of work for women (OCS 1995; Eveline 1995).

Yet historically in the workplace the general absence of women in management (Still 1993) has often been attributed to a deficit in women's skills, especially in the areas of leadership, financial management and political 'savvy' (Wentling 1995). Such understandings have focussed attention on women themselves as 'the problem'. In consequence, many attempts to increase women's levels of participation have been directed towards remedying these apparent skill deficits of individual women through *Women in Management* training programs (see Paddison 1995; Simpson 1995; Treleaven 1998). Furthermore, the success or failure of individual women is often attributed to the personality of particular women.

Another literature addresses this problem of individualising the situation of women in the workforce by investigating the problem of gender at work (Acker 1990; Adkins 1995; Burton 1992; Butler & Brown 1993; Cockburn 1991; Eveline 1994; Game & Pringle 1983; Probert & Wilson 1993; Treleaven 1998; Williams 1992). These studies focus on how the individual and the social are not separate from each other but, in fact, together through the relations of power and gender create the structures, practices, beliefs, values and attitudes that, in turn, limit women's representation at more senior levels of the workforce. The relevant literature in this field clusters around three interrelated themes: gender in organisations, hegemonic masculinities in institutions, and women's skills in a gendered economy of labour.

Both these literatures identify processes whereby women's contribution to, and recognition in, the workforce is marked and limited. The emphasis in this study is on identifying the factors that shape the success of women developing careers in management and leadership within one industry and its context within gendered relations of power. Thus this study is grounded in the accounts of 'individual' women at the same time recognising that the factors which shape their career paths are produced in social contexts which they negotiate in varying ways. It is for this reason that attention in the following literature review is drawn to the interrelated factors of:

- workplace cultures and the 'glass ceiling'
- gender stereotypes as they are applied to managers
- women's attitudes to career and criteria for success, and
- dimensions of career support (including training, mentoring, networking, and family support) provided by employers.

A range of research studies, policy documents and industry-specific reports form the basis of this review. Many of these reports detail specific recommendations that would benefit from research. Some of their recommendations are highly pertinent to the determination of key success factors and, as such, are investigated in the study.

Workplace cultures and the 'glass ceiling'

Some recent studies of women in management conclude that the gendered culture of many workplaces is a major impediment to women's progress into senior management (Burton et al. 1995; Still 1993; Marshall 1995). In *Where to from here? Women managers and the cultural dilemma*, Still and Mortimer (1994) discuss the 'glass ceiling' and the difficulty women experience attempting to enter senior management. They attribute some of the difficulty to the 'clubbiness' of senior management. Often this 'insider' culture is shaped by shared experiences in schools and sports. Women, they suggest, are perceived as a disturbance to the established order. Furthermore, they claim that aspiring managerial women generally do not fit men's expectations of the male style of teamwork where team members follow the team leader; in contrast, they suggest, women tend to view teamwork as making a contribution and speaking up. In seeking to convey this problem of gender in their discussion paper, the OCS (1995) draws on Cockburn's (1985) image from a young woman trying to join a male work team:

> *It was as though I was on the outside looking in. They could see me but I was not really there.* (1985, p. 203)

Such experiences point to the tangible impact not just on the woman herself, but also on how organisations perceive women's performances and assess their potential. Organisational influences on women's career opportunities are examined in a United Kingdom study by Harris (1995) on expatriate women in international management and also related literature on women in management in the domestic business environment. Four significant issues are identified: women's own wishes and desires, organisational perceptions as to women's suitability, the effect of organisational policies, and the effect of informal organisational processes.

Although some gains within progressive companies appear to have been made in the last few years, Armstrong (1995) shows a number of reasons why companies continue to fail in their efforts to break 'the glass ceiling'. First, they marginalise corporate policy designed to target the 'glass ceiling' by labelling it AA and by equating diversity with work and family policies.

Second, companies have false expectations that gender training and a trickle-up strategy will 'fix the problem'. Armstrong suggests a range of company initiatives designed to advance women into senior positions. In particular, she recommends focussing on the key determinants of successful careers and the use

of a top-down approach which involves senior executives driving the programs of change that are often marginalised by their locations within companies. Armstrong also discusses the business school programs for 'Overnight Chief Executive Officers' which are customised to the needs of individual corporations and which have produced significant results. However, one drawback of this approach is that the organisation's dominant norms, which are often monocultural, are reinforced and not diversified. Thus, whilst more women may be able to 'succeed' with this training, it is on terms already established by men.

The concern of some Australian companies that their top women executives being groomed for senior positions are leaving, to start their own businesses or to take lower status positions, is noted by Still and Mortimer (1994). In the United Kingdom, Marshall (1995) has investigated why women leave senior positions. Corporate America is losing female executives at a rate nearing twice that of males (Lawler 1994). In Australia, the number of women in small businesses is growing at a rate double that for men (National Board for Employment, Education and Training [NBEET] 1994). The reasons women give for leaving management positions are significant for companies. They report going into business to gain more control over their working arrangements; because of frustration with 'the glass ceiling'; because of retrenchment; for financial gain; and because they recognise and take opportunities of benefit to them.

On the other hand, Harding's (1997) study of turnover rates for women professionals in one chemical engineering company suggests that conservative company management, informal processes for assessing employee performance and potential, and the absence of a critical mass of women staff are factors relevant to the generalised perception, rather than statistical verification, that 'the women are leaving'.

Gender stereotypes and gendered norms

A number of widely held problematic assumptions concern the relationship between gender role stereotypes and characteristics perceived as being necessary for managerial success. Results from previous studies in the United States, Great Britain and Germany are compared with results from Japan and China, using the same descriptive index (Schein, Mueller, Lituchy & Liu 1996). In both studies, males and females perceive that successful middle managers possess characteristics and attitudes more commonly ascribed to males than to females, thereby supporting the notion that 'think manager-think male' is a global phenomenon. Closely related is an earlier gender stereotype (Bem 1981) which identified individuals high in 'masculinity' as more likely to aspire to managerial roles because the behaviours required are those perceived to be 'masculine'; for example, managerial roles are seen to require leadership, forcefulness, dominance, ambition and willingness to take risks.

There is also a range of literature that purports to show gender differences in the management styles of men and women. One such study, 'Styles of success' (Stover 1995 for the National Federation of Women Business Owners, USA), found that although women and men entrepreneurs are alike in ways that distinguish them from non-entrepreneurs, there are important differences in the modes of thinking of men and women business owners and that their styles of management reflect those differences. Stolze (1995), reviewing Stover's study,

points to the gender-related issue of control, Scollard (1995) to major differences in how men and women manage risks, and White (1995) to how the study confirms that women tend to consider their business to be deeply grounded in relationships and people. Women in White's study speak of their businesses as families and extended families. Helgesen (1995) puts forward five differences in management styles between men and women, claiming women leaders show a stronger bias towards direct communication, place greater value on the process by which they reach their goals, tend to place more importance on the value of relationships, do not compartmentalise their lives or their identities, and, finally, that women are impatient with, and scornful of, the kinds of hierarchical perks that define status in mainstream organisations. Arnott (1995) suggests that because of their ability to pay attention to detail, women in the area of executive sales stand to benefit from the trend towards consultative selling. The skill of listening, important in consultative negotiations, is listed at the top of women's strengths. Other researchers, such as Austin (1995), argue that conducting such comparative studies serves only to reinforce gender stereotypes and as such is not helpful in addressing the problems of gender.

Career attitudes and criteria for success

Successful women, according to White (1995), show high career centrality, placing their careers ahead of other aspects of their lives. Conversely, lack of career strategy is a barrier to women's advancement (Wentling 1995). In her United States study of women working in research and development, Gabor (1994) identifies three major factors in the success of the highest ranking women as willingness to seek out a broad range of professional experience within their companies, to foster industry contacts and to change jobs when they feel they have come to a dead end.

Managerial aspirations among those who are not yet supervisors or managers are lower, according to Tharenou (1996), for women than for men and develop later in women's careers. However, in contrast to men in this group, her study shows women's career aspirations are positively related to levels of education and self-esteem and to not having a spouse. Furthermore, Tharenou points to how women's career aspirations are limited where younger children are involved.

In an investigation into the life span development of highly successful women, White (1995) developed a model to integrate data from both work histories and general family issues. The majority of successful women, as well as having high career centrality, work continuously and full-time, fitting family responsibilities around work. The study concludes that women aspiring to success are still expected to conform to a career model that men have followed. Yet increasing numbers of women are entering and remaining in the workforce as families are smaller, couples decide to have fewer children, and women manage the dual responsibilities of career and home (OSW 1993, p. 81).

The complexity of these issues affecting women's lives is increasingly reflected in research on women's participation and representation in management and the ensuing policy issues; for example, the Women and Work Forum conducted by the New South Wales Department for Women in February 1997. Gabor (1994) notes that, although United States professional women in science are less likely to marry than their male counterparts, the most successful women, like successful

men, usually have a supportive spouse. Tharenou (1997) draws attention to the finding of Parasuruman, Greenhaus and Granrose (1993) that the extent to which women subordinate their career aspirations to meet family needs is reduced by family support. Yet, in a study of 502 female executives in the United States, only 31 per cent of those answering cited 'failure to recognise family needs' as a barrier to success (Lawler 1994). Other research with women who have reached middle and upper management positions (Marshall 1995) indicates that issues of working in, and seeking to be effective within, male-dominated organisational cultures predominate.

A study of how Australian women perceive their levels of success relative to their male counterparts and to one another was conducted using a sample of public sector employees (Dann 1995). Their findings show that although the women have significantly lower pay and positions within an organisation, they nevertheless feel as successful as the men do. However, those women who have experienced career interruptions feel significantly less successful than those women who have had continuous careers.

Career support

Organisational policy and practice shapes the forms of career support actively provided for, and taken up by, women aspiring to positions of responsibility and leadership. Such forms of career support include mentoring, training, networking and family support.

Tharenou (1996) identifies organisational factors that affect women's managerial aspirations as advancement opportunities, plateauing, promotion ladders, career encouragement, mentor support, training and development, and challenging work. In particular, she notes the persistence of homophilia, where bosses promote those who are similar to themselves (Tharenou 1997). Highlighting the importance of social processes, she identifies four factors in career success: who the person likes, who they're similar to, where they started and how political both the person and their boss are. Decisions made on these grounds are not based on merit and draw a limited range of applicants from too narrow a pool.

Although the Master of Business Administration (MBA) has increased in popularity as the top management qualification, Simpson (1995) concludes that it is less successful for women than for men in advancing career and increasing salary levels. However, in the United Kingdom, Paddison (1995) notes that development training ranging from residential programs to short modules, interspersed with self study and project work, is an effective step towards increasing the number of women in senior levels in companies.

A useful model for supplying training and support is that of small business centres such as the Outer Eastern Small Business Centre in Victoria (Australia) (NBEET 1994). It provides a network of women's programs (including training in interpersonal and management skills as well as in specific topics such as compliance requirements and industry-specific training), an ongoing counselling service and a mentoring program. Further areas for investigation are identified as: regional networks, common interest networks, support mechanisms for women in transition from being employees to managing their own business, and related mentoring mechanisms.

The importance, as well as the distinctions, of women's networks is highlighted by the NBEET from submissions to the Employment and Skills Formation Council:

> *women's networks are generally informal and consist of other women, partners and close friends. Men tend to be involved in more formal networks, such as chambers of commerce. Strong emphasis was also placed on the preference women have for mentoring and advice from other women. Women generally prefer that their trainers and mentors are readily able to identify with their personal experience and background.* (NBEET 1994, p. 20)

However, Simpson (1995) identifies that men's networks, both formal and informal, operate as significant barriers to women's success.

On the other hand, Gabor (1994) points to progressive companies that actively provide career tracking and mentoring programs for women executives. As a result, she claims more women scientists in the United States are breaking into the executive ranks of major companies than ever before because someone took the time to help their careers. 'Big' programs and 'high-priced consultants', she claims, are not a requirement.

The impact of bosses who do not guide or encourage progression is a significant barrier to women's advancement (Wentling 1995). The study identifies ten strategies for companies to ensure maximum use of women's business capability: provide feedback on job performance, accept women, ensure equal opportunities, provide career counselling, identify potential, encourage assertiveness, accelerate development, offer mentoring opportunities, encourage networking and increase women's participation. Five of these strategies are regarded as the responsibility of the company, with the others requiring the responsiveness of the (female) employee. Improved structures for selection committees as well as improved job selection criteria for assessing applicants are recommended by WISET (OCS 1995).

Finally, and more specifically for this study, Hooper and Hillier (1996), in their report on the plastics industry in Australia, advance a number of recommendations to identify and resolve gender issues as part of normal business practice. They propose that manufacturing companies could achieve this, first, by having both male and female representatives from different cultural backgrounds on all committees, boards and decision-making bodies, and by training the board and committee members in the handling of gender issues. Second, Hooper and Hillier recommend making skills and information easily accessible to managers, trainers and employees by establishing networks to share personal and professional experiences, and by producing and disseminating case studies of workers in the industry. Such networks, they suggest, would provide support for companies, employees, and women, including those from different cultures, and should include female managers (1996, pp. 97–98).

The project

The following section briefly outlines the history of the project, its aims, methodology and participant data. Two later sections detail the findings and draw conclusions from the study.

History of the project

The first stage of this study, conducted as a pilot by the industry's peak training body, Manufacturing Learning Australia (MLA), involved a preliminary literature survey and the trialling of an interview schedule with a sample of women, mostly from New South Wales. The second stage, conducted by MLA with the assistance of RCVET at the University of Technology, Sydney (UTS), included the design of semi-structured interview questions, interviews with a broader sample of women across most Australian States, analysis of research data and documentation of the study.

Aims

This study aimed to identify the factors shaping the success of women developing careers in management and leadership in the process manufacturing industry and to draw out some of the implications for VET. Thus the study seeks to address two interrelated questions. The first asks what shapes the success of these women? The second asks in what ways are companies encouraging and contributing to the women's success?

Methodology

Participants who had attained management responsibility within the process manufacturing industry were initially identified from MLA contacts. Given the highly visible, and small numbers of, potential participants, other women were identified using the snowballing technique. Thus at the end of each interview, women were asked whether there were more senior women in their company, or other women in their field, who had been appointed to management positions.

Semi-structured interviews, lasting approximately one hour, were recorded on audio-tape with each participant's consent, transcribed and the transcripts read by each of the project team. Ethical procedures of confidentiality were maintained.

Participant data

Twenty-three women across Australia (New South Wales, Western Australia, Victoria and South Australia) were interviewed. Participant data detailing their industry sector, level of function, level of responsibility, entry-level qualifications are summarised below in table form, together with personal data provided by participants concerning age, family responsibilities, and pathways into the industry. The widely used phenomenon of 'a glass ceiling' is employed as a useful and accessible way of drawing attention to interview data concerning the position of women in management in the industry.

Of the three sectors, more than half of the managers interviewed worked in the chemical, oil and hydrocarbons (S1):

Sector

❖ S1 Chemical, oil and hydrocarbons	14
❖ S2 Plastics, rubber and cablemaking	7
❖ S3 Glass, clay, concrete cement and ceramics	2
	(N=23)

The participants ranged across most levels of function in process manufacturing, as the following table summarises:

Levels of function

❖ Executive/general management	3
❖ Business management	4
❖ Production	2
❖ Technical	5
❖ Human resources management (HRM)	4
❖ Training/Human resources development (HRD)	5
	(N=23)

Participants' levels of responsibility were difficult to classify across the industry with such variation in the size of companies, the scale of their operations, and their varying forms of organisational reporting lines. However, the following data gives an indication of the level of seniority reached by women in the study:

Levels of responsibility

❖ L1 Executive (director or reports directly to the board)	4
❖ L2 Senior management (one removed from direct board contact)	7
❖ L3 Management (more than one removed from direct board contact)	8
❖ L4 Junior management (supervising a small team)	4
	(N=23)

The weight of evidence in this study lends support to a view that 'a glass ceiling' is present in companies within the industry. Three broad groups in the sample may be distinguished in respect of the 'glass ceiling' phenomenon: one group of

women who, as owners and senior managers, were part of executive management; a second group, as yet to join executive management, poised just below a 'glass ceiling'; and a third group, who could identify its effect on more senior women in their company but did not consider it currently affected them. These groupings relate closely to the women's current levels of appointment.

For both the women owners represented in levels of executive management, the notion of the 'glass ceiling' is not relevant. Twenty years ago, when two of the older women started their own small businesses (one with her husband, the other with practical assistance from her father), circumstances in the industry were such that the initial investment required as start-up capital and the degree of competition enabled small-scale enterprises to get off the ground. This is not the case now as younger women enter the industry. In some respects, the owners' situations also contrast markedly with women in larger companies. As owners, their business dealings in the industry and related sectors necessarily involved them in earning respect and acceptance in an industry not used to women in authority. However, they were not required, as are the women in larger companies, to climb the promotion ladder to executive management through a 'glass ceiling'. Thus, in contrast, the two other women at executive/general management level (L1), who are not owners, see themselves as not yet having attained the seniority and acceptance by their colleagues that would denote being 'through the glass ceiling'.

Certainly some skilled and competent women are receiving recognition from their employers by being appointed to higher positions with increased responsibilities. This trend is reflected in the nine women at L1 or L2 who have been promoted at least two rungs on a career ladder since their entry into the industry. Of these, five were identified as 'high flyers' on the basis of their rate of progression, level of seniority, current function and career aspirations evidenced in their career plans. Whilst a few of these women argued that EEO or AA was unnecessary, most noted the difficulty they perceived for women in their companies to move from these senior positions to executive management. As one senior woman herself noted of the 'glass ceiling', 'The higher you go the thicker it gets.' She thereby confirmed Still and Mortimer's report that as more experienced women assume leadership roles 'the greater the battering against the glass ceiling' (1994, p. 11).

In general, those in middle and junior management (L3 and L4) were aware of some restriction on women progressing through their company but did not think that it currently affected them at this stage of their career. Still and Mortimer (1994) suggest that because women have few problems entering junior and middle management, many younger managerial level women doubt the existence of a 'glass ceiling' (1994, p. 2).

Entry-level qualifications into the industry amongst participants were recorded as follows:

Entry-level qualifications

- E1 Science/Engineering degree 11
- E2 Arts/Social Science/Commerce degree 7
- E3 other tertiary 1
- E4 no tertiary qualifications 4

According to the women's career histories, most of the women entered the process manufacturing industry via one, or both, of two pathways. The first pathway was a tertiary education in science/engineering. The second pathway was personal contact with the industry, or a related field, through family and/or friends. Entry later in mid-career was most often via teaching into training (HRD) or HRM for those with arts/teaching qualifications. Those without a degree viewed this as a disadvantage in advancing their career, whilst another who had undertaken graduate study but not completed her course of study later saw this as a mistake in terms of her career.

The age of the women ranged from 25 to 60 years, with the sample containing two clusters in the 30–35 years and 45–55 years age spans that accounted for three-quarters of the interviewees. Half of the women (11) had no children, four women had one child, seven women had two children, and only one woman had three children.

Whilst their families of origin were principally Anglo-Saxon/Celtic, 22 per cent of the sample were from families of Greek, Italian, German, Serbian, Korean and Chilean ethnicities. One-third were born outside Australia (Chile, Germany, United States, United Kingdom). In providing accounts of their careers, many of the women in the sample referred to the encouragement they received from their parents as young women thinking about their work futures. Many came from families where both parents worked, where 'work was always considered as something that was interesting', where they had 'always expected to work', where a 'widowed mother wanted us to make something of our lives' and a 'father taught us to aim for the sky'. School was also seen as a formative source of encouragement, offering careers days and vacation scholarships that provided forays into new opportunities, with a selective girls' high school portraying 'the world is your oyster'.

The women frequently sought to offer explanations for their selection of the traditionally male-dominated industry of process manufacturing. For some their initial interest was shaped by their parents' employment in trade (motor mechanic) and professional (analytical chemist, innovative pharmacist) areas now related to their own careers. Other women drew on explanations located in the circumstances of their growing up with brothers, as 'one of the boys', or in a family of girls where, in the absence of a father at war, 'we did it all', or where 'jobs were never allocated on the basis of sex'.

Factors shaping women's careers in management

Analysis of the data made available in the interview transcripts suggests that there is a range of factors shaping the careers of women in management within the process manufacturing industry. In this section, evidence is presented from the following six perspectives: the industry context within which the women work as managers, their perceptions of what it takes to succeed in the industry, career centrality, levels of risk-taking, career plans and career support. Conclusions from this analysis are drawn in the following section.

The industry context: The 'blokey' culture

Attitudes towards women in the industry and women's attitudes to the 'blokey' culture of the industry were evident in the ways women conducted themselves in the interviews and the illustrative stories that they offered. Women were asked how process manufacturing was a challenging industry in which to work. Some responded in terms of the specific work they undertook; however, most responded in terms of the ways sexist attitudes, prevalent in the sector and in their specific workplaces, impacted on their everyday performance of their duties and on their career prospects. Whilst some felt there was no discrimination against women, others acknowledged that there was some discrimination but discounted it, taking up stances as 'strong' individuals who could 'deal with it/take it in their stride'. Thus many of the women acted with considerable personal authority as they negotiated circumstances that they sometimes reported as quite difficult.

A number of stereotypes typically attached to women working in male-dominated industries means that women choosing to work in these industries have generally been regarded as different or unusual. Often they are regarded as 'strong' because they have not been put off, and have stayed, indeed, sometimes thrived. In many of the interviews the women referred implicitly, obliquely or directly to the way these labels had been attached to them in their employment in the industry.

Many of the turning points that the women selected to report during the interviews were stories of how they dealt with these perceptions and labelling by their male colleagues. These labels were employed frequently by men on the women's initial appointment in the industry, on their entry into a new company or on their promotion to a new position. A typical comment during an interview was:

I have good relations with everyone. They all test me in the beginning. Every new male executive, or superior, will at some stage, when there are a lot of people in a meeting, test me. Most of the time they are sorry they tried. They only do it once.

Such occasions indicate, first, that women are breaking new ground in what was traditionally considered gender-appropriate in the industry and second, that male workers put women in management through an initial testing period on their arrival. One illustrative story of such a testing period was described by a woman appointed to manage an all-male production plant. Confronted initially with resistance, she did not back down.

For years, the directors were getting into everybody else's job. They were of the old school. If you weren't strong enough to just tell them where to go if they interfere with your job, you either stay with the company and become a pussy cat or look for another job.

I told one of the engineers, 'What are you doing? Why are you deviating from the system? I want you to adhere to it, and if it doesn't work we will sit down and work it out. I don't want you to do things away from the system and not notify me. It is against every quality standard ... We don't change anything before we get customer approval ... The parts were made different from what the contract says. Before you can supply them I will have to send some of those parts to the customer for approval.'

We had an argument on the factory floor. I said, 'Right, you send them to the customer and I will pick up the phone and notify them of what products you are sending and I am going to the managing director to put in my resignation unless he overrules you.' There were about four or five people standing around. I said to the supervisor 'scrap them' anyway. The production director rang my boss and said, 'She is going to destroy the company'. That was four months after I started here.

He said, 'How was I to know that you were going to be a tiger? I had a pussy cat as a quality manager before and now I've got a tiger. I'm sorry, I won't do it again.' In the beginning I was the big bad wolf and it was wrong that people thought, 'I won't do that because she will not let me do that'. They were losing focus because they didn't think about the system or the standard. They were thinking 'she won't let me operate this way.' It took three years for me to get them to understand that it is not me. It is what should be done so we don't have problems.

What is also interesting is that the woman tells this story now with considerable good humour, noting that she has won both the respect and friendship of the people concerned.

Three years down the track, that same director at a meeting said, 'If it wasn't for [her] the company would have never achieved the standards we have achieved in quality because she scared the hell out of us and she never backs off from anything.' That was probably one of the most challenging moments because I was new in the company. I didn't know how the director would take it but I wasn't going to allow him to deviate from the system. Because that was what they were doing with the previous quality manager and that is why the previous quality manager decided to leave—he couldn't get anywhere.

Of particular significance is the evidence that many of the women in this study have been required to learn how to successfully position themselves in workplaces where women, especially women in management and positions of responsibility and authority, are the exception.

In their accounts of their experiences working in the industry's challenging environment, these women located themselves in complex ways. In summary, they drew on a wide range of skills and attitudes, for the most part successfully in their own terms, to position themselves in relation to challenges to their authority. They employed any of three main approaches: minimising, negotiating and confronting. Each of these approaches can be elaborated from their accounts of critical incidents that they gave during their interviews. First, minimising meant the women selected from a range of behaviours that included adapting to dominant norms, ignoring sexist challenges, preferring male company, feeling at ease with its familiarity, denying its presence or impact, or treading lightly by going into situations with a 'softly softly' attitude. Second, negotiating meant the women took up various positions from being very reasonable, winning respect, and never backing off, to giving some leeway or being 'very feminine'. Third, confronting meant meeting hostility with aggressive responses, 'going in tough first time' and 'giving as good as you get'.

Two stances indicative of highly developed abilities stood out in many of these women's stories. First, many of the managers had developed the ability not to personalise the 'tests' and discriminatory incidents. Second, they refused to back down where their managerial authority was at stake. Conversely, those who experienced significant difficulty in gender relations felt their career prospects were compromised by such situations to the extent that they contemplated leaving the industry. It may well be significant that there were few of these women in the sample, suggesting that either they had already exited the industry or had had to settle for more junior positions.

Success factors: Participants' perceptions

The managers were asked what they thought it took to succeed in the industry. Their responses assumed technical competencies and identified some generic skills, attitudes and knowledge important in achieving success for both men and women. These included a range of communication and networking skills, high levels of motivation with clear vision, direction and goals, and exceptional organisational skills. However, for the most part, their answers were framed by their gendered situations within the industry generally, and within their company specifically, although many did not explicitly acknowledge their situations as such. In doing so, they nevertheless indicated the additional and highly important socio-political/cultural skills and attitudes (Butler & Schultz 1995, p. 46) that they perceived were required for women to succeed in the industry.

In their responses, women in the study identified the importance of a degree and high intelligence, an interest in science and technology, and enjoyment in being around machinery, plant and the like. Being able to demonstrate an understanding of mechanical things and understanding the manufacturing process were regarded as important in establishing a place within the industry. Being logical, consistent and 'getting your facts right' were seen as important in establishing credibility. The necessity 'to learn the culture' included: communicating with the guys ('being blokey with the blokes'), developing temporary alliances to get something done, and, in the career sense, 'opening doors for yourself'. Women were seen to require tenacity ('be tough enough to tough it out'), determination and persuasiveness, confidence to speak up and to

stand up for themselves ('ability to take control'), and an ability not to personalise issues. Whilst they claimed women have to work harder than men and have 'to prove yourself more than the boys', it was seen as essential to 'never be resentful of it being harder for women', to maintain a sense of humour whilst working in difficult environments, and to live with ambiguity. Having a mentor, 'a stable private life', a supportive family were generally viewed as helpful.

The factors identified in accounting for what it takes for women to be successful in the industry were principally intrinsic and framed at the level of the individual. 'Getting recognition' and being rewarded for performance were not identified by more than a few women. The discourse of the 'successful woman' is located within highly individualistic terms by both the women themselves and the industry. From the women's perceptions, this is only one aspect of a complex dynamic. Rather, it is decisions made by employers that determine what constitutes merit (Burton 1988, 1992, 1995), measures performance against these or other criteria, and thereby determines the levels of career success achievable.

Career centrality

In management studies, career centrality is understood as the relative importance placed on career compared to other life priorities. In this study, the number and ages of children were, perhaps predictably, the most apparent factors influencing career centrality. Women without children or with only one child (whether an older woman who had only one child, or a younger woman perhaps starting a family) showed the highest career centrality.

High career centrality was evident in at least half of the managers interviewed. Most distinguished their strong commitment to career in terms of the priority they gave their work over other areas of their lives. In particular, such women mentioned the mobility that they had decided on in order to progress, the precedence that their career as the higher paid partner took over that of their spouse, their willingness to move interstate or to regional areas to take up opportunities, their willingness to travel extensively and regularly as part of their duties in a company that took such travel for granted, and their willingness to live in different locations, separated from spouses when required, during their career. Undertaking post-graduate study was further evidence of high commitment levels to career. In line with recent national trends, younger women did not assume they would necessarily have children, and spoke of their decision for a career over that of starting a family, or expressed ambivalence/uncertainty about having children. As White (1995) has noted, many careers are still based on full-time models that have been developed by men in senior positions and do not take account of many women's multiple career and family responsibilities.

A third of these managers sought 'a balance between career and family', and were most often women with young children or women who came to value other areas of life beyond their career as they reached mid to late career. Several spoke of 'wanting a life beyond work' or of 'not looking to work to measure success'. It may well be that the sense of tension expressed by some of the women is produced by the current difficulty of managing senior career positions and a family in a labour force which is still shaped by the full-time male career. Only one of the women worked part-time. Having been asked twice to return to the company, she was able to establish a niche for herself that met her needs for

balance. Very few of the women displayed low career centrality, though those with more than two children were more likely to express lower career aspirations. This finding confirms Tharenou's (1996) work.

Another third of the managers interviewed had experienced difficulties that they identified as gender bias that limited or damaged their career prospects, whilst half claimed that companies were undervaluing women's talent. For some, these experiences acted as a disincentive that led to re-evaluating the importance of their career or planning an exit from the company into a small business, sometimes unrelated to the industry. Some women found support elsewhere in the company to surmount the opposition of their boss or the perceptions that limited their future career owing to the precedent of placing men in management positions. They indicated that such moves required considerable political skills and determination.

Whilst career centrality was readily distinguishable in the accounts of their employment histories that women gave at interview and in their resumes, attitudes to their careers were more complex, and sometimes contradictory. What stood out was a willingness to work extremely hard to achieve high standards, motivation to succeed with strong desires for recognition and responsibility, commitment to the industry and often enjoyment of corporate life. Whilst a few of the women acknowledged that they were 'ambitious' and 'goal driven', one of the women commented on the danger that being ambitious, or being seen to be ambitious, in the industry represented for women. Another of the women regarded herself as 'not driven' yet strove to 'put 150 per cent into her work'. Several women were concerned to bring ethical values to their work, whilst two spoke of being regarded as 'the moral conscience of the company'.

Levels of risk-taking

Most of the women, when asked, did not identify themselves as risk-takers. However, some stated that they took 'calculated risks'. In their accounts, others displayed considerable risk-taking behaviours. These risks were taken especially in respect of career mobility and career changes. One woman took the considerable risk of leaving the company when she reached an impasse, only to return at a higher level. Others made radical changes in their careers: from engineering to accounting, from teaching to manufacturing, from teaching to quality.

Another of the women acknowledged the need to move 'out of your comfort zone':

> *As I said, I would like to get into manufacturing. Mining is great, you just have to get out of your comfort zone and find out what it is like out there. According to the affirmative action agency, mining would have to be one of the most difficult. Not that I want an easy road, I just want to taste something else, really.*

Her comment is interesting for it reflects her ambivalence in making a career move, highlighting the effect that issues of gender have in her decision-making. She went on to indicate that she would probably not take the risk of moving into an industry that was recognised as 'one of the most difficult'.

In general, though, the findings suggest that these managers are not high risk-takers, with the qualification that there was a strong tendency towards taking a calculated risk amongst those women at the more senior levels.

Career plans

Two-thirds of the women interviewed indicated they had career plans, though in almost all cases these were not formal written documents. Six of these managers expressed a clear view of the next position that they were aiming towards within a short to medium timeframe and of the direction of their career that they were currently anticipating. In particular, they were focussing on gaining positions within, or reporting directly to, executive management, as technical manager, department manager, factory manager, general manager, managing director, or board member. Most had already achieved a position where they were only one level of management below direct contact with their board (L 2). Most had support from their bosses and advice from those whom they regarded as mentors. Often their mentors were former bosses who continued to encourage them. However, for those who did not have the support of their immediate boss, they recognised that their progress required considerable negotiation around internal company politics.

On the other hand, the five younger women in more junior management positions were formulating career plans but were less certain of how their career strategy would develop. This was particularly so for those wanting to have a career and start/continue a family. Some were not yet clear whether opportunities indicated by their company would, in fact, become available to them. This finding is backed by Harding's (1997) observation concerning women's exits from this industry by the age of 30.

The three managers approaching retirement had considered directions they wished to follow after retirement, and two were putting in place succession plans within their companies.

Of the seven who didn't have career plans, they were either at the start of their careers and unclear of potential directions or they were reaching what they considered to be the end of their career. These women had assessed both their progress and unrealised potential within their company and were in the process of exiting the industry to fulfill other aspirations. Few of the women did not put their careers at the centre of their lives, although some stated they had 'left [their] run a bit late', 'never started out to have a career as such', 'haven't worked out how to get there' or 'don't play the game properly'.

Career plans were often made with advice or support from bosses. Yet only one company had a formal career progression planning process in place. The significant role of bosses as mentors, referred to by many interviewees, suggests that formalising this area of company support would be timely and beneficial.

Women's career plans were by no means fixed and were most fluid at times of major shifts in their life cycles (starting a family, reaching mid-life and assessing career interests, directions and potential, and towards retirement). Many of the women, whilst aspiring to significant levels of responsibility and seniority in their careers, also expressed considerable ambivalence. First, there were questions of opportunity for progression in the current economic climate where

downsizing has abolished many middle management positions and where mobility within companies anyhow was low, reducing the opportunities. Second, there were the effects on everyday life of working in a 'blokey' industry that was often aggressive, unwelcoming and challenging in ways that were not related to the functions of the work. As noted earlier, many of the women had developed considerable skills in dealing with the behaviours and attitudes of men that meant workplaces were, at times, neither safe nor inclusive. However, a number of long-term employees were planning a move out of the industry/line management because they desired a change from this environment. These are the effects of what has been discussed earlier as 'gender harassment'. Third, there were issues of concern about the lifestyle that accompanied such positions in terms of the stress on health and the difficulty for some of the women in having a family on the current terms operating within the industry.

Career support

The study was concerned to identify what support is available to women aspiring towards positions of management and leadership in the industry. Thus, during the interviews, women were asked what extrinsic factors had shaped their success. It was anticipated that company practices and policies encouraging training, mentoring and career development would inform their answers. However, the picture which emerges from the data is that, as yet, little systematic support in organisations has been put in place. Instead, within companies the support available is highly variable, and rests on the good will and encouragement of individual men.

When asked if they had a mentor, two-thirds of the women indicated that they had considerable support, encouragement and advice from a manager or spouse. Yet none identified a mentor within their company. Whilst several had been encouraged by their company, they saw these people more as advisors or supporters than as mentors, with some specifying that they did not have anyone who opened doors for them. The importance of the 'original manager', 'the person who first promoted me' and 'my immediate boss' were underlined in their responses. For a third of the women, these managers played a significant role in developing the potential of them as staff. The women noted that these managers drew on skills and attitudes that they identified as: communication skills of openness, listening and providing feedback; and management skills of delegating, respecting autonomy and intelligence, and giving middle management a feeling of ownership. Whilst they did not identify bosses as mentors, they reported that their supportive manager 'fosters young people', indicates career pathways, provides opportunities to act in higher positions, 'opens doors' and 'goes out to bat for individuals', or 'moves staff sideways if they see someone stuck' and 'teaches you to play the political game'. These activities suggest that some mentoring is taking place within companies.

Post-entry training stands out as a significant factor in the data. Two-thirds of the women, whilst working full-time, had undertaken, or were in the process of completing, formal training (diploma, certificate, degree or masters) which broadened their previous entry-level degree in science, engineering or arts. The more senior women in larger companies were studying post-graduate courses in business-related areas; for example, MBA, masters in management and leadership. Several women planned to enrol in management programs (MBA,

human resources, masters in organisational development). Other areas of post-entry-level training included training and development, science and communication, quality assurance and psychology. A company that paid for external training was regarded as encouraging. As the trend to post-graduate training is a relatively recent phenomenon, it was to be expected that the older women were more often those who had gained considerable experience in the industry rather than undertaken further study.

During interviews, most of the managers, regardless of whether they had children or not, drew attention to the importance of their supportive family. In particular, supportive spouses/parents/siblings were regarded as significant in enabling them to combine their career choices with family responsibilities. Furthermore, most of the women emphasised the importance of their supportive spouse/partner who encouraged their career in the industry, often identifying this person as their mentor. Given these emphases, it is perhaps not surprising that amongst the sample there was only one sole parent and three single women without family responsibilities. However, this data is not reflective of wider social patterns of family stability and may suggest that it is only with such stability that it is currently possible for women to maintain their careers within the industry.

Few of the women stated that they engaged in networking activities either within their own company or externally. However, there are several clear exceptions who have developed extensive networks throughout the industry at senior levels and one within her company who was particularly skilled at networking. Networking was also employed by those who were politically astute to manoeuvre around the manager who was seen to be blocking their career progression. A number of the women indicated that they maintained their links with former managers/advisors for even up to 20 years. For several, their university courses offered networking opportunities. One woman seeking to make a career change had deliberately engaged in networking around a training body which she joined as a committee member. Few networked with women, though one woman was a member of Chief Executive Women (1994), an organisation formed to provide a stimulating environment for women with diverse business interests. Nevertheless, when asked, many of the women indicated their interest in participating in a forum with other women.

Conclusions

The evidence in this study points to the conclusion that women with successful management careers in the process manufacturing industry are required to develop familiarity with the masculinist environment within which the industry is conducted and the complex socio-political/cultural skills to negotiate its still challenging terrain. In effect, this means that women take up a range of positions according to the circumstances in which they find themselves, adopting highly 'feminine' behaviours, 'being one of the blokes' and 'a competent female manager', staking their claim to authority and winning respect through their performance. The implications are that by their presence in the industry women occupying management positions are beginning to unsettle some of the gendered notions of a manager in the late 1990s. However, until the 'blokey culture' and gender harassment is reduced, the numbers of senior women are likely to remain relatively small.

Conclusions from the study, bearing in mind the small number of women interviewed, can be drawn in regard to entry routes, features in the careers of 'high flyers', career paths and evidence of a 'glass ceiling', changing attitudes to women in the industry and indications for company support, equity and gender harassment.

Entry routes

This study suggests that women in management entered process manufacturing through their interests and knowledge of opportunities gained from family members already employed in areas related to science or through their participation in tertiary education where they gained degrees in science or engineering. Those with teaching backgrounds have, for the most part, moved into the industry via training to human resources (HR) positions, with later entry encouraged by friends. These pathways suggest a fairly narrow base and the importance, therefore, of making available, outside this limited personal contact, knowledge of the career opportunities for women in the industry.

'High flyers'

One of the major findings suggested by the study is that 'high flyers' have high career centrality, well-defined career plans, high mobility and flexibility, and a supportive manager. Many of the women who were progressing towards more senior levels upgraded their entry-level degree by undertaking business/management post-graduate training.

This study thereby confirms the conclusions of White (1995) that successful women necessarily still conform to a 'male career model'. Few of the 'high flyers' have current responsibilities for young children or elderly parents. Nor is it unusual for the woman's career to be regarded as primary, or equal, when considering the priorities of spouses. Their spouse, and often their own family, had provided considerable support when their children were young. These patterns contrasted with the younger women with children whose careers, especially in training, had not progressed to the same extent.

The absence of women in management positions with young children was marked. Younger women with more than two children were also absent in this sample of middle and junior levels of management. The Australian trend towards younger women having fewer or no children is reflected in the figures for this study. Half of the women (11) had no children, with many indicating they had no intention of having a child in the future. These findings point to the difficulty for women in retaining career centrality during this stage of their life cycle, and the need for companies to consider how best to retain staff with dual responsibilities and provide flexible leave-and-return packages.

Career paths

There is a view in the industry that taking up technical positions is an impediment to advancement. However, a traditional path into the industry for women has been via technical positions in laboratories and quality control. It is noteworthy that of the 'high flyers' half come from technical backgrounds, the others from a non-technical/non-engineering background. Whilst it is not easy moving from laboratory manager across to production management and thence to a general manager position, some of the women interviewed have shown it can be done, and are thus opening up new career pathways.

Entry via the engineering stream is a more recent development. This is reflected in the younger women who have undertaken engineering/science degrees and are now beginning to take up positions of middle management within the industry. As yet they have not reached either senior management or a 'glass ceiling'. It will be important for the industry to benefit from this new entry path by supporting the development of these women's careers through mentoring, encouraging appropriate management training and providing a diversity of work placements. At the same time, it would be prudent to track this cohort and monitor any exit patterns pointing to a 'glass ceiling' effect at middle and senior levels.

As a career path in the industry, training (HRD) may be a niche where women with potential can get stuck on the 'sticky floor' (Still 1995). Without a technical background or post-graduate study in business, the move to HR/HRM, production or technical positions is relatively limited from these positions. Younger women with children, with the exception of one Level 2 manager who had undertaken an MBA, were frequently employed in training roles at Levels 3 and 4. Since some of these women do have technical backgrounds, and may undertake further training to increase their prospects when their children are older and they have more study time available to them, this is an area where employees may benefit from career advice.

However, some of the younger women, already encouraged to develop leadership, were looking for opportunities to show what they could offer in more responsible positions. Some managers were poised to leave the industry if variety and mobility were not available to them. It is also possible that what some of the women identify as the potential for boredom/lack of variety in the industry may be the slowing down of opportunities and challenges in their career as they approach a 'glass ceiling'. It is here that company encouragement, mentoring and opportunities may contribute to retaining competent women and progressing their careers.

Although some gains have been made in the number of women reaching senior and middle management, one woman noted that 'the most effective route over the glass ceiling was to parachute in'. Several participants argued that as owners of small businesses, such an entry is possible. The strong trend towards women starting their own small businesses can be understood partly in the light of the 'glass ceiling' phenomenon, with several women in this study noting their intention to exit the industry, having assessed their career prospects unfavourably.

Changing attitudes to women in management

As more women take up a wider range of responsible positions in the industry, the diversity of women and their varying styles are increasingly changing older attitudes that were held towards women. Furthermore, as women take up positions of authority and leadership, men's acceptance of women based on their performance continues to shift. The fact that some companies promote women into middle and senior management positions is indicative of changing attitudes. The support provided by numbers of male managers encouraging women to develop their careers provides indications of ways forward. In particular, companies may be able to provide regular career progression processes, mentoring, encourage networking forums and post-graduate business training.

A notable absence in the factors shaping women's success was other forms of company support, especially the provision of flexible leave, child care and career breaks. The issue here is one of perceptions, since examining HR policies and practices was beyond the scope of this research. HR issues were rarely mentioned by interviewees, despite a format which invited them to consider enabling and challenging organisational factors. Rather, women with children actively took the initiative to indicate how their own families and spouses were supportive of their careers. It is suggestive of a belief that women in this sample who choose to have both careers and family, at present, need to address the issues of their dual responsibilities as solely individuals. Another view would point to the need in a changing workforce for these issues to also be addressed by employers through their policies and work practices.

The women's silences with the male interviewer (though sympathetic) on the issues of dual responsibilities in an HR policy context are perhaps symptomatic of wider silences in a conservative industry which is yet to accept women fully, let alone women with authority, a career and young children. Such a reading suggests that it would be a considerable risk for (female) managers to argue as women for changes in HR practices to accommodate their dual responsibilities.

This argument could be understood as 'special pleading' on the basis of gender and, as such, draw further attention to their differences.

Equity and gender harassment

The socio-political/cultural skills which many of the women interviewed have demonstrated have proved significant for negotiating less limiting positions for themselves in their workplaces despite covert and overt hostility, direct and indirect discrimination, and the unintended effects of discursive gender bias. Nevertheless, such gendered work is an additional undertaking that will not be necessary in an industry that welcomes both men and women for the business value they can add. Whilst attitudes on the part of both company management and on the shop floors are changing, the 'blokey culture' may continue to represent a significant barrier for an industry wishing to attract and retain capable women in management.

These issues may be addressed in several ways by the inclusion of a unit/s and/or performance criteria relating to 'equity' and 'gender harassment' amongst the generic set of competencies for the industry. Whilst legislation holds companies responsible for the wellbeing of employees on a number of grounds, including occupational health and safety, sexual harassment, and equity, and therefore liable for the behaviour of its staff, the associated knowledge, skills and attitudes are not currently expressed in measurable terms as part of the industry's competency standards.

Implications for VET

Workplace reform and the training reform agenda in Australia have seen significant shifts as Australia responds to meet the demands for a new, flexible workforce capable of competing in rapidly changing global markets. Yet, as Connole (1996) argues, neither ways of thinking about workplace change nor the VET system pays attention to gender as an important category of analysis. This study in the process manufacturing industry has a number of implications for VET, in addition to those already recommended in other reports discussed below.

The National Women's Vocational Education and Training Strategy aims to bring about a measurable change in the profile of women from diverse backgrounds accessing and completing programs of VET at various levels across a broader range of study areas. The National Plan of Action for Women in Technical and Further Education (TAFE) identified both attitudinal and structural barriers. Attitudinal barriers include the social attitudes from industry, school, parents, media images and inadequate marketing. Within the learning environment, women are confronted by gender harassment, inadequate learning materials and a lack of support such as counselling and childcare. Structural barriers identified include transport, inadequate use of Recognition of Prior Learning, timetabling, course selection procedures, resource allocation, fees and accommodation. The report of Women in Science, Engineering and Technology cites the following statement from the WISET Advisory Group:

> *TAFE as a training provider for women entering technical Science, Engineering and Technology careers still has a number of entrenched structural and attitudinal problems.* (1995, p. 20)

The group makes the link between the history of most TAFE bodies as trade training providers and the current environment that is not inclusive of women. Thus, right at the beginning of an articulated study and career path towards non-traditional process manufacturing, women meet barriers. Hooper and Hillier (1996) note that women in the United States also have to take up equity issues with both male trainers and other students in courses. Vetting of trainers' policy and practices and asking for evidence of understanding of the skills, knowledge and ethics involved in complex training workplaces (1996, p. 82) were recommended.

The Employment and Skills Formation Council (1994) recommends that governments address the needs of women employed in small business; that providers design training in ways that enable women to participate; and that programs be marketed specifically for women. The skills required and the training developed for women to expand their own businesses are identified by Barrera and Robertson (1996). In a response to their findings concerning the limited amount of training women have in running their business, the Western Australian Department of Training developed pilot training programs.

This study suggests that particular attention needs to be focussed on issues concerned with gender harassment and equity. One of the requirements for the safety and efficiency of workplaces is arguably an environment free of gender harassment. As such, knowledge, skills and attitudes in respect of gender harassment and equity in the workplace may increasingly be recognised as important as other generic competencies, like communication skills now regarded as an essential set of complex skills in a well-trained workforce.

The VET sector is a significant site of training for two reasons. First, the VET system presents significant opportunity, often at entry points into the industry, to intervene in the maintenance of behaviours, attitudes and practices which are discouraging of women on the basis of gender alone. Second, in its training role in the development of industry competencies, interventions through curricula are particularly relevant. However, given the deeply embedded and far-reaching nature of such harassment in social relations of power, competencies in the domain of equity are not readily developed. VET training needs to be conducted within environments that reflect an understanding of gender harassment. In turn, such an undertaking requires substantial engagement with issues of equity and gender harassment throughout the VET sector itself, as well as those engaged in the development and delivery of curricula.

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Appendix: 1: Overview of interview

1 Company profile
2 Career story
3 Turning points in career
4 What is it about you that has enabled you to achieve your success?
5 What circumstances have enabled your success?
6 How is this industry a challenging environment for women to succeed in?
7 What do you think it takes for women to succeed in this industry?
8 Do you think the 'glass ceiling' applies to your own situation?

Appendix 2: Draft questions and notes for semi-structured interview

1 Career story

We would like to hear your story because there are very few women working in this industry in positions of responsibility. We realise your story will be unique and this is what will make it interesting. (How to elicit the story as an exemplar).

Would you tell me your story, how did you get to this point?

(Follow up with prompts on background, employment history, including current role and profile of company, training, other questions which emerge from the story.)

When people look back over their careers, there are often turning points. Can you identify significant turning points in your career? (career path, life cycle stages)

Why was each critical? How did they relate to other things that were happening in your life?

2 Attribution of career success factors

What factors do you think have been important to success in your career?

How do you measure career success? What tells you that you have been successful?

What other aspects do you consider are indicators of career success? (Literature suggests some middle managers may not consider themselves as achieving career success.)

What do you regard as your achievements?

There has been a lot of coverage given to 'the glass ceiling'. Do you think it applies to your own experience? (May lead into discussion of AA.)

3 Career attitudes

How important is career success to you? Are there other things that are important to you? What priority do you give to these? How has this varied during different stages of your career? (career centrality, family responsibilities for children, partners, elders)

To what extent have you moved within/outside the industry? Have you considered moving geographically? (mobility in relation to family location, affiliations within company)

What risks have these moves involved for you? Can you tell me about one move that you made? (looking for story of key incident)

What future career goals have you set for yourself (this year, 5 year, 10 year?)

Have you ever had any career guidance or career counselling? Where, from whom? Did this prove to be valuable at the time, or in hindsight?

What challenges do you anticipate you will face in achieving these goals?

4 Industry culture—challenges and strategies

How would you describe the traditional executive culture where you work?

In what respects have you found process manufacturing a conducive environment in which to work?

How is this a challenging environment for women to succeed in? (to identify the positions available for women to take up - both stereotypes and new emerging possibilities)

So, what do you think it takes for women to succeed in this industry? (this question needs to be included irrespective of earlier discussion in the interview - for generalised success factors)

What strategies have you developed to deal with the challenges in the industry culture?

Can you tell me about a time when you used these skills? (looking for key incidents of challenging situations employing successful strategies to deal with power relations)

Could you tell me of another time when you had to deal with difficult power relations?

There is a lot of discussion about power and politics in business. How do these issues of power and political savvy come up in your role? What is a typical situation that you would need to deal with?

What positions do you find women need to take in negotiating their way through this industry? Are these sometimes different from what you would prefer to be able to do?

These dilemmas of being a woman in management and still appearing 'feminine' have been named as 'a trapdoor'. Do you experience any of this kind of pressure?

5 Career support

What support has been available to you? Do you belong to any networks? If yes, what is their value to you? If not, why not?

Have you ever had a mentor? (seek out elaboration - position, role, duration, now? number of mentors?)

Rather than a mentor, has there been someone who has been important in your career who has inspired, encouraged, assisted you?

6 HRM practices in your company

How many people/women does your company employ? In what positions?

Under what circumstances could this change?

Where are the women who have/are working their way up through this company? Do you believe this is typical?

What strategies do you/your company have in place to encourage women to take up careers in industry?

Do you have your own training plan?

Does the company have a training plan, business plan, quality procedures, succession plan?

Regarding your company's HRM practices, what are a couple of features that you are pleased about?

7 Are there any further comments you would like to make that you think would be helpful in the context of this research?

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