

IJEAST

INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE
AND TECHNOLOGY

VOLUME : 5 ISSUE : 2 Print / Issue Publication Date: 12-Aug-2020

ISSN : 2455-2143

DOI : 10.33564/IJEAST.2020.v05i02.015

Indexed In

Google SCHOLAR OPEN ACCESS doi Crossref

WWW.IJEAST.COM

editor@ijeast.com

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)



FACTORS INFLUENCING THE INVOLVEMENT OF FEMALE QUANTITY SURVEYORS IN THE NIGERIAN CONSTRUCTION INDUSTRY: PERCEPTION OF PROFESSIONALS

Ahmed Zaharadeen Shola, Agboola Shamsudeen Abdulazeez
M.Tech Students, Abubakar Tafawa Balewa
University Bauchi, Nigeria

Abstract - It is generally observed that there is a low involvement of female quantity surveyors in the Nigerian construction industry. A survey was conducted to assess the factors influencing the low involvements of female quantity surveyors in the Nigerian construction industry: perception of professionals. The data collected were mainly through field survey. Questionnaires were distributed to the professionals which comprises of registered quantity surveyors within Abuja, Kaduna and Gombe metropolis to assess the factors influencing the low involvements of female quantity surveyors in the Nigerian construction industry. These barriers arise from a number of sources including: the construction industry`s image; career knowledge; male dominated training courses; recruitment practices and procedures; sexist attitudes; male dominated culture and the work environment. The analysis was conducted using descriptive and inferential statistics. Using 80 as the degree of freedom and 5% level of significance, the chi square tabulated (x^2 $tab_{0.05\ 80}$ = 101.879) is less than the chi square calculated (x^2 calculated = 1559.19) and as such accepted the alternative hypothesis. Inferences were drawn and recommendations were made towards addressing the issues investigated in the study. The result shows that there is low involvement of female quantity surveyors in the Nigerian construction industry which supported the barriers identified from the review of literature. Long working hour was ranked as the major factor influencing the low involvements of female quantity surveyors, followed by career developments, working condition, family commitments and sex discrimination. Recommendations was made in light of the conclusion drawn, the professional body and employers should work together to encourage the female quantity surveyors professionally. The policy makers in the industry as a matter of urgency should develop a policy framework that would protect the rights of female quantity surveyors.

I. INTRODUCTION

The Construction industry is one of the most important sectors in terms of economic growth and employment opportunities (Powell, Hassan, Dainty, and Carter, 2007). Construction industry is considered the world's largest industrial employer with estimated 111 million employees (Babatunde, 2012). According to the findings of Adeyemi, Ojo, Aina and Olanipekun, (2006), the Nigerian Construction industry is responsible for about 7 percent of the fixed capital formation and contributes 3 percent to the gross domestic product (GDP). It is estimated that over three million people work in the industry in various capacities as professionals. Thurairajah, Amaratunga, and Haigh, (2007) in their research also reported that in the UK economy, the construction industry contributes approximately a tenth of the nation's gross domestic product and employs 1.9 million people from its work force. This means that construction is a vital contributor to global development through provision of jobs (CICA, 2002).

The construction industry in Nigeria is one of the core contributors to the growth of Nigeria's economy and a major indicator of the country's wealth in socio and economic terms (Adeyemi, Oyo and Olanipekum, 2006). Nigeria with an estimated

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)



population of over 180 million people, 48.78% presumed to be female in the most populated country along the West Africa coast line (Bureau of Statistics, 2007). There is a low level of participation of women within the industry and this has attracted a lot of attention globally,

In Nigeria majority of what was observed were geographically based on the particular culture and nature of our country's socio cultural norms and these hinders the participation of women (Kehinde and Okoli, 2003; Adogbo and Ibrahim, 2010). In recent time, there have been an improvement in the involvement of women in the profession but with the nature of the construction industry, it is a male dominated industry which has culminated the major challenges for equal opportunities for women participation (Wernech, 1994).

There is agreement by the United states Government and their construction industry that the

under representation of women is denying the construction sector a valuable pool of labour to address the growing knowledge and skills capacity and capability challenges it faces on a daily bases (Lu, Sexton, Abbot, and Jones, 2008). Researchers have been able to recommend ways by which the industry can attract and retain women. (Kolawole and Boison, 1999; Babalola, 2008) and the response to this situation by the government has been a move for a change in form of an ever expanding portfolio of equality and diversity policies introduced to enforce issues related to equal opportunity, such as equal pay, equal promotion opportunity and sex discrimination (Lu, Sexton, Abbot & Jones, 2008). In Nigeria, one of the Millennium Development Goals is also the attainment of gender equality and women empowerment and emancipation (Sunlati, 2008).

Wangle (2009) found that female workers in the construction industry are more productive and possess the ability to focus on multiple tasks, while Barbara (2009) compare the performance of both male and female managers and found no difference in their performances. So, the question to ask is "do women have what it takes to work comfortably in the construction industry (site works and managerial duties) and if they do, what are those factors contributing to their low involvements. Julia (2009) states that the under-utilization of women's abilities and talent and the under representation of women in the construction industry, continue to serve as compelling reasons for career theorist and researcher to further examine their career development and choice patterns. Gender equality and diversity at work can make a positive contribution to organization performance (Krishnan, 2005; & Gratton, 2007).

Previous research has indicated that women are significantly under-represented in the Nigerian construction industry and that female professionals face barriers that deter them from engaging in construction practice (Adogbo et al, 2015). If the issue is failed to be addressed, it would go a long way soiling spoiling the image of the profession in the construction industry and at the same time discourage females with the interest of studying the profession or practicing quantity surveying in Nigerian construction industry.

The point of departure of this research is to look in depth to identify the barriers faced by female Quantity surveyors in terms of entry into, and retention in the Nigerian construction industry. To examine the order in which these barriers identified influences the low involvements of female quantity surveyors in the Nigerian construction industry.

II. LITERATURE REVIEW

2.1 Nature of the construction industry

The construction Industry is not homogeneous: It embraces a wide range of activities, products and skills. It includes design, building, civil engineering, oil and gas, heavy engineering, design and consultancy and also companies manufacturing and fabricating components and product used by the industry (Babatunde, Babalola and Opawole, 2012). Several theories have been advanced to describe the relationship between the nature of the construction industry and the involvement of female quantity surveyors. Gerimiah (2011) argued that access to employment opportunities for women in the construction industry is greatly influenced by employers' prejudice regarding women ability to cope with the nature of Job because of their traditional settings and role as wives or mothers.

The literature identifies the industry nature was found to militate against the entity of women (Akomolafe and Mohammed, 2015).The previous studies made by (Bennet, Davidson and Gale, 1999), (Fielden, Davidson, Gale and Davey, 2000), and (Agaplou, 2002) all agreed that the nature of the construction industry and the image it portrays is one of the key factors influencing the low involvements of female quantity surveyors.

2.2 Status of female professional in the construction industry

Adeyemi *et al***,** (2006) revealed that Nigerian women in the profession constitute only 16.3 percent of the workforce in the Nigerian construction industry, of

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)



which 50 percent are administrative staff, 10 percent employed as professional and management staff, and 2.5 percent as craftswomen. However, Construction Industry Training Board (CITB, 2005) observed that women still constitute only 9 percent of the workforce in the UK construction sector, of which 84 percent held secretarial posts, nearly 11 percent are employed in a professional capacity and the remaining are craft and trade level employees.
Shanmugam, Amaratunga, Haigh and Baldry, **(**2006) noted that the issue regarding the lack of women in construction industry has been an issue of concern for many years, attracting government and industry wide attention. Fielden *et al.* (2000) identified the barriers to female participation in construction industry as the construction industry's image; career knowledge among children and adults; selection criteria and male dominated courses; recruitment practices and procedures; sexist attitudes; male dominated culture; and the work environment.

2.3 An overview of factors influencing the low involvements of female Quantity surveyors in the Nigerian construction Industry.

2.3.1 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 should be more engaged in family role and still bear the primary responsibility for domestic duties in most households. 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 organizations tend to treat family and work as completely separate (Fielden et al, 2000).

2.3.2 Recruitment practices

The recruitment process in the construction industry is said to be of bias towards female workers. The terms and conditions within the construction industry were generally not fair enough irrespective of any particular gender. Through the study undertaken by Fielden et al (2000) it was reported that the industry fails to provide decent wages, pensions and other staff benefits especially at craft level. Dainty, Bagilhole and Neale (2000) found out that male managers use discriminatory recruitment practices which put many women off applying for new positions with contracting organizations.
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)

2.3.3 Culture and environment

The construction industry displays a macho culture where relationships are characterized by argument, conflict and crisis (Gale, 1994b). 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 world, 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). Dainty et al., (2000) found that women became disillusioned with their career choice more rapidly than men, and sought to leave the industry early on in their careers.

III. METHODOLOGY

Descriptive research design was adopted for this research. The researcher used a sample drawn from the population to have an insight to the problem under investigation. The target population was 135. This comprises of registered quantity surveyors within Kaduna, Abuja and Gombe. This category of respondents was selected in order to have clear understanding of the involvement of women in construction. It is believed that the elicited data will provide a good basis to comprehend the situation of women employees in the construction industry. The sample size was determined by adopting Guilford and Flruchter (1973) formula for estimating sample size: $\frac{N}{1+Q2N}$
Where N = population size = 135

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)

$$Q = \text{alpha} = 0.05\frac{N}{1+Q2N} = \frac{135}{1+(0.05)2\,(135)} = 100$$

The contents of the questionnaire were related to the barriers faced by women in construction, the factors influencing their participation of female quantity surveyors in the construction industry and the barriers faced in the industry.

3.1 Method of Data Analysis

Descriptive statistics such as percentages, frequency counts and cross tabulations were employed in analyzing and interpreting parts of the data collected. For the research hypotheses, average means square and chi square were adopted.

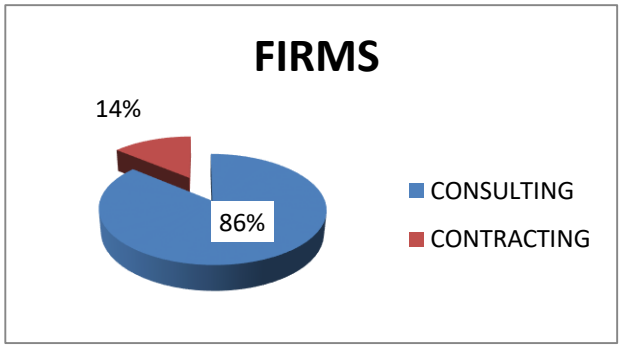
3.2 Test of hypotheses

H^0: There are no barriers that influence the low involvements of female quantity surveyors in the Nigerian construction industry.
The hypothesis testing was based on the 72 numbers of the returned Questionnaires from the 100 distributed.

IV. RESULT AND DISCUSSION

4.1: General Information

1. Fig 1. Shows the percentage of response from the type of organization.



The illustration from the figure above shows that 86% were consultancy firms while 14% are contracting firms.

4.2: barriers faced by the female quantity surveyors in the Nigerian construction industry

1. Nature of the construction industry is too rigid for women involvements

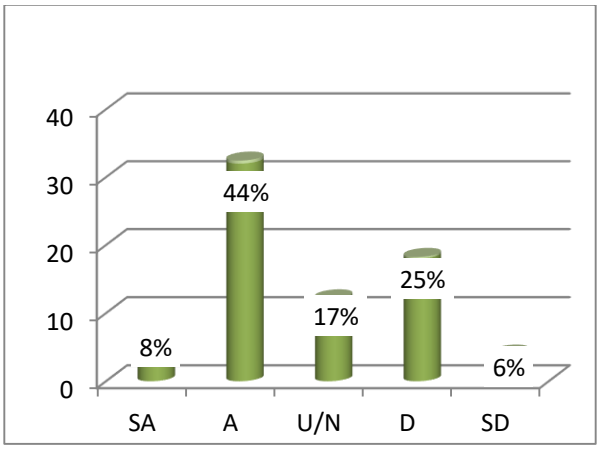


Figure 2 shows that 8% of the respondent strongly agreed that the Nature of the construction industry is too rigid for women involvements, 44% agreed, 17% neutral, and 25% disagreed while 6% strongly disagreed, with a weighted average mean of 3.25.

2. Outright sex discrimination manifested in low involvement of female quantity surveyors

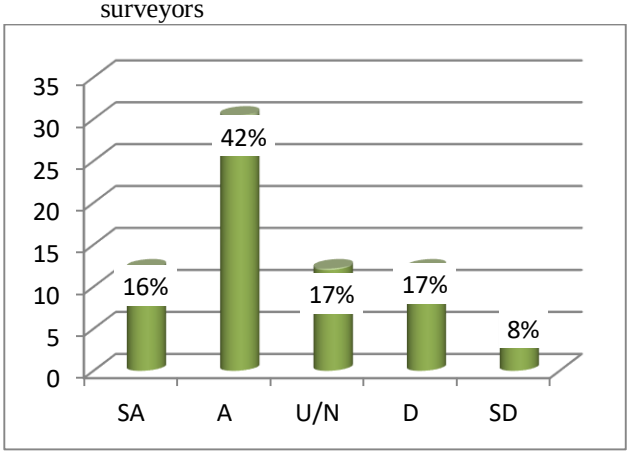


Figure 3 shows that 16% of the respondent strongly agreed that outright sex discrimination manifested in low involvement of female quantity surveyors in the construction industry, 42% agreed, 17% undecided, and 17% disagreed while 8% strongly disagreed, the result has a weighted average mean of 3.67.

3. Professionals are doing nothing or little regarding women career development

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)

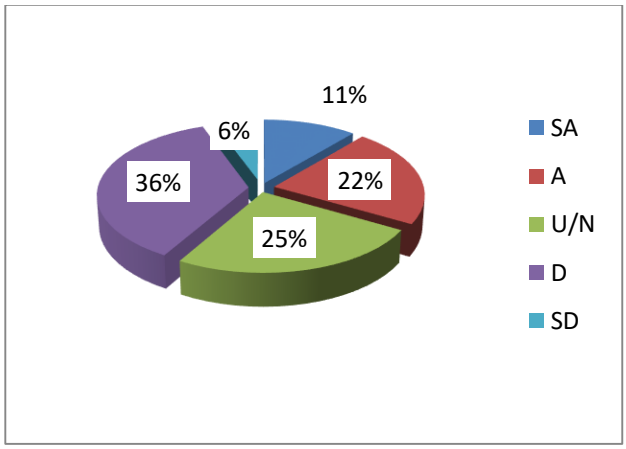


Figure 4 shows that 11% of the respondent strongly agreed that Professionals are doing nothing or little regarding women career development, 22% agreed, 25% undecided and 36% disagreed while 6% strongly disagreed, with an average weighted mean of 3.97.

4. Construction industry is hostile and discriminatory towards female professionals

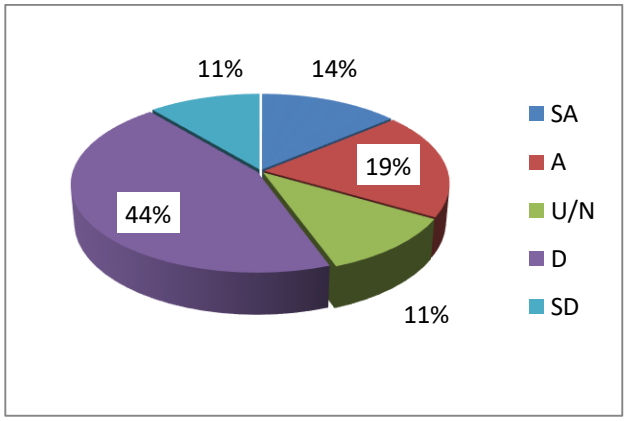


Figure 5 shows that 14% strongly agreed that Construction industry is hostile and discriminatory towards female professionals, 19% agreed, 11% undecided and 44% disagreed while 11% strongly disagreed, with a weighted average mean of 2.81.

5. Culture and environment of construction industry is meant for the masculine

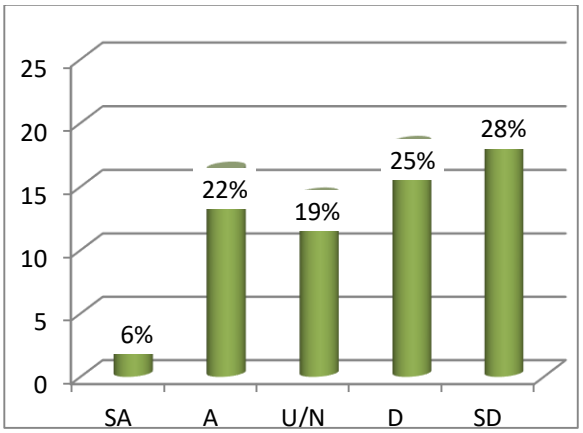


Figure 6 shows that 6% strongly agreed that Culture and environment of construction industry is meant for the masculine, 22% agreed, 19% Undecided, and 25% disagreed while 28% strongly disagreed, with a weighted average mean of 2.53.

6. Work family conflict is one of the major factors influencing low involvements of female quantity surveyors in the Nigerian construction industry.

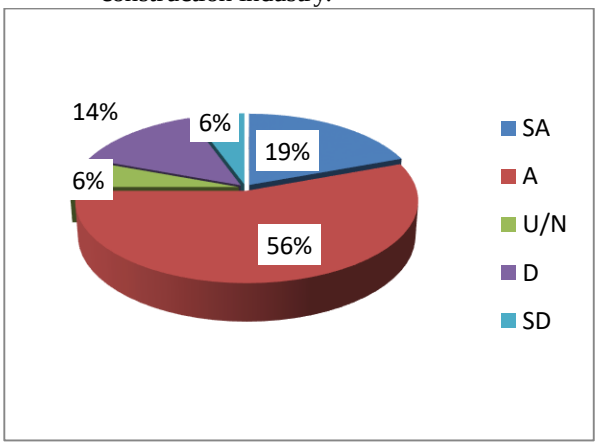
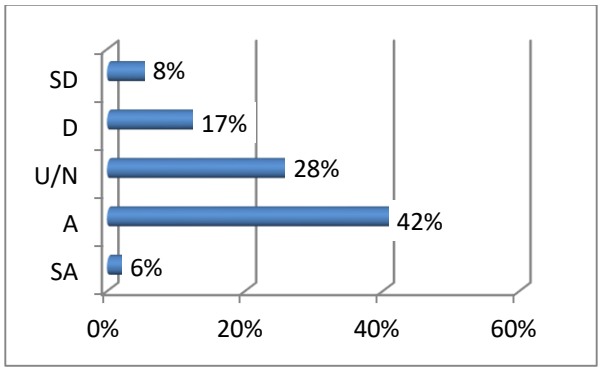


Figure 7 above shows that 19% strongly agreed that Work family conflict is one of the major factors influencing low involvements of female quantity surveyors in the Nigerian construction industry, 56% agreed, 6% Neutral and 14% disagreed while 6% strongly disagree, with an average weighted mean of 3.69. The result shows that the respondent agree that Work family conflict is one of the major factors influencing low involvements of female quantity surveyors in the Nigerian construction industry.

7. Competitiveness of construction business often generate glass ceiling syndrome for female participant in the industry

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)



The figure 8 shows that 6% strongly agreed that Competitiveness of construction business often generate glass ceiling syndrome for female participant in the industry, 42% agreed, 28% Undecided and 17% disagreed while 8% strongly disagreed, with a weighted average mean of 3.19. The result shows that the respondents on the Competitiveness of construction business often generate glass ceiling syndrome for female participant in the industry.

8. Stress, harsh working condition and inflexibility of the construction industry make it hard for women to fully participate in the industry.

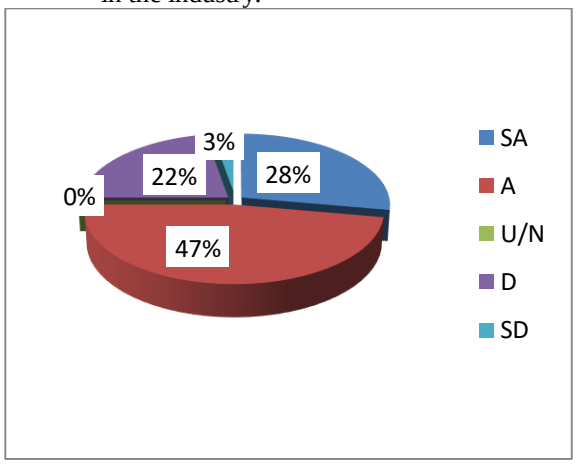


Figure 9 shows that 28% strongly agreed that Stress, harsh working condition and inflexibility of the construction industry make it hard for women to fully participate in the industry, 47% agreed, 0% undecided and 22% disagreed while 3% strongly disagreed, with an average weighted mean of 3.75. The result indicates that, the respondent agreed that Stress, harsh working condition and inflexibility of the construction industry make it hard for women to fully participate in the industry.

9. Long working hours, uncertainty of the closing hours couple with risk involved in the construction site are factors influencing low involvements of female quantity surveyors

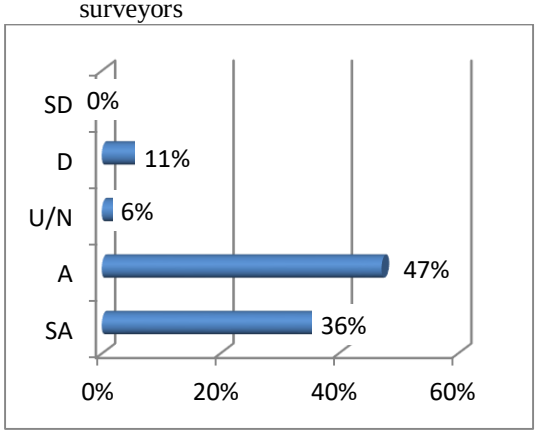


Figure 10 indicate that 36% strongly agreed on long working hours, uncertainty of the closing hours couple with risk involved in the construction site are factors influencing low involvements of female quantity surveyors, 47% agreed, 6% undecided and 11% disagreed while 0% strongly disagreed, with a weighted average mean of 4.08. The result shows that the respondents agreed on long working hours, uncertainty of the closing hour's couple with risk involved in the construction site are factors influencing low involvements of female quantity surveyors.

10. Low level of female self-confidence at career level compared to the male is also a factor influencing their low involvements

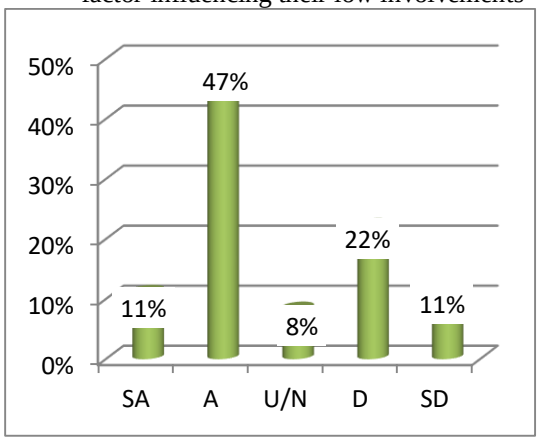


Figure 11 indicate that 11% strongly agreed on low level of female self-confidence at career level compared to the male as also a factor influencing the low involvement of female quantity surveyors, 47% agreed, 8% undecided, and 22% disagreed while 11%

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)

strongly disagreed, with a weighted average mean of 3.25. The result indicates that the respondents agree that the level of female self-confidence at career level compared to the male as also a factor influencing low involvement of female quantity surveyors.

Table 1: To examine the order in which these barriers identified influences the low involvements of female quantity surveyors in the Nigerian construction industry

S/N	FACTORS	1ST	2ND	3RD	4TH	5TH	MEAN	RANK
1	FAMILY COMMITMENT	70	160	12	20	4	3.69	4
2	RECRUITMENT PROCESS	20	120	60	24	6	3.19	8
3	INDUSTRY POOR IMAGE	50	56	24	64	8	2.81	9
4	WORKING CONDITION	100	136	0	32	2	3.75	3
5	SELF CONFIDENCE	40	136	18	32	8	3.24	6
6	LONG WORKING HOUR	130	136	12	16	0	4.08	1
7	CULTURE & ENVIRONMENT	20	64	42	36	20	2.53	10
8	CAREER DEVELOPMENT	80	72	78	52	4	3.97	2
9	SEX DISCRIMINATION	150	48	36	24	6	3.67	5
10	NATURE OF THE INDUSTRY	30	128	36	36	4	3.25	7

The table above indicates the ranking of the factors in accordance with the opinion of the respondent. The result indicated that the respondents ranked the long working hour as the first factor influencing the low involvement of female quantity surveyors in the Nigerian construction industry with the weighted average mean of 4.08, career development as the second with average weighted mean of 3.97, working condition as the third factor with average weighted mean of 3.75, family commitment as the fourth with weighted average mean of 3.69 and sex discrimination as the fifth factor with the weighted average mean of 3.67. The result also indicated that culture and environment is one of the factors influencing the involvement of women engagement in quantity surveying but it ranked least among the barriers affecting women involvement.

4.3 Hypothesis Testing

The hypotheses formulated for this research work was tested using chi square statistics. The value for the mean item scores in the below table were used as the data for the statistical computations with the result shown in the table 2.

Table 2: Inferential Hypothesis Testing

	(O-E)^2/E					chi square calculated
Q1	19.49	9.97	2.08	0.17	3.06	34.77
Q2	77.25	34.42	0.51	5.09	1.96	119.22
Q3	0.00	18.22	54.32	2.93	4.83	80.30
Q4	0.82	9.15	0.01	42.29	0.00	52.27
Q5	19.01	1.72	18.09	3.74	22.28	64.84
Q6	0.31	22.53	12.68	8.65	4.13	48.30
Q7	30.88	6.42	37.12	2.46	1.11	77.99
Q8	7.62	5.22	32.69	1.17	7.16	53.86

International Journal of Engineering Applied Sciences and Technology, 2020
Vol. 5, Issue 2, ISSN No. 2455-2143, Pages 105-114
Published Online June 2020 in IJEAST (http://www.ijeast.com)

Q9	27.05	1.66	15.64	16.26	11.75	72.36
Q10	10.13	15.76	3.77	0.07	0.19	29.92
Q12	101.06	33.75	12.26	0.07	1.91	149.05
Q13	19.01	1.72	18.09	3.74	22.28	64.84
Q14	27.05	1.66	15.64	16.26	11.75	72.36
Q15	0.82	9.15	0.01	42.29	0.00	52.27
Q16	0.31	22.53	12.68	8.65	4.13	48.30
Q17	10.81	13.40	17.68	105.66	69.73	217.28
Q18	30.88	6.42	37.12	2.46	1.11	77.99
Q19	15.26	6.27	0.22	54.95	26.95	103.64
Q20	10.88	1.84	11.64	16.66	0.31	41.32
Q21	1.22	3.22	1.30	3.62	1.49	10.85
Q22	3.89	0.87	25.58	14.14	42.97	87.44
	413.76	225.90	329.12	351.32	239.09	1559.19

Table 3: Chi Square Test

Respondents	N	Level of significance	DF	x^2 calculated	x^2 $tab_{0.05,\ 80}$
QS	72	5%	80	1559.19	101.879

Using 80 as the degree of freedom and 5% level of significance, the chi square tabulated (x^2 $tab_{0.05\ 80}$ = 101.879) is less than the chi square calculated (x^2 calculated = 1559.19) and as such accepted the alternative hypothesis which states that there are barriers that influences the low involvement of female quantity surveyors in the Nigerian construction industry, and rejected the null hypothesis which states that there are no barriers that influences the low involvements of female quantity surveyors in the Nigerian construction industry.

V. CONCLUSION

The result indicates that the long working hour is the major factor influencing the low involvements of female quantity surveyors in the Nigerian construction industry followed by career development, the working condition, family commitment and sex discrimination. It was fully agreed upon that female quantity surveyors are intimidated by overwhelming males on site. Generally the result indicates that there is low involvement of female quantity surveyors in the Nigerian construction industry.

5.1 RECOMMENDATION

The study recommended that National institute of quantity surveyors (NIQS), women association of quantity surveyors of Nigeria (WAQSN) should develop a framework or policy that will orientate female quantity surveyors regarding their career development in the profession and protect the female quantity surveyors regarding the barriers they faced in term of retention and entry into the construction industry, sex discrimination, male dominating training courses and gender equality in the Nigerian construction industry. The Nigerian construction industry should also be assessed in order to establish its existing level of acceptance of women's capabilities and ways by which it can be fully equipped to accommodate women. An empirical study is required to be carried out on women in private practice to determine their sustenance rate and challenges faced in job procurement within a highly competitive industry. The industry should assist and further enhance the capabilities of the various women group in meeting

their various objectives. It is a way of equipping the industry to accommodate women.

VI. REFERENCES

1. Adeyemi Y.A., Oyo S.O., and Olanipekum A.E. (2006) Empirical evidence of woman in the construction industry in Nigeria *WIMR 21 (7),* 567-578.
2. Adogbo K, J, Ibrahim A.D, and Ibrahim Y.M. (2015) "Development of framework for attracting and retaining women in construction practice" *Journal of construction in developing countries*, 20(1), 99-115.
3. Akomolafe, M.A and Mohammed, M.A (2015) "Gender barrier in construction industry: A review of women involvement*" International journal of modern management sciences,*florida USA. 4(1); 1-10.
4. Agapiou, A. (2002). Perceptions of gender roles and attitude towards work among male and female operatives in the Scottish construction industry. *Construction Management and Economic*, 20:8, 697-705.
5. Babalola, O. (2008) "women empowerment and career development among Professional Women," presented at 2nd National women conference of Women Association of Quantity Surveyors of Nigeria, Abuja.
6. Babatunde, S.O, Babalola, O and Opawole, A (2012) "An appraisal of career development among female professionals in the Nigerian construction industry" *global journal of researches in engineering, vol 12 issue 2.*
7. 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.
8. Barbara. L.C. Arditi D, and Balci. G (2009) "women in construction management" *CM e journal CMAA,* 1-14. Retrieved from http: //cmaanet.org/files/shared women in CM e journal 0609.pdf (Assessed on 28/11/2015).
9. 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, 273-291
10. Chartered Institute Of Building (2006) "*The changing role of women in the construction*workforce:http://www.rics.org/Aboutus/ourmembers/CIOB20publishes%20women%20in%20construction%20report.html Retrieved Nov26, 2015.
11. 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.
12. 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*
13. Davidson, M.J and Cooper, C.L (1992): *Shattering the Glass ceiling*, Paul Chapman publishing, London
14. 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
15. Gale, A. W. (1994a) Women in non-traditional occupations: the construction industry, *Women in Management Review, 9(2),* Pp3 14.
16. 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 PhD thesis, Bath University.
17. Greckol, S (1987) Women into Construction, *National Association for Women in Construction, Toronto*
18. Jeremiah, G.I. (2011), "*Approach for improving the participation of professional women in the construction industry*" unpublished undergraduate thesis, Ahmadu Bello University
19. Julia, A.E and Donna, E.P.S (2009), "Women pursuing careers in trades and construction". *Journal of career development, vol 36(1)* pages 68-89
20. Kehinde, J.O. and Okoli, O.G. (2003) "Involvement of Professional Women in the Construction Industry in Nigeria" National Association of Women Academics (NAWACS) Journal of Research & Human Developments Vol. 2 No. 1 pp 9-14
21. Krishnan, H.A and Park, D (2005), "A few good women on top management teams", *journal of business research, vol. 58,* pages 1712-20.



22. LU, S., Sexton, M.G., Abbot, C. & Jones, V. (2008) "senior female managers in Small Construction firms within the north west of England, an update", Proceeding of 24th Annual ARCOM conference, Cardiff, UK, pp. 921 – 929.
23. Powell, A., Hassan, T., Dainty, A., and Carter, C. (2007) Strengthening Women's Participation in Construction Research in Europe In: Boyd, D (Ed) Proceedings 23rd Annual ARCOM Conference, 3-5 September 2007, Belfast, UK. Association of Researchers in Construction Management, pp 347-348.
24. Shanmugam, M; Amaratunga, D., Haigh, R; and Baldry, D. (2006), 'Construction and women: The lessons construction can learn from other sectors", *proceedings of the Annual Research Conference of the Royal Institution of Chartered Surveyors* (RICS) held at University College London.
25. Sunlati, U.J. (2008) Gender Differences in Behaviour and Communication: Paper presented in the 2nd National Women conference of Women Association of Quantity Surveyors of Nigeria 12th July, 2008, Abuja, Nigeria.
26. Thurairajah, N., Amaratunga, R.D.G and Haigh, R. (2007) Study on Women Leadership in Construction Organizations In: Boyd, D (Ed) Proceedings 23rd Annual ARCOM Conference, 3-5 September 2007, Belfast, UK. Association of Researchers in Construction Management, pp 367-368
27. Wangle, A.M (2009), "*perception of traits of women in construction*" ph.D thesis, University of florida.
28. Wernick, E. D. (1994) *Preparedness, Career Advancement and the Glass Ceiling*. Draft report to the Glass Ceiling Commission, U. S. Department of Labor.

IJEAST

INTERNATIONAL JOURNAL
OF ENGINEERING APPLIED SCIENCE AND TECHNOLOGY

AUTHORS

Ahmed Zaharadeen Shola

Agboola Shamsudeen Abdulazeez

ABOUT IJEAST

International journal of Engineering Applied Science and Technology (IJEAST) is a peer-reviewed, open access journal that publishes high - quality research paper in the field of Engineering, Applied Science and Technology.

IJEAST aims to provide a platform for researchers, academicians, and professionals to share their innovative ideas, research findings, and practical experiences with the global scientific community.

JOURNAL METRICS

H-INDEX	i10-INDEX	IJEAST CITATIONS	PEER-REVIEWED & OPEN ACCESS
33	154	9,647 (IJEAST CITATIONS)	PUBLISHED MONTHLY

PEER REVIEWED

All submission are rigorously peer reviewed to ensure quality.

AUTHORS ARE OUR PRIORITY

We value our authors and recognize their contribution to the advancement of research and knowledge.

OPEN ACCESS

Free and unrestricted access to research for all.

GLOBAL REACH

Connecting researchers and professionals worldwide.

TIMELY PUBLICATION

We ensure a swift and efficient publication process.

For more information, visit our website
www.ijeast.com

editor@ijeast.com

www.ijeast.com

India

2455-2143