



PARTICIPATION OF FEMALE QUANTITY SURVEYORS IN THE NIGERIAN CONSTRUCTION INDUSTRY

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Abstract

Female Quantity Surveyors' participation in the Nigerian construction industry is low, but the reasons for such low participation are not well understood. The study assessed the factors driving, as well as challenges that hinder participation of female Quantity Surveyors (QSs) in the Nigerian construction industry. Data was collected through a self-administered questionnaire survey of 78 male and 110 female QSs in the public and private sector in Abuja. Male respondents were randomly sampled while a census of the female QSs was taken. Analysis of data was carried out using frequency counts, percentile, mean score and T- Test. The most important key motivational factor driving female QSs' participation is "completion of a construction-related course of study". On the other hand, "Unsociable work hours" and "denial of professional activity by colleagues due to family commitment" are the two top challenges encountered by female QSs. It was thus recommended that to improve the level of participation of female Quantity Surveyors, the female QSs should be motivated through freedom to exercise and experiment new ideas, discretion to make decisions and take the initiative in their assigned roles.

Keywords: *Construction industry, Female, Participation, Quantity Surveyors.*

INTRODUCTION

In most developed countries the representation of female workforce has greatly increased. As a result, women are entering traditionally considered male

dominated jobs due to economic reasons and changes in the worksite settings (Jaafar *et al.*, 2014). The need for unbiased utilisation of human resources has given research motivation to gender participation in various economic endeavours both in the developed and the developing countries (Adeyemi, 2015). Jimoh *et al.* (2016) described women as a hidden human resource which remains largely untapped. There has been rising global consciousness both at the grassroots and national levels, regarding the impact of gender, issues on education and national development (Aguele and Agwagah, 2007; Akinsowon and Osisanwo, 2014 cited in Dada, 2017). The Quantity Surveying (QS) profession faced countless challenges in its development when it first came into existence (Joel, 2016). Despite those challenges it has grown and survived the storms to an extent that today it is a notable profession in the Nigerian construction industry but with few women on board. However, due to the importance of both gender and the challenges facing women in construction industry, Jimoh *et al.* (2016); Adeyemi *et al.* (2006); and Akinsiku and Ajala (2018) investigated the barriers to females' involvement in the Nigeria construction industry. Tunji-Olayeni *et al.* (2018) assessed job satisfaction of female construction professionals (Architects, Builders, Quantity Surveyors and Engineers) in male dominated fields specifically construction industry. Adogbo *et al.* (2015) developed a framework for attracting and retaining women in construction practice. Odubiyi (2018) affirmed that the new trend of diversification noticeable among female construction professionals is a positive one, which is a welcome development since it will enhance profits generation for these professionals and in the long run, improve the economic situation. All these researchers emphasised on females in the construction industry in general. However, based on the importance of cost to successful completion of any project, a research on female professionals saddled with cost management is vital. Jaafar *et al.* (2016) assessed the duties and competencies of female quantity surveyors in discharging their duties in construction industry, while Dada and Jagboro (2012) investigated core skills requirement and competencies expected of both male and female quantity surveyors. The findings of these studies revealed that women possess qualities and abilities that are important to enable them to be successful in the construction industry. Studies that investigated challenges facing female quantity surveyors in the Nigerian construction industry are few. Against the backdrop of present-day awareness

of gender equality, this is worrisome because the factors that drive or hinder the level of participation of female quantity surveyors are still not fully understood. This is in spite of the efforts of professional associations such as the Women Association of Quantity Surveyors of Nigeria (WAQSN) which is an affiliate of the Nigerian Institute of Quantity Surveyors (NIQS) in creating awareness for females to practice quantity surveying in Nigeria.

In addition, a preliminary survey conducted in the study area for this research revealed that the number of female Quantity Surveyors (Qs) in both public and private practice within Abuja stands at 110, which is low by an order of magnitude, compared to the number of males which was 1,002. No study was found that addressed female Quantity Surveyors' participation in the Nigerian Construction Industry (NCI) within the Abuja FCT area, and which specifically examined the possibility of the existence of certain factors responsible for low participation. This is a research problem which it is impossible to address without an in-depth study of current levels of participation of female Qs in Abuja. This is the gap in knowledge, the filling of which this study has contributed to. In order to address the research problem, the study set out to investigate female quantity surveyors' participation in the NCI towards the attainment of successful project objectives. Two objectives were pursued in order to achieve this: examining the key motivational factors influencing female Qs' participation, and examining the challenges encountered by female Qs in the course of participation in the construction industry.

LITERATURE REVIEW

Quantity Surveying (QS) was defined by The Nigerian Institute of Quantity Surveyors (NIQS) (2004) as "the occupation that is concerned with financial integrity and achieving value for money in the conceptualization, planning, and execution of building and engineering projects and developments". However, over the years, the quantity surveyors' roles have changed which makes the present-day quantity surveyors' competencies to be showcased in varied aspects within the construction industry as well as outside of the construction industry (Hay, 2015). The profession is versatile hence, making provision for anyone in the field to be able to work in several places which includes quantity surveying firms, construction companies, property development or estate management firms and organisations that deal with a reasonable amount of building or

construction procurement as part of their activities (Hafiei and Said, 2008). According to Jimoh et al. (2016), some of the best strategies for motivation of women for continuous participation in construction-related professions (which includes quantity surveying), are making young women aware of opportunities in construction and better representation of women within the industry. According to Dainty et al. (2000) as cited in Jimoh et al. (2016)), flexible working hours and creating scholarship opportunities for women to pursue academic or professional degrees in the built environment are good strategies to improve women involvement in construction.

The challenges to women participation according to English and Lejeune (2012) as cited in Hay (2015) continue to exist and can be categorised as a lack of knowledge about the industry, poor image, the effect of societal roles and cultural beliefs, traditional roles, lack of role models, poor remuneration, discrimination, hostile work conditions and a male-dominated culture. With respect to constraints and opportunities in the labour market much of the literature on gender discrimination focuses on the lack of education, societal perceptions, the glass ceiling, the queen bee syndrome and work–life balance issues especially for women aspiring to positions of leadership (Mathur-Helm, 2011; English and Lejeune, 2012 as cited in Hay 2015). Arroyo *et al.* (2018) opined that both women and men perceive gender bias in the construction industry, with a larger portion of men however thinking that gender bias is not an issue. The results obtained by Madikizela and Haupt (2010) and cited in Hay, (2015) from a study of industry stakeholders revealed that the few women that were employed each year by construction firms were mostly assigned secretarial and administrative roles. Gyasi (2012) also supports this belief that more women are engaged in marginal roles like labourers and secretaries. The Royal Institution of Chartered Surveyors (RICS) has a global membership of 100,000 Chartered Surveyors; only 10 per cent of this number are female (Ellison (2003) as cited in Hay (2015)).

It is evident that the under-representation of women in construction is not confined to Africa alone. This under-representation of females and consequent perception of the construction industry as male-dominated are due in part to family commitments such as marriage and childbirth (Akinsiku and Ajala, 2018). It was established that the possibility of equal opportunity for both males and females exists in the industry, based on the study by Mohammaden (2013)

in the Middle East. The study's findings revealed the proportions of construction organisations that accord women equal chances as men: 66% in office work, 48% in task work on site, and 22% provide separate facilities to women. In addition, 48% of organisations have a distinct and clear policy on non-discrimination when hiring, training and gathering information on the basis of sex. Mohammaden (2013) also found that while 96% of organisations give females the opportunity to get promoted up the organisational ladder, the lack of flexibility in working conditions is an impediment to female entry into the industry.

RESEARCH METHODOLOGY

This study is concerned with the participation of women quantity surveyors (WQS) in the Nigerian construction Industry (NCI). From anecdotal evidence as well as from past studies, WQS are very noticeable minority in the industry (Oyewobi *et al.*, 2018). The study was quantitatively conducted through a questionnaire survey. The questionnaire was grouped into three sections; Section A collected demographic information about the respondents, Section B assessed the barriers to women participation and Section C dealt with factors that encourage women participation. Responses were collected using a 5-point *Likert* scale. The questionnaire was self-administered to the respondents. Pre-testing of the questionnaire before administration to the larger *population was carried out on ten quantity* surveyors who had acquired more than 10 years working experience and knowledge of the research subject matter. Their comments helped in fine-tuning the questionnaire.

The population of the study consists of total number of registered members of the NIQS in the study area who are financially up to date; there were 345 such members. This number included male and female QSs in both public and private sectors in Abuja. Information obtained from the Abuja Chapter of WAQSN revealed that there were 110 women quantity surveyors (WQS). A census of all available and accessible WAQSN members was undertaken while simple random sampling was employed in selecting 78 male QSs (which translates to 33 percent of the male population) when administering the questionnaire. This resulted in a sample size of 188. This was the number of questionnaires that were self-administered to the respondents; 137 were retrieved, giving a response rate of 73%, which was considered adequate for the purposes of the study.

Analysis of the collected data was carried out using descriptive statistics (frequency, counts, percentiles, mean scores) and inferential statistics (t-test) with the aid of the Statistical Package for Social Science (SPSS) Version 20.

DATA ANALYSIS

Factors driving female QS participation in the construction industry

The factors driving female QSs' participation in construction activities in the study area as ranked by the respondents are presented in Table 1. Overall, the respondents ranked 'Studying construction courses in tertiary institutions' as the most influential factor that drives female quantity surveyors' participation in construction activities, based on a mean score of 3.31; female respondents however ranked it 2nd. With an overall mean score of 3.11, 'Enjoyment of daily work tasks' was ranked 2nd by both sexes; female respondents however ranked it 1st in contrast to the male respondents who ranked it 8th. 'Supplementing spouse's income' was ranked 3rd by both sexes (overall mean score of 2.96) and 4th by female respondents only.

Table 1: Factors driving female Quantity Surveyors participation

S/ N	Factors Influencing participation	Male QS		Female QS		Overall	
		Me an	Ranki ng	Me an	Ranki ng	Me an	Ranki ng
1	Studied construction related course	3.34	1 st	3.29	2 nd	3.31	1 st
2	Supplementing Spouse income	2.72	8 th	3.39	1 st	3.11	2 nd
3	Enjoyment of daily work tasks	2.9	5 th	3.00	4 th	2.96	3 rd
4	Offered a job or training opportunity in construction	2.98	3 rd	2.73	6 th	2.93	4 th
5	Prestige of the career	2.79	7 th	2.89	5 th	2.85	5 th
6	Opportunity to be a role model	2.52	9 th	3.04	3 rd	2.81	6 th
7	Recruitment policies and procedures	3.24	2 nd	2.59	8 th	2.79	7 th

8	Nature of the construction industry orientation	2.88	6 th	2.72	7 th	2.72	8 th
9	Lack of alternative employment	2.91	4 th	2.3	9 th	2.56	9 th

Source: Researcher’s Survey (2019)

Further analysis was conducted on the ranking of factors driving female QS participation in the NCI in order to test the level of agreement between female and male respondents; results of T-test analysis in this respect was presented in Table 2. The results revealed that a significant level of agreement exists between female and male perceptions of the importance of the factors. This was inferred from the fact that the t-statistic (t-cal) value obtained was lower than the critical value of $t_{0.05}$ (t-tab). The t-cal value was 0.245 compared to the t-tab value of 2.306; this indicated that the difference between the parties sampled was not significant. In other words, there was agreement between the parties sampled. Furthermore, the P-value of 0.813 was higher than the acceptable threshold (level of significance - LOS) of 0.05.

Table 2: Paired Samples T-Test of Drivers of female Quantity Surveyors participation

Variables		Type of Model	Observations					Inferences
X ₁	X ₂		Mean Value	T _{cal}	T _{tab}	P _{value}	Significance	Remark
Male Qs	Female Qs	Paired Sample	X ₁ = 2.920 X ₂ = 2.8833	0.245	2.306	0.813	0.05	NSSD

Source: Researcher’s Survey (2019)

KEY:

NSSD: Not Statistically Significant Different; LOS: Level of Significance

Challenges encountered by female Quantity Surveyors in the construction industry

The challenges encountered by female Qs in the course of participation in the NCI are presented in Table 3. As a group, both males and females ranked ‘Unsociable work hours (Mean = 2.59)’, ‘Access restriction to some location due to religio-cultural beliefs (Mean = 2.55)’, and ‘Denial of professional activity by colleagues due to family commitment (marriage, pregnancy, child responsibilities) (Mean = 2.52)’ as 1st, 2nd, and 3rd most influential challenges encountered by female quantity surveyors. Female respondents agreed mostly with this ranking, only transposing the 2nd and 3rd ranked challenges. Male respondents however differed quite radically in their own ranking of the challenges. In the opinion of male respondents, ‘Labour conditions such as extreme weather’, ‘Difficulty in balancing work and family commitments’, and ‘Access restriction to some location due to religio-cultural beliefs’ deserved to be ranked as 1st, 2nd and 3rd most influential challenges respectively.

Table 3: Challenges hindering Female Quantity Surveyors participation

S/N	Challenges encountered	Male QS		Female QS		Overall	
		Mean	Ranking	Mean	Ranking	Mean	Ranking
1	Unsociable work-hours	2.10	6 th	2.95	1 st	2.59	1 st
2	Access restriction to some location due to religio-cultural beliefs.	2.17	3 rd	2.82	3 rd	2.55	2 nd
3	Have you been denied professional activity by your colleagues due to family commitment (marriage, pregnancy, child responsibilities)	2.00	7 th	2.90	2 nd	2.52	3 rd
4	Labour conditions such as extreme weather	2.22	1 st	2.63	6 th	2.46	4 th
5	Physical incapability due strenuous activity required by a job.	2.17	3 rd	2.66	5 th	2.45	5 th
6	Not being given equal opportunities to perform as compared to male	1.97	8 th	2.80	4 th	2.45	6 th
7	Difficulty in balancing work and family commitments	2.21	2 nd	2.38	8 th	2.31	7 th
8	Masculine nature of the industry	2.16	5 th	2.34	9 th	2.26	8 th
9	Have you been denied professional duties from clients due to your marital status?	1.97	8 th	2.32	10 th	2.17	9 th
10	Sexual discrimination/ Intimidation by male counterparts	1.45	11 th	2.61	7 th	2.12	10 th

11	Difficulty in getting accustomed to work after career break or childbirth	1.76	10 th	2.13	12 th	1.97	11 th
12	Male subordinates refuse to cooperate	1.31	14 th	2.18	11 th	1.81	12 th
13	Sexual harassment by male employer/superiors	1.45	11 th	2.05	13 th	1.80	13 th
14	Sexual harassment	1.34	13 th	1.85	14 th	1.64	14 th

Source: Researcher’s Survey (2019)

A paired sample t-test of the challenges encountered by female QSs in the NCI was also carried out to test the level of agreement between female and male respondents. The T-test analysis result, which was presented in Table 4, revealed that significant disagreement existed between male and female respondents on the challenges encountered by female quantity surveyors in the construction industry. This was inferred from the fact that the t-statistic value obtained was higher than the critical value of $t_{0.05}$, which can be either negative or positive (i.e. two tailed test). In addition, the probability of only chance differences between the variables (Pvalue) was much lower, quite within the acceptable threshold (LOS) of 0.05. The results also revealed that while males viewed the challenges faced by women QS as ‘less frequent’ (Mean Score = 1.93), female perceived such challenges as ‘fairly frequent’ (Mean Score = 3.85).

Table 4: Paired Samples T-Test of Challenges of female Quantity Surveyors participation

Variables		Type of Model	Observations					Inferences
X ₁	X ₂		Mean Values	T _{cal}	T _{tab}	P _{value}	LOS	Remark
Male Qs	Female Qs	Paired Sample	X ₁ = 1.9276 X ₂ = 3.8535	- 7.570	2.160	0.000	0.05	SSD

Source; Researchers’ Survey, 2019

KEY:

SSD: Statistically Significant Difference; LOS: Level of Significance

DISCUSSION OF FINDINGS

The top 3 key drivers of female quantity surveyors' participation in the NCI are (i) completion of a construction-related course i.e. quantity surveying; (ii) desire to supplement spouse's income; and (iii) enjoyment of daily work tasks. It was also found that a significant level of agreement existed between female and male respondents with respect to their perceptions of the importance of these drivers. This result differs in some respects from what has been written up in literature. While the study agreed with Arroyo *et al.* (2018) that both women and men perceive gender bias in the construction industry, it disagreed with the finding in Arroyo *et al.* (2018) that a larger portion of men compared to women think that gender bias is not an issue. This was because there was no difference in men and women's perception of factors affecting women participation in this study.

As regards the factors that hinder female participation in the NCI, the top 3 challenges encountered by female quantity surveyors are (i) Unsociable work hours; (ii) Access restriction to some locations due to religio-cultural beliefs; and (iii) Denial of professional activity by colleagues due to family commitment (marriage, pregnancy and child responsibility). These results agree with the findings of Arroyo *et al.* (2018) that women perceive their gender as a reason to not be recruited, be delayed in promotion or not having their ideas taken seriously. Gyasi (2012) also stated that more women are engaged in marginal roles like labourers and secretaries, owing to challenges such as lower educational and professional certifications possessed.

CONCLUSION AND RECOMMENDATIONS

It can be concluded from the findings of the study that the major motivational factor driving the participation of female Quantity Surveyors in the construction industry is based on the premise that they (the females) have undergone a construction-related course of study. Non-conducive work hours (unsociable work-hours) has been identified as the major challenge encountered by the female Quantity Surveyors in the Nigerian construction industry.

These findings have led to the recommendation that stakeholders within the Nigerian construction industry should intensify efforts on creating more administrative offices limited and open exclusively to Female Quantity Surveyors. This will allow female Quantity Surveyors (i) Exercise

administrative skills and professional competence at both Government level (QSRBN) and professional body level (NIQS); furthermore, (ii) Women Quantity Surveyors should be given freedom to exercise and experiment new ideas. Discretion to make decision and take initiative in their assigned roles will allow other employees to tap into their stream of creativity. (iii) In order to improve the level of participation of female Quantity Surveyors, the female Quantity surveyors should be given adequate motivation in every aspect of work in the construction industry.

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