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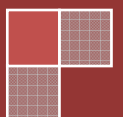
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Attracting and Retaining Female Students in Construction Related Programs

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ABSTRACT

The number of females moving into professional field is remarkable and almost as equal as the statistics of men entering into professional field. However, anecdotal and empirical evidences show that the construction industry is still male dominated. The construction industry is experiencing serious skill shortages and the current male dominated workforce is aging. It is believed that women can be relied on to bridge the skill gap and the aging population. Tertiary institutions have been identified as gates through which future entrants enter into any industry of choice. Yet, evidences reveal that female enrollment in construction related programs is abysmally low. This paper is aimed at identifying strategies for attracting and retaining female students in construction related programs. The paper adopted a desk research approach. The major strategies for attracting females in construction related programs include: adequate career counseling, a gender inclusive learning environment, exposure to female role models and personal motivation from the student. For female students to be retained in construction related programmes there has to be obvious changes in the industry. Hence the two effective strategies for retaining female students are: improving the image of the industry and improving work life balance. The findings have implications for the construction industry. Given reported cases of skill shortages and the existing aging population, females can bridge the gap. Hence, construction stake holders and indeed educators need to adopt the identified strategies for attracting and retaining females in construction related programmes.

Key words: attraction, construction programs, female students, gender, retention

INTRODUCTION

A lot of changes have taken place in the world of work. Women are now moving into professional fields once considered strictly for men particularly banking, insurance, retail trade, education and health services sectors because of perceived high level of social status (Gurjao, 2006). However, the construction industry is still dominated by men. Certain factors have been found to discourage women from the construction industry. These factors include: poor image of the industry which is portrayed as one requiring brute strength and a good tolerance for outdoor conditions (Agapiou, 2002); the culture and environment of the industry been amongst the most chauvinistic with an extremely macho culture which is hostile and discriminatory towards women (Bagihole *et al.*, 2000); work-life conflict (Wentling, 1996) and a general lack of information about the industry, the career opportunities it can offer and the qualifications required (Fielden *et al.*, 2000).

Presently, the construction industry worldwide is experiencing serious skill shortage (Watson, 2012; Darren, Mark and Christopher, 2012; Oseghale, Abiola-Falemu and Oseghale, 2015); Windapo, 2016). In many EU countries there are reports of acute skill shortages as such many contractors rely on immigrant workforce in order to meet work demand (Clarke, *et al.*, 2005). For instance, the UK construction industry ranks the second highest reported case of skill shortage among EU nations (Gurjao, 2006). Moreover, the male dominated population is aging (Attar *et al.*, 2012; Ng and Chan (2015) with fewer young people seeing construction as a career of choice. Gurjao (2006) predicted that the population of male workforce aged 65 and over will be 23% of total work force population by 2031. This prediction has serious implication for the global construction because older people are more susceptible

to musculoskeletal challenges and other occupational health hazards which can negatively affect project performance. The industry is yet to fully utilize its full competencies (*i.e. the competencies of minorities particularly women*). Engaging more women in the industry has socio-economic benefits. For instance, employing more women will reduce the cost of immigration issues involved in the use of immigrant workforce - an alternative to the problem of skill shortage. It is the belief of the author that attracting and retaining more women in the construction industry, would help in reducing the skill shortage challenge faced in many countries. Moreover, retaining more women in the industry meets with social sustainability requirement which portrays the industry as pluralistic. However, the big question remains how can the industry attract and retain female students who will someday choose to make a career in construction. Hence, the aim of the paper is to identify strategies for attracting and retaining female students in construction related courses.

METHODOLOGY

The study adopted a desk research approach. It reviewed several literatures on attracting and retaining women in construction. The major findings are documented below:

Attracting female students into construction related programmes

For female participation/retention in the industry to improve, more females have to be attracted into the industry. Several factors have been identified as necessary for attracting female students into the industry and they are discussed below:

Adequate career counsels – According to (Fielden *et al.*, 2000) there is a general lack of information about the construction industry and the career opportunities it can offer. Prospective and present students need to be adequately counseled about a career choice in construction. Firstly, it is important for counselors and teachers to be knowledgeable about construction career. It has been found that some teachers and counselors have inadequate knowledge of non-traditional disciplines like construction and are unable to advise students accordingly (Reynolds, 2014). Adequate skill is required for counseling female students into pursuing career in non-traditional disciplines. Female students can be encouraged by their teachers or counselors into non-traditional careers through verbal persuasion (Ericksen and Schultheiss, 2009). Counselors and teachers put in a lot of effort to convince students about career choices in the construction industry because of the poor image it has earned itself as a result of the prevalence of a macho culture, gender discrimination and poor work life balance. Adequate career enlightenment programmes by various construction related professional bodies and regulatory bodies to secondary schools can also promote knowledge about the construction industry thereby, attracting more female students into construction related disciplines (Adogbo, Ibrahim, and Ibrahim, 2015). Moreover, counselors and students need to be aware of the entry requirements into construction related discipline. Fielden *et al.*, (2000) noted that there is a general lack of information about the qualifications required for studying construction related disciplines. (Adogbo *et al.*, 2015) noted that the determinant for entrance into a construction discipline is to sit for and obtain credits in science subjects that include, but are not limited to, Mathematics, Physics and Chemistry. Hence, more females have to be encouraged to embrace STEM in order to choose careers in construction related courses.

Gender inclusive learning environment – Globally, inequalities in educational access, retention and performance still exists despite efforts to promote quality education (IREX, 2016). Learning environment refer to hard and soft facilities in a school. Hard facilities are physical facilities like classrooms, hostels, laboratory and libraries while soft facilities include teachers, counselors and other human assets in the school environment. A gender-inclusive learning environment is one that recognizes the possibility of the incidence of gender inequality and attempts to overcome it (Shevli, 2009; Du and Kolmos, 2007). Teachers have a key role to play in fostering gender inclusive learning environment which attracts and retains female students particularly in non-traditional disciplines. Some strategies for creating gender inclusive learning environment include: addressing both male and female learners a balanced number of times and for all subjects, giving both female and male learners equal opportunity to present their work to the class, giving both female and male learners equal opportunity to write on the writing board a balanced number of times, giving similar duties to both male and female learners, supporting and encouraging both female and male learners to be class leaders, possibly having one female and one male as co-leaders (IREX, 2016).

Personal Motivation – Female students need to be personally motivated to choose a career in construction otherwise counseling and enlightenment efforts will be wasted. According to Hazley (2016) female students who have successfully completed their study in a male dominated programme like computer science, have been able to engage in positive self-regulation strategies and committed to adaptive goals during and prior to college that helped

them succeed in this rigorous academic atmosphere. Moreover, (Schunk & Zimmerman, 2012) noted that positive performance outcomes in schools such as higher grades, adaptive behavior in the face of challenges, sustainable study habits, promotion of knowledge development and retention, and positive views of ability could be achieved by self - motivation and self-regulatory behaviors of students

Exposure to female role models – Same-gender role models are helpful for women who are already in non-conventional fields like STEM and construction (Drury, Siy and Cheryan, 2011). Women who are in non-conventional fields contend with negative stereotypes that inhibit their performance in these fields (Spencer, Steele, & Quinn, 1999). Female role models can inoculate women in male dominated fields against the discouraging effect of negative stereotypes (Stout, Dasgupta, Hunsinger, & McManus, 2011).

Retaining Females in Construction Related Programmes

Rossiter (1982) noted that educational progress for girls, does not automatically translate into career progress for them. Gurjao (2006) raised concerns about the ease of female graduates securing work placements, ease of being incorporated into the work place and ease of the entire transition. Several strategies have been provided to encourage female retention in the industry including improving the image of the industry and improving work life balance in the industry.

Improving the image of the industry – Females especially new entrants into the construction industry want to see practical improvements in the poor image of the industry. The most obvious image of the industry is that of male domination. The industry is seen as one that requires brute strength with little realization that it is becoming high-tech and simply requiring mental strength, commitment and the determination to succeed (Ginige, Amaratunga and Haigh, 2007). A male dominated industry discourages new female entrants and like Gale (1994a) noted male students are more likely to consider a career in construction than their female counterparts. More females will be retained in construction if the industry takes deliberate steps to improve the masculine nature of the industry. For instance, more females should be given opportunities to supervise work on construction sites instead of keeping women in the office with believe that construction is for the brutally strong alone. Furthermore, there is a need to change the traditional perception of the industry from one that is all about manual labour to one that is process oriented (English, 2006) which incorporates high level mechanization and uses pants and equipment than a crafts industry (Ginige, *et al.*, 2007). The litigious nature of the industry needs to be improved upon. Scenes of labourers arguing with superiors over wages are common on construction sites. Poor project performance in terms of cost, quality and time further encourages disputes between construction stakeholders which portray the industry as highly adversarial. Moreover, females are generally put off by disputes. Peaceful working environments create a safe ambiance which will ultimately attract and retain more females in the industry. The adoption of relationship marketing in construction business can improve working relationship between construction stakeholders and minimize the occurrence of disputes (Ginige, *et al.*, 2007). Furthermore, the working environment on many construction sites leaves a little to be desired. English (2006) noted that on-site welfare facilities are inadequate. In addition, separate site conveniences should be provided for both male and female supervisors. Situations whereby a male worker barges into a female convenience should be discouraged. Construction stakeholders need to make conscious effort to portray an image of competent management efficiency, safety, environmental awareness and neighborliness through different media such as editorial campaigns, national construction week and exhibitions (CIB, 1999). On a project level, every project should have best practice guide with the necessary tools to eliminate or reduce the impact of construction works on the environment, neighboring residents and local businesses so as to enhance the image of construction industry among the public within the surrounding communities (Smith, 2002).

Improving work life balance in the industry

Meeting the demands of work and family for women particularly those in construction can be very challenging. In the industry, employees work for long hours with demanding and inflexible work patterns. Yet, the home front must be maintained, which is a major role for most women (Lingard *et al.*, 2007). Balancing work and family thus becomes a real challenge for women with career aspirations (Wentling, 1996). Retaining women in the construction industry, require that organizations review their working policies to be more employees friendly. Family and work should not be treated as separate entities (Fielden *et al.*, 2000) instead, employees should be given the impression that their personal lives also matter. Positive gestures like showing concern for employees' personal life have been found to increase employees' organizational commitment and ultimately increase organizational performance (Harrington and Ladge, 2009; Parkes and Langford, 2008). Therefore, transforming the industry from one that is oblivious of the personal issues of workers to one that is concerned about the welfare of employees will improve the

work life balance of the industry. The industry has also been described as one where its employees work hard and long (Dong, 2005) making it difficult for workers particularly women to cope with family commitments. Developing flexible work hours can improve work life balance of employers (Francis and Lingard, 2004) especially women. Another source of work life conflict stems from assigning a task to a person below his/her capabilities (Chun, Arditi and Balci, 2009). This reduces job interest and commitment and further breeds inferiority complex and health related issues like depression (Maslach, Jackson and Leiter, 1996) because the person has been relegated to perform a duty below his/her capability. This is important for an industry like construction where women are perceived to be incapable of coping with work demands hence, many women are relegated to the background to carry out clerical activities. Such scenarios reduce the morale and commitment of women which could force them to resign or just cope unenthusiastically. It is the unenthusiastic part that affects job commitment and organizational performance (Grover & Crooker, 1995). Hence, construction organizations must treat women on their merit and give them a chance to demonstrate the skills and aptitude that they possess in order for them to develop a career and stick with the industry.

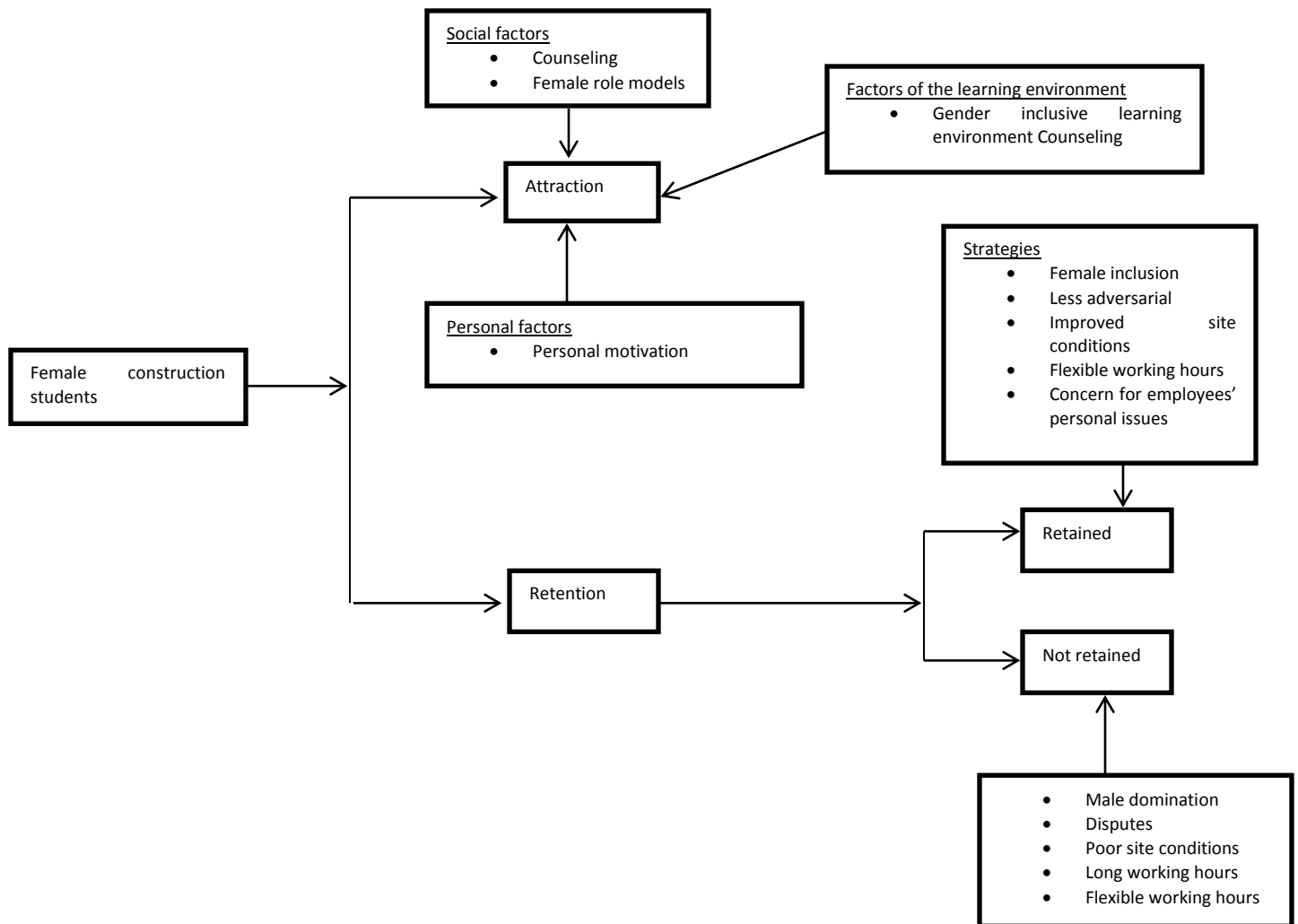


Fig 1: Conceptual framework or attracting and retaining female students in construction related programs Author's concept (2017)

CONCLUSION

Strategies for attracting and retaining females into construction related programmes were reviewed. Attracting female students will require adequate career counseling, a gender inclusive learning environment, exposure to female role models and personal motivation from the student. Retaining females in construction related programmes necessitates that the image of the industry be improved particularly in three areas: one, the male dominated industry

should be changed into one that is inclusive and pluralistic where women are well represented in all sectors of the industry. Two, the litigious nature of the industry needs to be improved upon so that it can become less adversarial thereby creating a peaceful and safe ambiance and finally, the industry should adopt flexible working hours, show more concern for workers personal issues and give females opportunity to demonstrate their skill and aptitude. This research has implications for the construction industry. Given reported cases of skill shortages and the existing aging population, females can bridge the gap. Hence, construction stake holders and indeed educators need to adopt the identified strategies for attracting and retaining females in construction related programmes.

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REFERENCES

- Adogbo, K.J. , Ibrahim, A.D. and Ibrahim, Y.M. (2015). Development of a Framework for Attracting and Retaining Women in Construction Practice, *Journal of Construction in Developing Countries*, 20(1), 99–115,
- Agapiou, A. (2002). Perceptions of gender roles and attitudes toward work among male and female peratives in the Scottish construction industry, *Construction Management and Economics*, 20: 697-705.
- Attar, A.A., Gupta, A.K. and Desai, D.B. (2012). A study of various factors affecting labour productivity and methods to improve it. *IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE)*, 1(3): 11– 14.
- 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, 73-86.
- Chun, B, Arditi, D., and Balci, G. (2009). Women in Construction Management! [WWW document]URL: retrieved from http://cmaanet.org/files/files/Women_in_CM_eJournal_0609.pdf February 9, 2013
- Clarke, L, Pedersen, F, Michielsens, E and Susman, B. 2005. The European construction social partners: Gender equality in theory and practice. *European Journal of Relations*. 11:2, 151-177.
- Darren, O; Mark, T. and Christopher, D. (2012) How Industrial Contractors are Handling Skilled Labor Shortages in the United States. *48th Associated Schools of Construction (ASC) Annual International Conference Proceedings*.
- Dong X. (2005). Long workhours, work scheduling and work-related injuries among construction workers in the United States. *Scand J Work Environ Health*, 31(5), 329–335
- English J, Haupt T C and Smallwood J J (2006) Women, construction and health and safety H&S): South African and Tanzanian perspectives, *Journal of Engineering, Design and Technology*, 4(1), 18-28.
- Ericksen, J.A and Schultheiss, D.E.P (2009). Women Pursuing Careers in Trades and Construction, *Journal of Career Development*, 36 (1), 68-89
- Fielden, S.J., Davidson, M.J., Gale, A.W and Davey, A.L. (2000). Women in construction: the untapped resources, *Construction Management and Economics*, 18,113-121
- Francis, V and Lingard, H. (2004). A quantitative study of work- life experiences in the public and private sectors of the Australian construction industry. Construction Industry Institute, Australia Inc
- Gale, A.W. (1994a). Women in non-traditional occupations: the construction industry, *Women in Management Review*, 9(2), 3-14
- Ginige, K N, Amaratunga, R D G and Haigh, R (2007) Improving construction industry image to enhance women representation in the industry workforce. In: Boyd, D (Ed) *Procs 23rd Annual ARCOM Conference*, 3-5 September 2007, Belfast, UK, Association of Researchers in Construction Management, 377-385.
- Grover, S.L. & Crooker, K.J. (1995). Who appreciates family-responsive human resource policies: The impact of family-friendly policies on the organizational attachment of parents and non-parents, *Personnel Psychology*, 48, 271 – 288
- Gurjao, S. (2006). *Inclusivity: The Changing Role of Women in the Construction Workforce*, Chartered Institute of Building Report (CIOB).
- Hazley, M.P. (2016). Successful female students in undergraduate computer science and computer engineering: Motivation, self-regulation, and Qualitative characteristics. PhD thesis, the University of Nebraska, Lincoln, USA
- Harrington, B and Ladge, JJ (2009) Present Dynamics and Future Directions for Organisations, *Organisational Dynamics*, 338(2), 148-157.
- IREX tool kit for teachers (2016). Developing gender responsive learning environment

- Lingard, H., Brown, K., Bradley, L., Bailey, C., and Townsend, K. (2007), 'Improving Employees' Work-Life Balance in the Construction Industry: Project Alliance Case Study', *Journal of Construction Engineering and Management*, 133 (10), 807-15.
- Maslach, C., Jackson, S.E. & Leiter, M.P. (1996). Maslach Burnout Inventory Manual. Palo Alto, CA: Consulting Psychologists Press, 3rd Edition.
- Jacky Y.K. Ng, J. Y.K. and Chan, A.H.S. (2015). The Ageing Construction Workforce in Hong Kong: A Review Proceedings of the International Multi Conference of Engineers and Computer Scientists 2015 Vol II, IMECS 2015, March 18 - 20, 2015, Hong Kong
- Oseghale, B.O.; Dr Abiola-Falemu, J.O.; Oseghale G.E (2015). An Evaluation of Skilled Labour shortage in selected construction firms in Edo state, Nigeria, *American Journal of Engineering Research (AJER)* ,4(1), 156-167
- Parkes, L.P. and Langford, P.H. (2008). Work-life balance or work-life alignment? A test of the importance of work-life balance for employee engagement and intention to stay in organizations, *Journal of Management & Organization*, 14 (3), 267-284
- Reynolds, M. (2014). How women can be inspired to enter the industry in Munn, M. Building the future: women in construction. The Smith Institute, U
- Rossiter, M., 1982. Women Scientists in America: Struggles and strategies to 1940. Baltimore: Johns Hopkins University Press.
- Schunk, D. H., & Zimmerman, B. J. (Eds.). (2012). *Motivation and self-regulated learning: Theory, research, and applications*. New York: Routledge
- Shevlin, M., Kearns, H., Ranaghan, M., Miriam womey, M., Smith, R and Winter, E. (2009). Creating inclusive learning environments in Irish schools: Teacher perspectives, *Report prepared for The National Council for Special Education 2009*
- Spencer, S. J., Steele, C. M., & Quinn, D. M. (1999). Stereotype threat and women's math performance. *Journal of Experimental Social Psychology*, 35, 4–28. doi:10.1006/jesp.1998.1373
- Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. (2011). STEMing the tide: Using ingroup experts to inoculate women's self-concept and professional goals in science, technology, engineering, and mathematics (STEM). *Journal of Personality and Social Psychology*, 100, 255–270.
- Wentling, R.M. (1996). A study of career development and aspirations of women in middle management, *Human Resource Development Quarterly*, 7: 253-70.
- Windapo, A.O. (2016). Skilled labour supply in the South African construction industry: The nexus between certification, quality of work output and shortages. *SA Journal of Human Resource Management*, 14(1), <http://dx.doi.org/10.4102/sajhrm.v14i1.750>