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FACTORS AFFECTING WOMEN'S ENROLMENT IN CONSTRUCTION EDUCATION IN NIGERIA

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ABSTRACT

The Millennium Development Goals (MDGs) have advocated for the empowerment of women in all aspects of the economy for them to be economically self-reliant and actively participate in decision making. While the construction industry remains a major player in the economy of any nation, in Nigeria and indeed globally, the industry is male dominated. This paper reports on a study carried out on assessing factors affecting women enrolment in construction education in Nigeria. Structured questionnaires were used to collect data from targeted students, within and outside construction related-disciplines, of Obafemi Awolowo University, Ile-Ife, Nigeria. The results validate the fact that women were not at the fore front and their impact on or participation in construction sector is not been felt. Gender discrimination was also revealed as one of the problems confronting the very few women in the sector. From the trend analysis presented, it was revealed that women enrolment over the years has been extremely low as compared to that of men. The paper concludes on the need to make a concerted effort in the enhancement of women enrolment and eventual participation in construction in Nigeria.

Keywords: Education, enrolment, construction, factor, women, Nigeria

1 INTRODUCTION

Globally, the construction industry contributes about one-third of gross capital formation and is an important vehicle for economic development through built environment assets such as houses, roads, utility networks, schools and clinics (Kenny, 2007). The construction industry has been male dominated for years, and on many jobsites women construction workers are not welcome (Valoy, 2013). The role of women in the management of the world economy cannot be underestimated. In recent times, there has been rising global consciousness, both at the grassroots and policy levels, regarding the impact of gender issues on education and national development (Aguele and Agwagah, 2007; Akinsowon and Osisanwo, 2014). There is also the growing consciousness that women constitute more than half of the world's population.

Inequalities along gender lines have been one of the main factors driving the establishment of women-focused and, more recently, gender-focused programmes. The earliest and most pronounced recognition of the gender disparities in development was the announcement by the international community of International Women's Year in 1975 and its later extension into a women's decade (Wamukonya, 2002). Clancy and Dutta (2005) observed that gender mainstreaming has gained prominence since Platform for Action from the 4th International Conference on Women in 1995 called on governments to mainstream gender perspectives in all policies and programmes to ensure equality of outcomes for men and women.

Globally, the issue of the elimination of all forms of discrimination against women is being advocated. Discrimination against women violates the principles of equality of rights and respect for human dignity. There is particular emphasis on women's rights to non-discrimination in

education, employment and social activities (Global Campaign for Education, 2012; USAID, 2015; Lombardi, 2017). Yet many women in Nigeria, and indeed in African countries, are subjected to discrimination based on gender. They often suffer neglect and abuse by men. Despite the fact that it is obvious that women are lagging behind in construction participation in Nigeria, the factors responsible for this have not been investigated. The main objective of this study, therefore, was to identify and assess the factors which act as obstacles to women's education in construction. The majority of research efforts on women's enrolment trends are found in science, technology and engineering (STE). Research in construction related-disciplines is lacking or not documented. As such, the study also investigated and presented the trend of women's enrolment in construction as compared to that of men over a ten-year period.

2 AN OVERVIEW OF SOCIO-ECONOMIC CHALLENGES CONFRONTING WOMEN

At the outset of the United Nation's Decade for Women in 1975, it was noted that women constitute about 50 per cent of the world's population. But unfortunately, despite this equality in population, they own only 1 per cent of the world's wealth (Akande, 1996). In 1970, when the Occupational Safety and Health Administration (OSHA) was enacted, women made up less than 1 per cent of workers in the construction trades and by 1995 that percentage had only grown to 2.3 per cent (US Department, 1996). Women play multiple roles as economic producers, as managers of households, as producers of services, as workers providing households with all the necessities, as producers of children and in caring for their community.

The Women Commission for Refugee and Women and Children (2006) paid particular attention to the problems women in refugee camps are facing. Millions of women and girls venture out from their camps into danger, risking rape, assault, abduction, theft, exploitation or even murder, in order to collect firewood to cook for their families. Moreover, there has been the erroneous assumption for women in that men are involved in productive work outside the house while the women take overall responsibility for reproductive and domestic work. Wickham (2001) remarked that even though women may be active in the labour force, they are not achieving their full economic potential. The study of Onsongo (2004) on factors affecting women participation in university management in Kenya argued for equal opportunities for both men and women. The study, which was guided by feminist theory, recognised the pervasive influence of gender divisions on social life and tried to understand women's oppression and the structures in society that espouse this oppression and subordination. Looking at the many similarities between the genders, the feminist perspective concludes that women and men have equal potential for individual development. Differences in the realisation of that potential, therefore, must result from externally imposed constraints and from the influence of social institutions and values (Nzomo, 1995).

In correcting the glaring or perceived gender imbalance against the female gender, especially in education, several gender sensitivity programmes have been initiated. These programmes, according to Igbinedion (2011), are multifaceted: social, cultural, political, economic, and educational dimensions. Some of these programmes were highlighted to include the agitation for a halt to female genital mutilation, for enhancing the girl child's right to education, a halt against women trafficking and prostitution, and agitation for equal education and job opportunities for both genders, among others.

3 A REVIEW OF NIGERIAN WOMEN'S EDUCATION AND TRAINING IN CONSTRUCTION

The issue of education cannot be underestimated in the development of any nation. It is generally accepted that it is through education that we can develop our human resources. Studies

have shown that while in primary school, close to 60 per cent of the enrolment is female; the proportion drops to about 32 per cent in secondary schools and to about 12 per cent in the universities. During the introduction of formal education in Nigeria, efforts were made to ensure that women do not attend formal school. Prominent among the reasons was that women's education was wasteful, as girls would eventually be married off to become housewives. Thus, women's education was not favoured by parents. However, traditional forms of education were available to prepare women for future roles (Badekale, 2003). Williams (2006) established the fact that many females do not take their studies seriously and many produce very bad results. Likewise, more boys are enrolled in school than girls owing to cultural beliefs. From this premise, she suggested that female students should take their academic work seriously as that is the only way through which they can disengage themselves from the shackles of cultural subjugation.

World figures for literacy and higher education in scientific and technical courses show that women are lagging far behind men (Williams, 2006). Female enrolment ratios in higher education in developing countries are typically only half the male ratio. In sub-Saharan Africa, women's enrolment rates for tertiary education are only a third of those of men. Research has shown that women suffer disadvantages in the built environment that is planned chiefly by men and primarily for men and so changes need to be made. Mogbo (1999) deplored the neglect of the role of women in construction practices and education in Nigeria in the National Construction Policy and Vision 2010. Mutandwa (2008) shared the same view for the Zimbabwe National Housing Policy.

4 RESEARCH METHOD

A case study approach using a university was adopted for the study. Edwin *et al*. (2002) admitted that universities have a role to play in the training of competent professionals. Roesset and Yan (2000) also believed that universities with research capacities have a role to play, that is "…to assume a more active role in the formulation of rational continuing education programmes that will provide a solid opportunity for lifelong learning, rather than providing only a handful of short-course offering without any linking or continuity among them". It was on this premise that the paper is focusing on the university as the training ground for construction professionals. Obafemi Awolowo University, Ile-Ife, Nigeria was purposely selected for the study. Relevant data were elicited from two groups of student of the institution. The first group consists of students in construction-related disciplines while the second group consists of students outside construction-related disciplines.

For the purpose of comparing female enrolment as against that of their male counterparts, secondary data on students' enrolment in the various construction-related disciplines of the institution, from 1995 – 2006 were collected from the administrative officers of the respective disciplines. These were used to generate the charts showing the trend for the period. It is to be noted that the 2000 and 2004 academic years were cancelled at Obafemi Awolowo University.

Data for assessing women enrolment in construction were elicited from the categorised two groups of student. For the first group, which comprises female students from construction-related disciplines – architecture, civil engineering, building technology, quantity surveying, estate management, mechanical engineering and electrical and electronic engineering – a total of 50 out of the 109 female students were randomly selected. For the second group, which comprises female students outside construction-related disciplines, a total of 200 students were randomly selected from the various disciplines. The selected students cut across the 13 faculties of the institution. Measurement of the perception of respondents on difficulties faced by female students in construction (response from group 1) and factors affecting women enrolment (response from group 2) and was approached on a relative importance index basis. The

respondents were asked to rate the significance of the identified variables on a five-point Likert scale. The numerical scores assigned by respondents were transformed to a relative importance index (RII).

5 RESULTS AND DISCUSSION

5.1 Respondent profile

A total number of two hundred and fifty (250) questionnaires were administered to the respondents (50 to group 1 and 200 to group 2) and, out of these, one hundred and fifty-six (156) completely filled (appropriate for analysis) questionnaires were returned. This represents a response rate of 62 per cent. The disciplines of the respondents are shown in Tables 1 and 2. Of the 156 respondents who participated in the survey, 24.4 per cent were from construction related disciplines while 75.6 per cent were from disciplines outside construction-related field. This justifies the essence of capturing the views of respondent outside construction-related fields. In order to be sure that respondents have an adequate understanding of construction and its operation (especially for those outside construction-related fields); the term 'construction' was defined and its activities highlighted in the questionnaire. Table 3 shows the level of understanding of the respondents about construction and its operations. On the basis of this it is inferred that the respondents have knowledge of construction and the data obtained from them can be relied on.

5.1.2 Trend of women's *enrolment in Nigerian construction industry*

A comparison between female and male enrolment was conducted for a ten-year period. Figure 1 clearly indicated that women are lagging far behind men in enrolment in construction. This was reflected in all the construction-related disciplines considered as the charts are of the same pattern. Transposing the chart to a line graph gives the trend analysis in Figure 2. From this the trends present a clearer picture. In all, except on two occasions when there was female enrolment up to 50 per cent of that of men, it can be observed that the percentages, as compared to those of men, remain below 30 per cent on the average. This shows that women are grossly under-enrolled when it comes to construction education. From this it is clearly indicated that something must be done to arrest this undesirable trend so as to boost the participation of women in construction.

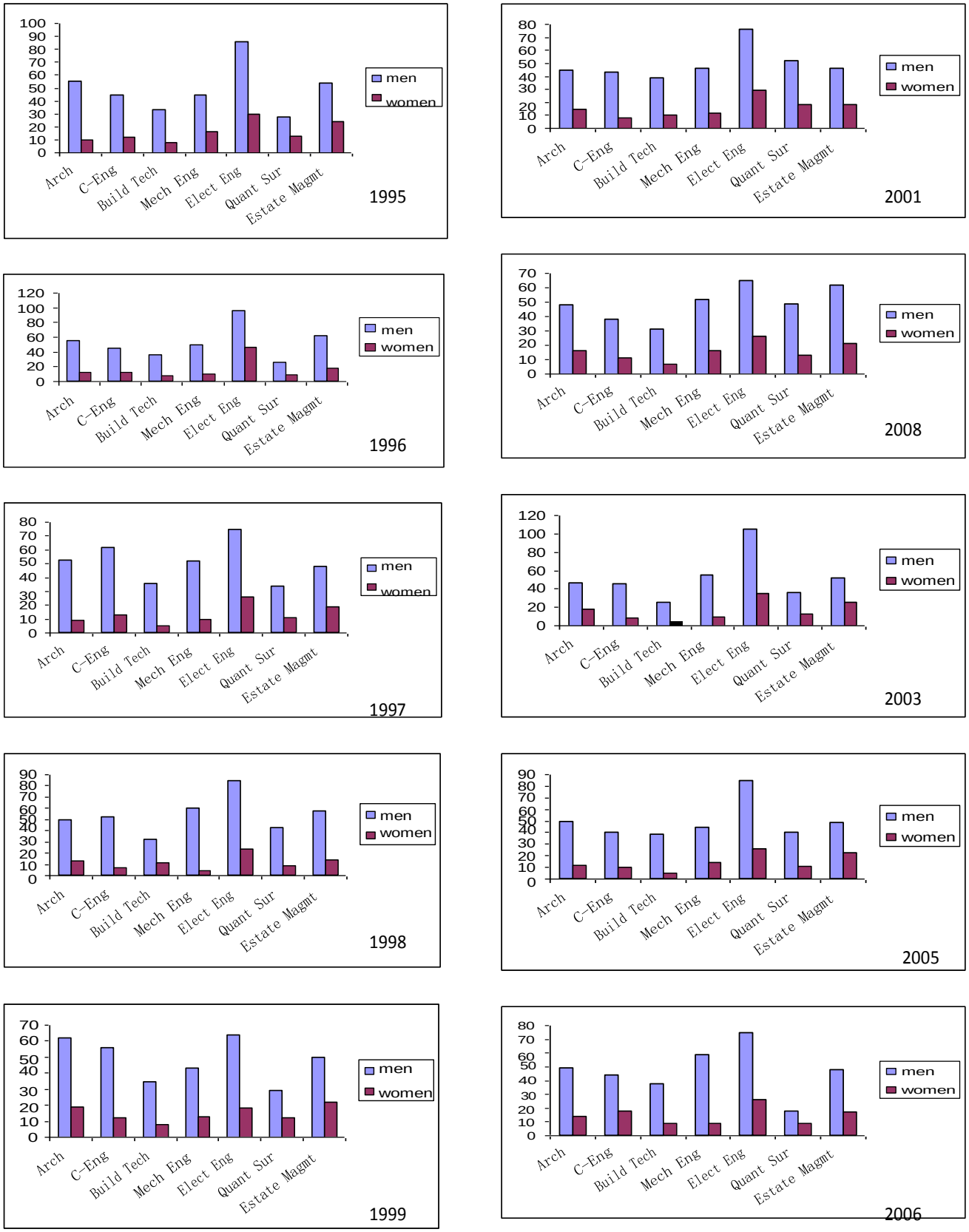

Figure 1: Female enrolment in construction-related disciplines as compared to that of males

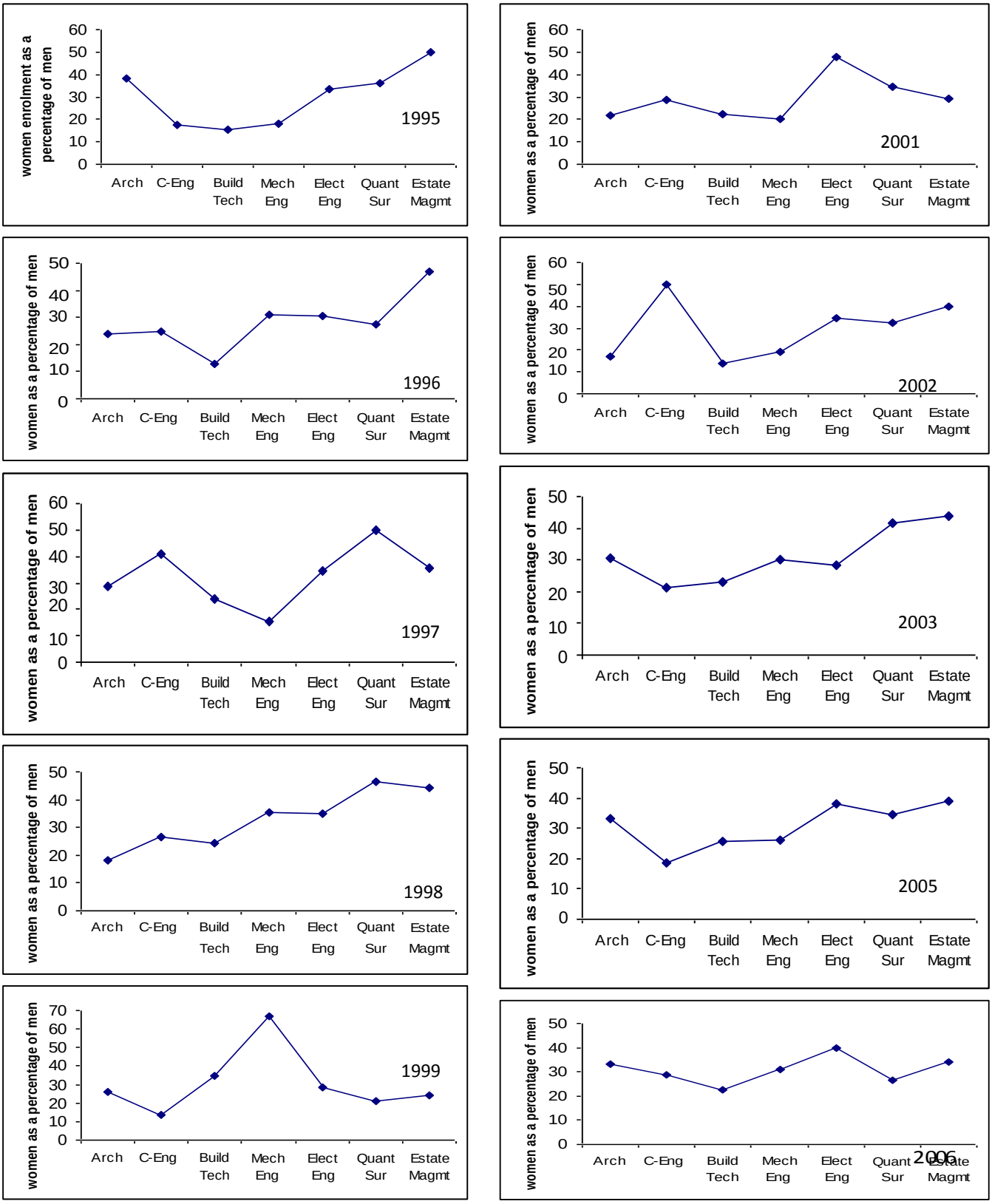

Figure 2: Trends in female enrolment in construction-related disciplines

5.1.3 Factors affecting women enrolment in construction

From the review of literature carried out, factors affecting female education and eventual participation in construction were identified. Employing the identified factors, the respondents were asked to indicate the importance they attach to each on a five-point Likert scale.

5.1.3.1 Lack of female role models to emulate

The study revealed the issue of "lack of female role model to emulate" as the highest rating factor affecting women's enrolment in construction education. This revelation is not surprising as previous researchers have established that fewer than 5 per cent of Nigerian women are managers. Awe (1991) revealed that out of the 50 companies quoted in Nigeria, none of the blue chips bosses is a woman. In the same vein, while about 55 per cent of the workers in the Nigerian public service GL 1-6 are women, only about 9 per cent of workers on GL 15-17 are women (Clark, 1992). In corroborating this view, Nieva and Gutek (1981) have long presented four models explaining women's lower status in organisations. Among the four models, the structural-institutional model highlighted the positive impact of role models on the careers of women. This therefore suggests that qualified women should be made more visible in organisations by promoting them to positions of real power (Ferguson and Dunphy, 1991).

Table 1: Discipline of respondents (Group 1)

Discipline of respondents	**Frequency**
Architecture	6
Building technology	2
Civil engineering	4
Electrical and electronic engineering	9
Estate management	7
Mechanical engineering	5
Quantity surveying	5
Total	**38**

Table 2: Discipline of respondents (Group 2)

Discipline of respondents	Frequency
Sociology and Anthropology	5
Management and Accounting	9
Economics	6
Computer Sc. and Engineering	3
Medicine	9
Biochemistry	4
Geography	4
Physiotherapy	3
Agricultural Engineering	4
Law	8
English Language	7
Education Foundation and Counselling	2
Religious Studies	2
Dramatic Art	2
Nursing Science	3
Medical Rehabilitation	3
Political Science	5
Zoology	4
Crop Production	2
International Relations	4
Local Government	3
Microbiology	5
Mathematics	3
Pharmacy	6
Animal Science	5
Agricultural Economics	4
Total	**118**

5.1.3.2 Job opportunities

Low job opportunity was observed as the second highest rating factor affecting women's enrolment in construction education. This calls for a serious concern as the pattern is similar all over the world. Of the 105,567 persons formally employed in Zimbabwe's construction sector in 1999, only 6.3 per cent were women (Zimbabwe Central Statistics Office, 2002). In the Czech Republic, 2.7 per cent of entrepreneurs in the construction sector were women and 4.5 per cent of influential positions in the construction business were held by women (Putnova, 2007). The Singapore Labour Force Survey reported that women constitute 42 per cent of the local labour force, but only 15 per cent of the construction industry's local labour force are female (Ling and Leow, 2008). In North America, women constitute about 10 per cent of the construction participants (Sigcau, 2004) and in South Africa about 8 per cent of construction sector managers are women (Mjoli-Mncube, 2005). This trend is also

observed in other countries, where the construction workforce remains overwhelmingly male (Dainty *et al.*, 2001). It has been found that equipping women with construction-related skills as well as giving them confidence to champion their development ensures that women engage in self-build housing projects which not only ensure that women are adequately sheltered, but also that they earn an income from such skills. This works on the premise that getting women to participate in the construction industry empowers them to harness their development and thus reduces vulnerability amongst women. Generally, the employment of women workers is unstable as a result of various factors which can be attributed to the organisational stereotypes or to the women themselves. It is still stated statistically that women employment in industries is only 10 or 15 per cent. The absence of these would-be "leaders" could discourage young girls from being attracted to male-dominated professions (Badekale, 2003).

Table 3: Level of understating of respondents about construction

Discipline of respondents	**Frequency**	**Percentage**
Adequate knowledge	43	27
Average knowledge	66	42
Fair knowledge	26	17
Faint knowledge	12	8
No knowledge	9	6
Total	**156**	**100**

Table 4: Index of importance placed on factors affecting female enrolment in construction

Factor	***Mean score**	**Rank**
No female role model to emulate	4.08	1
Low job opportunity for female	3.72	2
Perception of construction not suitable or meant for female	3.11	3
It is tasking and difficult	2.85	4
Difficulty in coping couple with family responsibilities	2.46	5
Female prefers social sciences and art discipline	2.39	6
Lack of awareness right from secondary/high school	2.31	7
Poor background in science and technical subjects	2.21	8
Religious factor	1.32	9

** Mean score calculated from five-point Likert scale, where 1= not significant, and 5 = highly significant.*

5.1.3.3 Construction not meant for women

Another important factor is the perception that construction is not suitable for women and is invariably meant for men. This finding is in agreement with Loosemore and Galea's (2008) study which viewed the construction industry as a male-dominated and threatening environment, with an ingrained culture characterised by masculinity, conflict and crisis. In addition, Powel *et al.* (2005) highlighted the problems associated with the integration of women into construction despite their educational status in the field. They called this the problem of transition from higher education to the workplace. The research of Powell *et al.* (2005) also indicated that women start to develop strategies for coping within a male-dominated workforce, although the coping mechanisms have not been able to challenge the existing culture and structure of the construction sector.

In an attempt to ameliorate this problem, Bagilhole (1997) made a case for increasing the number of women in the construction sector. Also, there has been a call for more gender-balanced construction organisation. Etzkowitz *et al.* (2000) have also argued that women face a series of gender-related barriers to success in scientific careers despite recent advances. Arising from all these myriads of problems confronting women, there have been calls for an increase in women's participation in construction and numerous initiatives have been suggested from many quarters. Mogbo (1999) suggested the review of the Nigerian National Construction Policy to make special provisions for women to be adequately involved in policy formulation and implementation as well as participation in construction services which had always been presumed to be reserved for men. Women in the next millennium should cease to be "hewers of wood", "drawers of water" and "sellers of food" on construction sites. They should be appointed construction site managers, and project supervisors. Education and training programmes will have to create a special quota for women as an encouragement in order to achieve these objectives.

Another major constraint on the participation of women in the construction sector is related to labour protection laws which impose statutory restrictions on the conditions of female employment. Though this is meant to be reviewed periodically in the light of scientific and technological knowledge, this is largely ignored in many countries. As a result, many protection-related occupations in the formal construction sector remain the exclusive preserve of men. Mutandwar *et al.* (2008) have advocated for the need to explore strategies that can reduce the gender burden that arises due to the conflicts between social and economic activities. They also suggested the need for re-orientation of the national housing policies so as to explicitly incorporate the specific needs of women in the construction industry.

5.1.3.4 Construction subjects regarded to be difficult and taxing

Akande (1996) challenged the Nigerian womenfolk in that their deprivation is not in men who have the right to preserve the status quo of the exclusive "men's club". Rather, it is that of women, who in spite of their culturally disadvantaged position and deprivation, still create more loopholes for exploitation. In view of this,

the onus rests on women to take their destiny in their own hands by rising to the challenge.

5.1.3.5 Difficulty in coping coupled with family responsibilities

One of the factors militating against women in the realisation of their full economic potential is the difficulty in coping with their career and family responsibilities. As had been found in the developed countries, a work-family issue was a critical issue in the experience of female engineers. The women experienced difficulty and great stress in juggling work and family issues. It is very uncomfortable for women to be pregnant while at work. They are often excluded from the site once their pregnancy becomes visible and kept off site work even years after they have had their babies (Badekale, 2003). Wickham (2001) remarked that even though women may be part of the labour force, they are not achieving their full economic potential because their specific needs and characteristics are often overlooked. The challenge of striking a balance between household chores and economic activities has been observed and as such there is a need to develop a career programme that will allow women to combine work and family life more effectively. This is in agreement with Tigges and Green's (1994) recommendation which advocated for real progress in closing the gender gap by developing programmes which will reduce their "double burden" of family and market work. This can be in the form of introducing flexible practices, childcare arrangements and career-break schemes. Lee and Choo (2001) suggested various ways of implementing flexible work schedules. For example, employees can work an eight-hour day by choosing their preferred time. But they must be in the office during specified "core" hours. They can also be given options to complete a 40-hour week in four 10-hour workdays.

5.1.3.5 Preference for other disciplines

The other factor rated high is that women preferred disciplines such as social sciences and arts. Again, this reflects the true picture of the situation in Nigerian education enrolment. Typical analysis of student enrolment in different discipline shows that we have more females in art and social sciences. Compared to other sectors, the construction sector experiences negative/low growth rates. With unfavourable growth rates, career opportunities and prospects in the construction industry are bleak. Consequently, it will lose valuable human assets to other sectors.

5.1.3.6 Poor background in science and technical subjects

Lane (1997), co-author of 'The Rising Tide' report on women in SET, submitted that engineering is a field in which women are currently catastrophically underrepresented. Studies have shown, however, that women are not driven away from technology because of a lack of ability but rather because of "an atmosphere of dominant masculinity" (Sagebiel, 2003). Lack of appropriate training of women in technical skills was noted as a major constraint that limits women's participation in construction activities. This is corroborated by Mjoli-Mncube (2005) who indicates

that the dearth of technical skills has been a major hindrance in effective participation of women in South Africa's booming construction industry. Technical training is therefore a strategy that could be used to improve women's involvement in construction.

Other factors affecting the enrolment of women in construction are a lack of awareness and religious factors. These factors were, however, rated low. This means that women should rise to the challenge confronting them rather than hiding behind the issue of religion and lack of awareness.

5.1.3.7 Difficulties faced by women enrolled in construction

Respondents were asked to indicate the seriousness of four difficulties (identified from the literature) faced by female students who are in construction-related disciplines. The degree of the seriousness of the difficulties is presented in Table 5. The main problem here is gender discrimination. This correlates with the submission by Dainty *et al.* (2000) and, lately, Lombardi, (2017) that gender discrimination and anti-women attitudes are still prevalent on worksites, despite the fact these are illegal. Several studies have shown that female construction workers suffer from gender and sexual harassment, a factor associated with low job satisfaction, psychological and physiological health symptoms, and workplace injuries. The issue of gender discrimination should be totally eradicated or discouraged in any system. As suggested by Mogbo (1999), there should be an enabling law giving equal opportunities to both males and females in the National Construction Policy. The decline in female enrolment in construction and eventual participation may be attributable to policies not favourable to them.

Table 5: Index of importance placed on difficulties faced by females enrolled in construction

Factor	* Mean Score	Rank
Gender discrimination	6.84	1
Intimidation by male counterpart	4.90	2
It's taxing and strenuous	4,56	3
Poor performance	2.14	4

** Mean score calculated from five-point Likert scale, where 1= not serious at all, and 5 = very serious.*

Another factor is the intimidation by male counterparts. This may be due to the fact that men are in the majority. These are good factors to be addressed in the promotion and enhancement of women's participation in construction. It can also be seen from Table 5 that the issue of the taxing and difficult nature of construction subjects and performance was rated low. This means that the female students can cope very well with construction subjects. If they can do well in sciences, social sciences, arts and humanities, they can also perform very well in construction or engineering if they are given an equal chance. The view that construction is taxing

and strenuous was rated low. Women should not use this as an excuse for not coming into construction. The popular adage that "what a man can do, a woman can do, even better" should be seen as a challenge by women. In the same vein, the issue of poor performance is a mere excuse and should not stop women from participating in construction.

6 CONCLUSIONS AND RECOMMENDATIONS

The trend analysis conducted on this study shows that women's enrolment over the years has been extremely low in comparison with that of men. The issue of the "lack of female role model to emulate" was revealed as the major factor affecting women's enrolment in construction education in Nigeria. The fact that women were not at the forefront and their impact or participation has not been felt in the construction sector is a major factor to be reckoned with. The issues of role models and mentorship are very important in any human endeavour. If there were more women architects, engineers, quantity surveyors, builders, and the like in top position in their respective fields, it will serve as an impetus and morale booster for increasing women's enrolment in the construction fields of study. In this regard, all forms of discrimination against women achieving the highest positions in the construction field (either in the private or public sector) should be avoided. Recently in Nigeria, female activists under the aegis of Gender and Affirmative Action (GAA) and the 100 women Group Platform have urged the Nigerian President to allocate 35 per cent of the cabinet positions to women. This is to ensure adequate representation of women in appointed positions in line with the National Gender Policy – the 35 per cent Affirmative Action of the Beijing Conference and other international instruments, to which Nigeria is a signatory. The issue of gender discrimination is also identified as one of the problems confronting the very few women in construction. The research findings point to the need to revise the Nigerian National Construction Policy in such a way that women are given special consideration due to their peculiar nature. The issue of gender discrimination against women should be completely eradicated. There is therefore the need to make a concerted effort in the enhancement of women's enrolment and eventual participation in construction.

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