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CONSTRUCTION INDUSTRY AND WOMEN: A REVIEW OF THE BARRIERS

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ABSTRACT: The UK construction industry has a particularly low participation rate for women. Currently there are over 11 million women employed in the UK, accounting for almost 50% of the work force. However, despite increases in the number of women employed in the construction over the past decade, they still constitute only 9% of the work force. This means that the construction industry will continue to be male dominated. It is found that women are confronted by a significant number of barriers, beginning with difficulties in joining the field of construction through to capturing the most senior position in the organisation's hierarchy. In this context, this paper presents a review of the literature on the current status of women in the construction; in particular, it discusses the barriers which prevent women's entry and retention in the construction industry.

Key words: Barriers, Construction, Women

1. INTRODUCTION

The construction industry is typically a male dominated industry and presents a major challenge for equal opportunities for women. The UK construction sector has a particularly low participation rate for women, both in industry and academia.

Currently there are over 11 million women employed in the UK, accounting for almost 50% of the work force (Fielden et al, 2000). The gender composition of the workforce throughout the UK has changed dramatically in the last 20 years; the UK male labour force has increased by 3 per cent, whereas the female workforce has risen by over 40 per cent (Cartwright and Cooper, 1994). Whilst women may be entering the workforce in increasing numbers, female workers remain concentrated in certain occupational sectors such as education, health and service sectors, notably banking, insurance and the retail trade (Department of Employment, 1989). In contrast, women have continued to be under-represented in construction industry sector which have been regarded traditionally as stereotypically "male" occupations. According to the Construction Industry Training Board (2003) women only account for 9% of the construction work force. This means construction continue to be a most male dominated industry. It is found that women are confronted by a significant number of barriers, beginning with difficulties in joining the field of construction and as far as to capturing the most senior position in the organisation's hierarchy. Although women now constitute just over half the British workforce and the number of women in construction

education is increasing overall, they continue to be underrepresented in the construction industry (Gale, 1994a). In this context this paper presents a review of the literature on the current status of the women in construction, in particular, it discusses the barriers faced by women in terms of entry, development and retention. The image of construction, career knowledge amongst children and adults, male dominated culture and the work environment, male dominated courses, recruitment practice and procedures, family commitments will be discussed as the major barriers for women entering, working and developing in construction which lead to discussions on the need to identify appropriate recommendations and good practice guidelines to aid the recruitment and retention of women in construction.

2. THE STATUS OF THE WOMEN IN THE CONSTRUCTION INDUSTRY

The construction industry is one of the UK's chief employers, employing over 2 million people, that is more than 1 in 14 of the total UK workforce (CITB skills forecast Report, 2003). The role of the women in employment is changing radically in most societies and as mentioned earlier, in Britain women constitute just over half of the total work force. However as per the CITB report (2003) it was revealed that women still constitute only 9% in construction sector. The true position of women in construction could be seen only when this figure is further broken down. Accordingly, 84% of women in construction hold secretarial posts, whereas only 10% are employed in a professional capacity and the remaining 6% are craft and trade level employees. Court and Moralee (1995) noted that the under-representation of women in construction only became an issue in the 1980s. In 1988, less than 7% of the full time construction industry workforce in Britain were women. The Equal Opportunities Commission (EOC, 1995) stated in its annual publication that 'women continue to be significantly under represented in the primary sector (agriculture and energy and water), in most manufacturing, in transport and communications and, in particular, in the construction industry. Since then, there have been number of studies carried out by various researchers on the under-representation within the construction industry. (Gale, 1994a; Fielden et al, 2000).

Thus the lack of women in construction has been a concern for many years now. The studies in these areas have been invaluable in pinpointing the factors militating against the participation of more women in the construction work place, and in particular, the recruitment into the construction professions (Agapiou, 2002). The UK construction industry is busier now than it has ever been for a decade and is suffering from skill shortage in both craft and manual trades such as bricklaying, plumbing and painting, and at the professional level, in engineering, quantity surveying and estimating (Whittock, 2002). The issue regarding the lack of women in construction has been made more prominent recently,

attracting government and industry wide attention, due to the potential skill shortage facing the industry. Therefore, the UK government is examining the ways to encourage women into traditionally male dominated jobs. Since then a number of initiatives have been introduced in order to improve the current situation and raise awareness such as women working in construction committees and women as role models. Though researchers have focussed on how to improve the participation of women in the construction workplace the objective seems to be to solve the labour resources crisis and skill shortages than to improve equal opportunities for women (Agapiou, 2002). Despite the number of recent recruitment initiatives, the industry has failed to make significant progress in recruiting more women. It can be seen from Figure 1 below where the number of women working in the construction industry has remained constantly low.

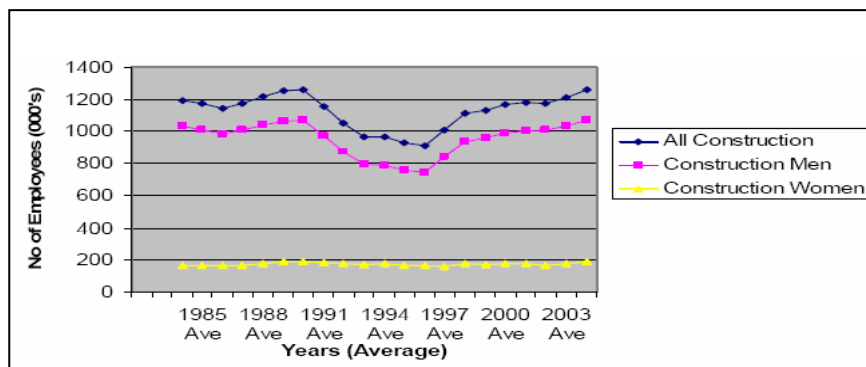


Fig. 1: Employee Jobs in the UK Construction Industry 1984 to 2004. Source : Office of National Statistics

From Figure 1, it is apparent that women's participation rate is low in the construction industry. The rhetorical question remains: what could be the reason behind this? One major reason is the barriers faced by the women working within the construction industry. The following section discusses the various barriers that prevent or reduce women entry and retention in the construction sector.

3. THE BARRIERS

Within the number of studies detailing the position of women in construction, the problems faced by women to enter and retain in the construction industry are considered as important. It is primarily the barriers which lead to a lower participation rate of women in construction. Therefore, it is vital to look into the problems faced by women entering into construction. There are several barriers on women entering and working in the construction industry. From the literature survey the major barriers have been identified as the image of the industry (Gale, 1994a; Fielden et al, 2000; Fielden et al, 2001; Bennett et al, 1999), career

knowledge (Gale, 1994a; Agaipou, 2002, Harris, 1989; Fielden et al, 2000), culture and working environment (Dainty et al, 2000; Fielden et al, 2000, Bennett et al, 1999), family commitments (Lingard and Francis, 2002, Fielden et al 2000, Lingard and Lin, 2004, Greckol, 1987, Agapiou, 2002), male dominated training courses, and recruitment practices (Fielden et al, 2000, Fielden et al , 2001). These barriers are discussed below in detail.

3.1 Image of the Industry

The image of the construction industry is typically portrayed as promoting adversarial business relationships, poor working practices, environmental insensitivity and a reputation for under performance (Construction Industry Board, 1996). The construction industry has an industry wide problem with 'image' which makes both men and women reluctant or uninterested in the industry (Bennett et al, 1999; Fielden et al, 2000). The literature identifies the industry's image was found to militate against the entry of women. The predominant image of construction is that of a male-dominated industry requiring brute strength and a good tolerance for outdoor conditions, inclement weather and bad language (Agapiou, 2002). It is principally this image that makes the women uninterested in the industry. Gale (1994a) has found through his research that male school students are five times more likely than their female counterparts to consider a career in the construction industry. Also females consider the equal opportunities record of the construction industry to be worse than males. The Construction Industry Training Board also found that 63% of young women interviewed felt that it would be practically impossible for women to get jobs in the construction industry and only 17% thought that it would be a suitable career for them. According to action research undertaken by Fielden et al (2001), the participants complained that the construction industry has a male-dominated, macho image symbolised by 'the builders bum' or 'Stratford smile'. Therefore the image of the construction industry may be an important factor in the career selection process of young men and women (Gale, 1994a). Dainty et al (2000) found that women may not remain in the industry after education due to the incorrect picture of the industry portrayed by recent recruitment initiatives. Their research found that women are more likely to be attracted to the industry by such targeted recruitment campaigns, and they noted that women who had entered the industry due to such initiatives 'have a poor initial understanding of the culture of the industry and the inherent difficulties of working in such a male dominated environment'.

3.2 Career Knowledge

The image problem discussed above, which makes both men and women uninterested in the industry, is compounded by a general lack of knowledge and information about the industry, the career opportunities it can offer and the qualifications that are required (Fielden et al, 2000). The CITB (2003) found that parents, teachers and school children believe that the jobs in construction industry were limited to bricklaying, joinery, and painting and decorating. It is also found that teachers, parents, career advisors and school students have only a vague, superficial knowledge of the industry. Careers teachers and careers advisors were perceived by school students, undergraduates and graduates to provide inaccurate and inadequate information on the construction industry. Owing to the variety of courses and diversity of career paths even professionals careers advisers find the subject of careers advice for construction confusing (Gale, 1994a). Although a greater awareness has been found among 'A' level students and undergraduates, with regard to professional activities such as engineering and architecture, the status of the industry as a career opportunity does not compare favourably with other options (Harris, 1989). This is mainly because the girls' career choices, and in particular their encouragement to enter non-traditional occupations, is strongly influenced by their family, friends and teachers (Agapiou, 2002). The decision of selecting a career in the construction industry should be taken well in advance at schools level particularly by those who intend to be a construction professional in the future. The more that schools students of both sexes know about the construction industry the more likely that both sexes are to select a career in the construction industry. Knowledge of the nature of construction industry professional occupations, higher education routes to professional status and career opportunities in construction were seen as extremely important by school students considering a degree in construction. Therefore careers about an industry must be transmitted to school students (Gale, 1994a).

3.3 Culture and Environment

The construction industry displays a macho culture where relationships are characterized by argument, conflict and crisis (Gale, 1994b *cited in* Bagillhole et al., 2000). As a result, employees (male and female) find that they are exposed to an extremely hostile environment. Women who are attracted to the construction industry face the same stereotypical barriers as women in other sectors. In this male dominated profession there are added stereotypes regarding the nature of the profession and the professional themselves (Langford et al, 1994). Women who do enter the construction industry in professional positions tend to fill technical specialist positions rather than general managerial posts (Bennett et al, 1999).

Bagilhole et al., (2000) noted that the construction workplace has been described as amongst the most chauvinistic in the UK, with an extremely macho culture which is hostile and discriminatory towards women. This results in gender differentiated career opportunities which have an inevitable consequence of high staff turnover of women in construction companies (Davidson & Cooper, 1992; Brett & Stroh, 1994). Dainty et al., (2000) found that younger women became disillusioned with their career choice more rapidly than men, and sought to leave the industry early on in their careers. This macho environment, which is also expressed in more disturbing terms and sexual harassment within the construction industry, is a real concern with almost all reports on women in the industry acknowledging this problem (CIB, 1996a). According to professor Michael Romans, a past president on the Chartered Institute of Building, the construction industry is characterised by "a boy's own culture" which is overtly fostered through language and behaviour. Davey et al (1999) highlighted that in the construction industry, male values are the norm such as long working hours, competition, independence, full-time working and that rewards and the expectations for career achievement are paramount. Davidson (1996) and Davidson & Cooper (1992) indicated that women who seek entry into male-dominated cultures either have to act like men in order to be successful, leave if they are not adaptable to the culture, or they can remain in the industry without behaving like men but maintaining unimportant positions. However, faced with this organisational barrier, some women still seem able to gain a higher degree of career satisfaction and optimism than their male counterparts, as they continue to enter former male roles (Nicholson and West, 1988). Therefore, the male dominated culture can be especially destructive for women entry, career development and retention in the construction industry.

3.4 Family Commitments

Work-family conflict is defined as a form of inter-role conflict whereby job and family demands cannot be met simultaneously and is an on-going problem for women with career aspirations (Wentling, 1996). The conflict between work and family obligations, that many construction professional experiences, is more acute for women than for men. Recent research suggests that job demands borne by construction professionals are damaging to their personal relationship (Lingard and Francis, 2002). While men and women both need to balance the demands of work and home life, women still bear the primary responsibility for domestic duties in most households (Higgins et al, 2000). Site based employees, both professional and manual workers, are usually subject to changing work locations. This can involve travelling substantial distances and/ or long periods away from home, a situation which can present serious difficulties in terms of transport and child-care (Greckol, 1987). The construction

industry fails to appreciate some of the issues associated with combining work and family commitments, and organisations tend to treat family and work as completely separate (Fielden et al, 2000). Through a study done by Lingard and Lin (2004) it was suggested that women in construction adopt an 'either or' approach to career and family. Also it is possible that women's perception of the need to make a choice between work and family means that women who choose to have a family, develop lower expectations of the work experience and, consequently, the work-family conflict does not negatively impact upon their organisational commitments. However, women who expect to balance both family and career success in the construction industry may experience significant difficulties. (Lingard and Lin, 2004).

3.5 Male Dominated Training Courses

The mainstream courses and training provided by colleges, training organisations and employers create a whole host of problems for women arising from the male-dominated environment masculine culture (Gale, 1994a). Peacock and Eaton (1987) found that over half of the young women who returned their questionnaire reported during their training period of encountering a general disbelief among male instructors and colleagues that women could be technically competent. Access to high-profile development opportunities (such as to enquiries and working groups) is often gained through informal networks and mentors. Research shows that women tend to lack access to informal networks that provide information about such opportunities. They are also less likely to have a mentor who will signal their potential and provide them with the support needed to ensure success (Townley, 1989).

In spite of the consistent association of on-the-job development and promotion, research indicates that women are offered fewer developmental experiences than men (Wernick, 1994). Women are also more likely to be found in staff (personnel, HR, communications etc) rather than line (service delivery/ production) functions. Thus, they can lack the kind of work experience that leads to promotion (Economist, 1998). An individual's prospects for advancement can be affected by the number of opportunities they have to accumulate and demonstrate their merit (Burton, 1998; Wernick, 1994). Although increasing numbers of women have appropriate educational qualifications, Wernick (1994) found that there is still a perception that there is lack of suitably qualified women for senior management positions. She attributes this to the fact that women have limited access to the wide range of developmental experiences and activities that build the credibility needed to advance. Wernick (1994) also found that, as is the case for initial selection, methods for selecting people for development tends to be 'haphazard and inefficient' and leads to inequitable access. Again, the procedures tend to be informal and are bound by stereotypes, biases and questionable

'qualifications'. This, in turn, means that companies can pass over individuals with education, interest and potential, especially for managerial and executive responsibility. Moreover, she found that few companies have formal succession or executive development plans, relying instead on informal practices and procedures that often use limited information to make decisions. The most valuable training for managers is provided through a variety of credential building exercises, especially on-the-job opportunities, and opportunities to work on high-profile projects which enhance visibility and build credibility (Wernick, 1994; Rusaw, 1994). In addition, time in certain functional areas such as line management is seen to provide the kind of development which prepares people for more senior appointments and on-the-job experience is also seen to be of greater benefit than formal education and training. Agapiou (1998) argues that it is industry's fragmented structure and its volatility which make it difficult to meet changing training needs. However, Gann and Senker (1998) suggested that it is due to the continued reluctance on the part of the construction companies to recognise women as an important source of new workers, rather than a lack of access to appropriate training.

3.6 Recruitment Practices

The recruitment process in the construction industry is said to be of biasness towards female workers. The terms and conditions within the construction industry were generally poor irrespective of any particular gender. Through the study undertaken by Fielden et al (2001) it was reported that the industry fails to provide decent wages, pensions and other staff benefits especially at craft level. Dainty et al (2000) found out that male managers use discriminatory recruitment practices which put many women off applying for new positions with contracting organisations. The changeable nature of the construction industry was also felt to be responsible for high levels of unemployment. It is mainly the terms and conditions of employment that make women uninterested in the industry. It was also pointed out that construction workers have to work outside during the cold winter months, often in dirty conditions, which in their opinion made the industry unattractive particularly to women (Fielden et al, 2001). It has also been reported that the culture of construction organisations permits informal recruitment practices; these can include advertisements and brochures depicting male values and interests, unstructured interviews, discriminatory selection criteria and sexist attitudes (Fielden et al, 2000). Many employers still consider women unsuitable for some traditionally male dominated jobs, for instance in the manual trades workers need a reasonable level of strength and fitness, with some job requiring above average upper body strength for lifting and heavy operations (Greckol, 1987)

4. DISCUSSION

Women who choose careers in non-traditional occupations such as the construction industry have to face many challenges in order to enter and retain in the industry. The forgoing section discusses the major barriers faced by construction women in terms of entry, career development and retention. Mainly the male dominated image and culture of the construction industry strongly deter women from entering it. Fielden et al (2000) identified with this, citing the industry's poor image as a reason why so many people, regardless of gender, are uninterested in a career in construction. Research by Turrell et al (2003) found that little had changed in the industry with regards to the perceived image; a third of both female and male college students had a negative view of the industry, considering it to be 'no place for women': "women and girls feel that men in the sector may have hostility towards them and that they would be entering 'a man's world". Regarding the poor standards prevail within the industry it was commented by Zara Lamont, Chief Executive of the Confederation of Construction Clients, at the 2002 Women in Construction Conference "we need to raise standards right across the industry...making construction a career of choice for everyone including women". Not only that, many construction companies have also been criticised for using discriminatory recruitment procedures that deter women entering into organisations. Due to the women under representation and the discrimination and exclusionary culture of the industry, tend not to have the contacts to be able to find employment in this manner and as such, Dainty et al (2001) found that where they continually experience difficulties in finding employment, they are more likely to seek work in other, more accepting sub sectors. Further, it is also noted that many women are leaving the industry as they feel they have been hired because of their gender rather than their abilities.

For women to be successful recruited and retained in construction, they need to be 'supported, coached, and encouraged'. The industry needs to ensure that they are sending out the right message, that women can, and do, succeed in a career in a construction, and they are not just there to fill the current shortage of present. Because of the initial lack of knowledge about the industry, when women enter the industry and their understanding of what the career and the industry entails increases, women can become less committed to their careers, which can lead to them seeking alternative positions outside of the industry. Nowadays, construction organisations are keen to portray themselves as equal opportunities employers and because of this, they have been criticised for recruiting 'token females' solely for this purpose, such behaviour could also be known as positive discrimination. When carried out correctly, these actions, accurately known as affirmation policies, aim to increase the number of women in construction, especially in more senior positions where females are severely underrepresented. In addition to these points, it would be illogical not to include money as a reason for women leaving

the industry. In general women earn less than men do. In other words, women's lifetime earnings are below than those of an equivalently skilled and educated man. Finally, the over emphasis on "male values" of the industry which include long working hours, working away from home and geographical instability, and a highly competitive culture; alternative working arrangements such as part time working, career breaks, and job sharing are considered as feminine and unfeasible in the industry.

5. CONCLUSION

This paper reviewed the literature relating to the barriers faced by women in construction. It is found through the literature review that image of the industry, career knowledge, culture and working environment, family commitments, male dominated training course and recruitment practices are the major barriers to women in construction. Each of these barriers have been elaborated, and the possible difficulties that the women face due to such barriers in entering and retaining in construction have been discussed. Considering these barriers, it is felt that the reduction or elimination of most of such barriers is an important step which leads to recruit and to retain more women into construction industry. The construction industry itself has not, until recently, formally acknowledged that the under-representation of women is an important issue or promoted any initiatives or research into this area (Fielden et al, 2000). In 1996, a report was produced by CIB Working Group 8 (CIB, 1996b) that provided constructive guidelines on equal opportunities for construction companies. At a European level a New Opportunities for Women training and exchange project, funded by the EC, shows the possibility for future successful collaborations between women and trades across Europe (Wall, 1997). A study by Willkinson (1996) revealed that on the occasion when the industry is short of labour, it becomes particularly important not to waste the labour of construction graduates. It also suggested that while, on the whole, altering the pattern of benefits would have little differential effect on recruitment by sex, there is the exception of child-care. In attempting to recruit more women, employers should perhaps think more seriously about providing some form of child-care benefit. Thus it is vital to identify appropriate recommendations and good practice guidelines to aid the recruitment and retention of women in construction.

6. REFERENCES

Agapiou, A. (1998) *A review of recent developments in construction operative training in the UK*, Construction Management and Economics, 16, Pp 511-520.

- Agapiou, A. (2002), *Perceptions of gender roles and attitudes toward work among male and female operatives in the Scottish construction industry*, *Construction Management and Economics*, 20, Pp 697–705.
- Bagilhole, B. M., Dainty, A. R. J., and Neale, R. H. (2000) *Women in the construction industry in the UK: A cultural discord?*, *Journal of Women and Minorities in Science and Engineering*, 6, Pp 73-86.
- Bennett, J.F., Davidson, M.J., and Gale, A.W. (1999) *Women in construction: a comparative investigation into the expectations and experiences of female and male construction undergraduates and employees*, *Women in Management Review*, 14(7), Pp.273-91.
- Burton, C. (1998) *Staffing the Changing Public Service - Merit, Equity and Development*, *Canberra Bulletin of Public Administration*, 89, Pp 62-67.
- Cartwright, S. and Cooper, C.L. (1994) *No Hassle! Taking the Stress out of Work*, Century Business, London.
- Construction Industry Board (1996a) *Tomorrow's Team: Women and Men in Construction, Report of the CIB Working Group 8*, Thomas Telford and Construction Industry Board, London.
- Construction Industry Board (1996b) *Constructive Guidelines on Equal Opportunities, Report of the CIB Working Group 8*, Construction Industry Training Board and Construction Industry Board, London.
- Construction Industry Training Board (2003) *Construction Skills Forecast Report* [Online] Available from: <http://www.citb.co.uk> [Accessed September 2004].
- Court, G. and Moralee, J. (1995) *Balancing the Building Team: Gender Issues in the Building Professions*, Institute for Employment Studies/CIOB, University of Sussex.
- Dainty, A. R. J., Bagilhole, B. M. and Neale, R. H.(2000) *A grounded theory of women's career under-achievement in large UK construction companies*, *Construction Management and Economics*, 18, pp 239-250.
- Dainty, A. R. J., Bagilhole, B. M. and Neale, R. H. (2001) *Male and Female perspectives on equality measures for the UK construction sector*, *Women in Management Review*, 16(6), Pp 297-304.
- Davey, C., Davidson, M., Gale, A., Hopley, A., and Rhys Jones, S. (1999) *Building Equality in Construction*, Good Practice Guidelines for Building Contractors and Housing Associations, Manchester, MSM Working Paper.
- Davidson, M. J. (1996) *Women and employment*, in Warr, P. (Ed), *Psychology at Work*, Penguin Books, London.
- Davidson, M. J., Cooper, C. L. (1992) *Shattering the Glass Ceiling*, The Woman Manager, Paul Chapman, London.
- Department of Employment (1989) *Historical supplement No. 2*, employment statistics, *Employment Gazette*, November 1998.
- Economist. (1998) *Women and Work*, *The Economist*, 18 July 1998.
- Equal Opportunities Commission (1995), *Job segregation linked to gender bias*, *Equal Opportunities Review*, 60, March/April, Equal Opportunities Commission, Manchester.

- Fielden, S. L., Davidson, M. J., Gale, A. W. and Davey, C. L. (2000) *Women in construction: the untapped resource*, Construction Management and Economics, 18, Pp 113 – 121.
- Fielden, S. L., Davidson, M. J., Gale, A. and Davey, C. L. (2001) *Women, equality and construction*, Journal of Management Development, 20 (4), Pp 293-304.
- Gale, A. W. (1994a) *Women in non-traditional occupations: the construction industry*, Women in Management Review, 9(2), Pp3- 14.
- Gale, A. W. (1994b) *Women in construction: An investigation into some aspects of image and knowledge as determinants of the under representation of women in construction management in the British construction industry*, Unpublished Doctoral thesis, Bath University, United Kingdom.
- Gann, D. and Senker, P. (1998) *Construction skills training for the next millennium*, Construction Management and Economics, 16, Pp569-80.
- Greckol, S (1987) *Women into Construction*, National Association for Women in Construction, Toronto.
- Harris Research Centre (1989) *Report on Survey of Undergraduates and Sixth Formers*, Construction Industry Training Board, King's Lynn.
- Higgins, C., Duxbury, L. and Johnson, K. L. (2000) *Part-time work for women: does it really help balance work and family?* Human Resource Management, 39, Pp 17–32.
- Langford, D. Hancock, M., Fellows, R. and Gale A. W. (1994) *Human resources in the management of construction*, Harlow, Longman
- Lingard, H. and Francis, V. (2002) *Work-life issues in the Australian construction industry: Findings of a pilot study*, Construction Industry Institute of Australia, Brisbane.
- Lingard, H. and Lin, J. (2004) *Career, family and work environment determinants of organizational commitment among women in the Australian construction industry*, Construction Management and Economics, 22, Pp 409–420.
- Nicholson, N., West, M. (1988) *Managerial Job Change: Men and Women in Transition*, Cambridge University Press, Northampton.
- Peacock, S. and Eaton, C. (1987) *Women in Engineering: EITB Initiatives*, Engineering Industry Training Board, Watford.
- Rusaw, A. C. (1994) *Mobility for Federal Women Managers: Is Training Enough?* Public Personnel Management, 23(2), Pp 257-262.
- Townley, B. (1989) *Selection and Appraisal: Reconstituting 'Social Relations'?* in John Storey (ed) *New Perspectives on Human Resource Management*, Routledge, London.
- Turrell, P., Wilkinson, S. J., Astle, V. and Yeo, S. (2002) *A gender for change: The future for women in surveying*, FIG XXII International Congress, Washington DC, 19 – 26 April, Pp 1-12.
- Wall, C. (1997), Editorial Note, *Construction Labour Research News* Special Edition. Women in Construction, No.3, Pp1- 2.

- Wentling, R.M. (1996) *A study of career development and aspirations of women in middle management*, Human Resource Development Quarterly, 7, Pp253–70.
- Wernick, E. D. (1994) *Preparedness, Career Advancement and the Glass Ceiling*, Draft report to the Glass Ceiling Commission, U. S. Department of Labor.
- Whitlock, M. (2002) *Women's experiences of non traditional employment: is gender equality in this area a possibility?* Construction Management and Economics, 20, Pp 449-456
- Wilkinson, S. (1996) *The factors affecting the career choice of male and female civil engineering students in the UK*, Career Development International, 1 (5), Pp 45-50.