

The career challenges and success factors for professional Asian women career development in New Zealand construction industry

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Abstract

Though construction is the fifth largest sector in New Zealand (MBIE, 2021) and the number of professional Asian women entering construction industry in New Zealand has been increasing significantly in the past ten years, evidence has indicated that women are struggling to succeed for their career development in such a traditionally male dominant industry. Since 2003, there are over 30,000 female specialists working in construction industry accounting for approximately 13% of the total workforce, however, there have been limited studies on women's career development in New Zealand construction industry.

Questionnaire survey was conducted with Asian women practitioners in New Zealand construction industry. The quantitative data collected from questionnaire will be ranked with Likert scale to evaluate the relative importance of challenges and critical success factors for improving women's career success in New Zealand construction industry. This study aims to fill the research gap by investigating the challenges and success factors for Asian women in construction industry in New Zealand. Findings are useful for universities and polytechnics when developing or reviewing their curriculum of their construction-related programmes and for four-parties partnership – tertiary institutes, government, companies and professional institutes to put into action the strategies to support women's career development in the future.

Keywords

Faculty paper, Asian, construction, diversity, women

Introduction

Construction is the fifth largest industry in New Zealand. In 2021, the construction sector in New Zealand contributed to approximately 6.2% of its GDP, along with creating 10% of the national workforce. In 2018, around 44,000 Asian were working in construction sector accounting for around 20% of national figure (CMS, 2018). Over 278,300 employees are in construction industry (MBIE, 2021). 12% increase in number of building consent cannot be coped with current workforce, skill shortages and negative shortage in New Zealand aggravate the situation. As a result, the construction industry would need a significant number of workers to meet the increased demand. However, women is heavily under represented in construction industry in New Zealand is still mainly dominated by male of nearly six to one ratio (Tradestaff, 2018). Female employees only accounts for about 13% of total number of employees in the construction industry (Ensor, 2020). To improve the women underrepresentation in construction industry, New Zealand government has recently launched several projects with Ako Aotearoa and the National Centre for

Higher Teacher Education, hoping to increase women's participation in the construction and engineering profession. (Ensor,2020).

New Zealand's unique socio-political development has resulted in an environment where local indigenous (Māori) perspectives and social inclusivity are increasingly recognised in the make-up of nation's unique identity and consequent global competitive advantage. At the same time, New Zealand is witnessing the growth of an increasingly potent Māori economy, which brings Māori perspectives and aspirations onto the decision-making table more and more.

The current construction engineering education in New Zealand cultivate students who acquire knowledge, skills and attitudes that resonate and reinforce New Zealand's global competitive advantage are better equipped to operate effectively in an increasingly bi-cultural New Zealand and an enduring multi-cultural global market.

The previous studies have shown that women in construction industry were facing many challenges such as long working hours, glass ceiling to board level[1]. Many of the problems that women face in the construction industry are caused by gender inequality, either directly or indirectly. Women are underrepresented and undervalued in this industry although they can bring to an organisation a variety of perspectives, talents, viewpoints, and abilities(NAWIC, 2013). One advantage to cultivate more professional woman to join construction industry is to bring more gender diversity which is proved to increases the chance of engaging a broader variety of talents and innovation, organisation with diversity is more likely to outperform compared to other competitors. It also encourages organisations to represent the stakeholders of the communities to serve and match the expected more gender diverse client teams [2].

However, most of early research for women's career growth in construction have been conducted in other countries, such as United Kingdom, Australia and United States, there is a lack of current knowledge of the challenges and success factors to contribute Asian woman in construction industry in New Zealand. This study aims to analyse challenges and success factors, recommend strategies how to prepare, advance their career success and alleviate skill shortages specifically in New Zealand context, especially from the pedagogical perspective.

Literature Review

2.1 Career challenges for women in construction industry

Women in the construction industry face a wide range of challenges as shown in Table 1 below. The predominant challenge is related to sexual harassment as the construction industry is dominated by men and their perceptions have become the common standard throughout the industry[3]. Other challenges include limited visibility on project sites [4], demands to aggressively imitate males are among the other concerns, lack of positive factors, such as mentors or role models in industry[5], slow advancement of individual profession[6], high stress under working, and lack of motivation and appreciation from managers, required to do minor jobs or repetitive tasks, and low assessment and poor potential for career advancement [7]. Furthermore, there is always a gap between women's social roles and the construction industry's image, as well as the unequal assessment of training requirements, and misunderstandings of success when compared to male peers, and confinement to administrative positions [8]. Previous research has indicated that women employees always are rejected from the beginning of interview during the

recruitment process, which is usually organised by the male interviewers [9], and this often results in further career barriers such as prejudice and the glass ceiling phenomenon [10]. Political factors also become the challenge for professional women in the construction industry, such as labour law, environmental rules, trade restrictions and political stability[9].

Another main challenge is that it is hard for women to find a balance between personal and professional goals. This problem is commonly faced by female who have families [11]. Asian women are found to have more family obligation than their western counterparts and the flip-side of this is greater emphasis on taking care aging parents[12]. To compete with male colleagues, female employers often work even longer to justify themselves to be more competent, and societal differences hinder women from progressing in their professions depriving their chance of the networking events[13]. Recent research also identifies misinterpretations and misperceptions of woman’s capability portrayed by media to be create new barriers preventing women from choosing career in construction industry (NAWIC, 2013).

Table 1 Career Challenges of professional women in construction

	Lack of role model	Isolation on job sites	Sexist attitudes/Gender Stereotyping	Negative perceptions of women capabilities	Unfair treatments of senior mentors	Family/work life balance	Stress and undervalued	Long working hours	Expectation of mimicking males aggressive behaviour	Political factors	Competition in staff	Recruitment process	Glass ceiling	Mobility	Higher autonomy
(Amaratunga et al., 2006)								•			•				•
(Chun et al., 2009)				•											
(Dainty and Lingard, 2006)		•		•											
(English and Le Jeune, 2012)	•	•	•	•		•		•					•		
(Hatipkarasulu and Roff, 2011)						•									
(Kumara, 2018)		•	•	•			•					•		•	
(Lingard and Lin, 2004)						•									
(Loosemore and Waters, 2004)	•				•		•								
(Menches and Abraham, 2007)			•												
(Moore, 2006)	•				•	•							•		
NAWIC (2013)	•			•	•	•		•	•						
(Worrall et al., 2010)			•	•											

(Vainikolo, 2017)			•			•					•		•			
(Yates, 2001)	•		•		•											

2.2 Success factors for women in construction industry

Career success can be described as the achievement of a person's needs and wishes through success, accomplishments, and the conquest of power [14]. Identifying career success factors can be considered as a means to help to achieve someone’s goals and ambitions because people will be able to understand where to improve and develop within the professional environment [8]. Women's career development in construction would be aided by assisting them in acquiring these success factors.

Table 2 shows the success factors for professional women in construction industry. The main focus of this research of success factors is the personal qualities and abilities, which are significant in contributing to women's career in the construction industry. The previous research findings show that women's career success is influenced by their willingness to work with others, commitment, adaptability, leadership, and honesty. Other research also mentioned that the key success factors for female workers in the industry are self-confidence and determination to achieve career goals [15]. These findings support the notion that women’s soft skills are critical for career success, while hard skills are in demand after that [16].

Another personality characteristic that helps women succeed in the construction industry is confidence or self-efficacy. Academic capacity articulated that vocational preferences, and a variety of perceived career opportunities are all linked to self-efficiency [17]. Women who work in a non-traditional profession have the highest degree of career self-efficacy [18]. Another finding reinforced that their primary source of trust came from inside, followed by the influence of people they interacted with mentors , and eventually, the additional education to help female feel more confident in their positions [11].

Work experience has been recognized as another good indicator of job success. The positive relationship between career success and work experience has been identified at the management level in the industry for both male and female. Work experience is positively related to objective job achievement, such as promotion and pay[19].

Other than the personal qualities and abilities, research has described role models, mentors, and significant others as the most important resource in a woman's professional growth and occupation [11, 20]. Individuals benefit from the role models when they are present to have social guidance and verbal reinforcement. Mentors, who are usually senior members of an organization, assist junior employees with navigating psychological and job problems, would further help to develop their career in the long term.

Table 2 Success factors for professional women in the construction industry

	[15]	[19]	[20]	[16]	[11]
Conscientious			•	•	•

Adaptability				•	•
Honesty & integrity				•	•
Networking ability				•	
Influence by role models			•	•	
Leadership				•	•
Self-confidence or self-efficacy				•	•
Organisation commitment				•	
Determination to achieve goals	•				•
Independence					•
Communication Skills				•	•
Practicality					•
Organisation					•
Creativity					•
Work experience		•			
Open mindedness					•
Responsibility					•

Research Methodology

Based on the nature of the main research purpose, quantitative methodology has been chosen in this study. Quantitative methods focus on the objective measurements and analyse the statistical, mathematical or numerical data that are collected by using techniques such as questionnaire and polls (McLeod, 2019).

In this survey, three sections have been included, which are personal backgrounds, challenges, successes factors on a 5-point Likert scale. 1 represents strongly disagree and 5 represents strongly agree. Respondents were asked to rate statements about challenges and success factors for professional women career in building construction industry. Each part of challenges and success factors in the literature was posed as a self-explanatory statement within this questionnaire, and respondents were asked to rate their significance.

Asian women working in the building industry who had completed or were preparing for a construction-related degree were the target respondents.

Findings and Discussion

4.1 Data analysis

As received total of 43 completed questionnaires. The data was analysed using relative importance index to assess the challenges and success factors, with analytical statistics such as mean and rating used to demonstrate their relative significance.

4.1.1 Relative Importance Measurement Using the Relative importance indices (RII)

Relative Importance Index (RII) is implemented to find out the most significant factors among

those individual predictors and their roles in many project management literature[21]. The formula for RII is as follows:

$$RII = \frac{\sum_{i=1}^5 I_i \cdot f_i}{H \times N}$$

Where: I is weight of importance of given score, H = Highest value of Importance given (in this case is 5), N is total number of respondents, and f = the frequency of the i-th response.

4.1.2 Reliability of scale

Reliability of scale aims to “calculate the stability of a scale from the internal consistency of an item by measuring the construct”. Cronbach’s alpha greater than 0.733 represents high internal consistency and reliability [22, 23], the survey – challenges has the value at 0.834; success factors at 0.832, showing the data are very reliable.

4.2 Thematic analysis

This study adopts interpretivist approach, whereby Braun and Clarke’s (2006) six phases of thematic analysis are an ideal method to identify the five key themes, namely self-confidence, mentor/sponsors, conflicts between work and study, work environment, and social undermining in the workplace.

4.2.1 Thematic Analysis: Self Confidence

As shown in table 3, The theme consisted of lack of industry role model, stress and undervalued, sexist attitudes and negative perceptions of women capabilities; they were ranked based on their priority. Stress and undervalued ranks the top at 0.762, the second is sexist attitudes at 0.690, lack of industry role model at 0.662, negative perceptions of women capabilities the last at 0.648. Long working hours, lots of administrative works, lack of work life balance and tight staffing budget are the main causes of stress [24]. Women also feel pressures trying to catch up with their male colleagues in daily job [25].

Table 3. RII and ranking details from the challenge – Self Confidence

Challenge - Self Confidence	RII	Rank
Lack of Industry Role Model	0.662	3
Stress and undervalued	0.762	1
Sexist attitudes/Gender Stereotype	0.690	2
Negative perceptions of women capabilities	0.648	4

4.2.2 Thematic Analysis: Mentors/Sponsors

The thematic analysis of mentors/sponsors is shown in table 4, unfair treatment of senior mentors has the highest rank between the two at 0.652, where expectation of mimicking males aggressive behaviour habits sits at 0.638. Unfairness and low chance of progression may lead to dissatisfaction[26-28]. Both factors demotivate women to keep working in construction industry by disadvantaging them in terms of promotion [8, 29], while such kind of direct unfair treatment can also affect males who support workplace equality, therefore indirectly making construction industry less appealing to new male entrants.

Table 4. RII and ranking details from Mentors/Sponsors

Mentors/Sponsors	RII	Rank
Unfair treatments of senior mentors	0.652	1
Expectation of mimicking males aggressive behaviour habits	0.638	2

4.2.3 Thematic Analysis: Conflicts between work and family

The results about work family conflicts are shown in table 5, work family life balance is very critical ranking the top of the list at 0.776. Long working hours is the second barrier under this theme at 0.667, mobility due to the job nature at 0.629. Lack of work family life balance has been suggested within the construction industry as a kind of penalty placed on those who need flexibility especially women with children [30]. It aligned with the findings about employment barriers to women that long working hours in construction industry is incompatible with their commitments to the family[31, 32]. Particularly in Asian culture, women is the main carer of family including not only their own but also their aging parents, the multiple responsibilities make them hard to enjoy the work life balance, while men do not have the same commitments in the household. These extra commitment tends to disadvantage women in their career development in construction industry[30].

Table 5. RII and ranking details from work family conflicts.

Work Family Conflicts	RII	Rank
Family/work life balance	0.776	1
Long working hours	0.667	2
Mobility- e.g. take new job, move to other working place /city etc.	0.629	3

4.2.4 Thematic Analysis: Working Environment

Table 6 shows the results of thematic analysis – working environment. The respondents rated recruitment process as the biggest challenges at 0.648, competition between staff the second at 0.643, political factor ranked the least at 0.595. The high rating of unfair recruitment process is in line with the findings about the homogeneous recruitment of male in the construction industry with a notable tendency to recruit men [33]. Construction Industry is always perceived as masculine culture, and this impression may make women feel like their capabilities and knowledges not being valued, thus deter them from joining the industry or even attending the interview.

Table 6. RII and ranking details from work environment

Working Environment	RII	Rank
Political factors, e.g. labour law	0.595	3
Competition in staff	0.643	2
Recruitment process, e.g. felt rejection from the beginning, unfair process for recruitment, etc.	0.648	1

4.2.5 Thematic Analysis: Social Undermining in the workplace

Male has a perception of women on site as one did not have natural capability to handle site

works[34]. Some even have a mixed stereotype thinking that women should not be allowed to work on site and should do administrative works. This impression creates a segregation of women in administrative works and men in production or construction sectors by an “invisible glass wall” [35]. This can explain why the site isolation and less opportunity to go to the sites rank the first at 0.671, following which is glass ceiling in career at 0.662 and higher autonomy comes the last at 0.629.

Table 7. RII and ranking details from social undermining in workplace

Social Undermining in the workplace	RII	Rank
Isolation on job sites, or less opportunity on site works	0.671	1
Higher autonomy	0.629	3
Glass ceiling in career	0.662	2

4.3 Career Critical Success Factors (CSFs) for Asian women in construction industry

Table 8 shows the top ten critical success factors. The success factors of this group were rated over 0.80 on RII value and grouped as the CSFs. The CSFs were identified as sense of responsibility, communication skills, networking ability, honesty & integrity, self-confidence or self-efficacy, practicality, independence, determination to achieve goals, organization.

Soft skills accounts for more than half of the CSFs, top three most important success factors for Asian women working in New Zealand construction industry are soft skills namely, sense of responsibility, communication skills and networking skills. The success factor sense of responsibility is a “characteristic of personality”, which can be learnt and developed through training and personal experience. Since project involves the collaboration of different parties and different professional, effective communication is a key driver of such kind of collaboration. Therefore, effective communication skills women developed can have major impact on the success of projects[16].

Networking is about “developing lasting relationships for mutual gain and creating a long-lasting favourable impression”. Lessons from Treaty of Waitangi which, especially the partnership relationship between Pakeha and Maori, signifies the fact that New Zealand values trustworthiness and building the trust, can be applicable to other iwi, hapu, community and construction industry. Female staff’s reputation in networking enables them to learn about more career opportunities from prospective employers[36].

On the other hand, self-confidence top hard skills factor reinforces the findings that female graduates with high level of self-efficacy is highly correlated to career options in construction-related industry after graduation[37, 38].

Practicality is the ability to transform knowledge and experience into practice and apply them in the real life. Construction industry emphasizes the technical skills and the practice if one is aware of the technical knowledge associated with construction.

Table 8 : Success factors for Asian women in construction industry

Success Factors	RII	Rank	Skillset
Sense of Responsibility	0.895	1	Softskills
Communication Skills	0.890	2	Softskills

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Networking ability	0.886	3	Softskills
Honesty & integrity	0.876	4	Softskills
Self-confidence or self-efficacy	0.843	5	Hardskills
Practicality	0.838	6	Hardskills
Independence	0.83	7	Softskills
Determination to achieve goals	0.819	8	Hardskills
Organisation	0.805	9	Hardskills
Open mindedness	0.790	10	Softskills
Conscientious	0.771	11	Softskills
Leadership	0.767	12	Hardskills
Adaptability	0.757	13	Softskills
Organisation commitment	0.724	14	Hardskills
Influence by role models	0.7	15	Softskills
Creativity	0.7	16	Softskills
Work experience	0.693	17	Hardskills

Conclusion

The study has identified the challenges and the critical success factors for Asian women in the New Zealand construction industry. New Zealand has started several initiatives to reduce the challenges and barriers of women in construction industry. The lessons New Zealand learnt can also be the role model for other countries to make reference.

Challenges: Asian women face different challenges in construction industry in New Zealand. Stress and undervalues, unfair treatments of senior mentors, loss of work/life balance, unfair recruitment process and isolation of tasks rank top under each of the main themes.

To overcome these challenges, cultural shift needs to occur in several aspects. By changing to more flexible working patterns say work from home and enforcing family friendly policies within the company, these can reduce the stress women facing from work or family. By implementing more inclusive mentoring and staff development programmes designed for female progressing to leadership, these successful women can act as role model shifting the paradigm of traditional view of male-dominated perception. Anti-discriminatory measures can also promote broader diversity and retention of all the highly valued talents. Women can also take proactive approaches to bring changes to the culture by joining other professional institutes in construction industry such as NZIQS, NZIOB or NAWIC; or becoming volunteers in their events to promote effective awareness of career opportunities for women in construction industry. In New Zealand, National Association of Women in Construction (NAWIC) always take the role of being leading voice for women in construction industry. They run several initiatives such as NAWIC Excellence Awards which provides lots of opportunities for women to be the role model for new entrants. These initiatives can bring transformation not only in the companies themselves but also the profile of whole construction industry in New Zealand.

Success factors: The study shows that women who can move up the career ladder in construction need to acquire both specific soft skills and hard skills namely sense of responsibility,

communication skills, networking ability, honesty & integrity, self-confidence or self-efficacy, practicality, independence, determination to achieve goals, organisation. The most effective way to acquire them is through continuing professional development in education institutes. However, the current vocational education in New Zealand teaches mainly the hard skills - construction knowledge and technologies, which accounts for only one critical success factor – practicality. Most of skills those women graduated from the institutes and won the jobs in construction industry are in fact acquired from other periods or places in their lives before they studied their construction qualification. This can explain why many top students still cannot find a construction job after graduation nor move up the career ladder, and those who can seem to be “destined” to be able to pursue their construction career even before their construction studies.

This paper has highlighted a critical implication for transformation in tertiary education, unless the institutes can take a more active role to embed the training of other hard and soft skills found in the CSFs in the national strategy and establish inclusive and equitable learning amongst students, otherwise women still cannot have sufficient skills they need to enter the construction industry nor to move up the career ladder. On the other hand, even industry wants to recruit more diverse team, but lack of capable labour force stops them from so doing and the skills gap continue to widen. To reduce the gender segregation, education institute should collaborate and actively engage with industry to provide more opportunities to develop both soft skills and hard skills from organisational level and national level so that more women can consider construction as their career, can enter and choose to stay the construction industry.

Limitations of the research

Relatively small sample size does not represent all Asian female working in the industry and this study only captured the status during the research based on respondents’ observations, career progression or changes in future has not be tracked.

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