



Overcoming the Barriers of Female Students Choice of Built Environment Courses

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Abstract: Many studies have examined the causes of women underrepresentation in construction, barriers to their career progression as well as impact of discrimination and harassment on women construction workers; however, only a few have explicitly examined how the barriers they encountered in their choice of built environment courses could be mitigated. This paper examines overcoming the barriers of female students' choice of built environment courses vis-à-vis determining the medium of knowledge of the built environment courses, reasons for their choice of courses and the challenges the females practising in the built environment faced in the course of their practise. Questionnaire survey was adopted with samples drawn from three different categories of respondents. A total of 298 questionnaires were self-administered to these categories of respondents, out of which 186 (62.4%) were returned. The findings reveal that increase in awareness of opportunities in construction; favourable selection and recruitment criteria as well as availability of equality in policies and procedure are the main influencing factor in career choice amongst women in the built environment profession. The study concluded that the motivating factors responsible for choice of career in the built environment are not the same for the categories of the respondents considered. It was thus recommended that aggressive enlightenment is required in secondary schools to encourage females in the choice of built environment courses which will enhance better representation of women so that the impact of women professionals in the construction industry can be extended.

Keywords: Built Environment, Women, Construction industry, Career, Nigeria

1.0 Introduction

The Nigerian construction industry is the country's second largest employer of labour after agriculture with over one million workers and women represent 49% of the country's population. In spite of this figure, the industry is male dominated and over the decades, there has been an increased concern over the adequacy of women participation and contribution to the Nigerian construction industry. In Nigeria, Construction jobs falls under the classes of economic activities where women have been underscored not to have the privilege to make a successful career (Adeyemi, Stephen, Aina and Emmanuel, 2006). Amaratunga, Haigh, Shanmugam and Elvitigala (2007) found that women face a number of challenges starting with problems in entering the construction industry, to acquiring the higher/senior position in the organization's ranking. Similarly, Paul and Michael (n.d) revealed that children in schools are not enlightened about career prospects in construction. However, this position is gradually changing in Nigerian Universities and Polytechnics as awareness level is on the rise. The same trend is noticed on construction sites and offices (Adeyemi *et al.*, 2006).

Foong-ming (2008) revealed that availability of career development prospects proves the willingness and effort of the organisations within the construction industry to cherish employees. Huselid (1995) suggested that human resource practices that work with career related practices could improve knowledge, skills and the capabilities of current and potential employees in an organization, and improves the retaining of quality employees. Career development depends on individual and

organizational achievements of professionals. Career advancement and development depend on a well-defined career path opportunity including capabilities, authorizations and accreditations (Strategic Skills Initiative, 2005). Crawford (2002) asserted that due to westernization and globalization, there has been noticeable increase in female population in the engineering and built environment profession. It is essential that women's career dynamic forces are understood in order to know how the industry can maintain its female professionals and managers, this will allow organizations to be compassionate to the decisions and problems their employees are facing (Greenhaus and Callanan, 1994). Also, Ling and Leow (2008) concluded that in order to encourage graduate women in the construction industry, it is expected that company owners/ employers should allow flexible work schedule; allow graduate women to work from home; and should be given the same prospects as their male workers.

Plethora of studies have been carried out to examine the causes of women underrepresentation in construction (Adeyemi *et al.*, 2006), barriers to their career progression as well as the impact of discrimination and harassment on women construction workers (Kolawole & Boison, 1999; Kehinde and Okoli, 2003; Ling and Poh, 2004). Agapiou (2002) reviewed the attitudes of parents, school-age girls and their educators regarding career prospects in construction, it was revealed that females (girls) showed concern in the physical nature of the work in construction and the social implication of working in a male-dominated industry among other factors. However, many of these studies that examined career decision factors are within the

developed countries context and this is evident in the review of literature presented by previous researchers (Dainty *et al.*, 2004a, b; Fielden *et al.*, 2001; Gale, 1994; Ling and Poh, 2004); the review indicates that gender related research has mostly been conducted in developed countries. One of the researches within the African context, in particular Nigeria, explored the under-representation of women in construction (Adeyemi *et al.*, 2006).

Adeyemi *et al.* (2006) observed that research into women's participation in the Nigerian construction industry is scant. The purpose of the study is to investigate who motivated the women to choose her career and to analyse the motivational factors encouraging and discouraging women in Nigeria to choose a professional career in the built environment profession through identifying the barriers they encounter and the needs they express for improving their career path. Ginige, Amaratunga and Richard (2007) revealed that today's building and construction industry is facing a serious problem of skill shortage and has not been able to attract young women pursuing careers in the industry. This resonates the assertion made by Adeyemi *et al.* (2006) that opined that research into women's participation in the Nigerian construction industry is limited. Against this background, this paper:

1. Determines the medium of knowledge of built environment courses by both the female secondary school students and the female students studying the built environment courses
2. Assess the factors that influence women in choosing career prospect in construction and

3. Examine challenges encountered by women practising in the built environment profession.

Increasing women representation in the construction workforce is a reliable solution for fulfilling the skill gap.

2.0 Literature Review

The image of the construction industry which makes women uninterested in the industry is compounded by a general lack of information and knowledge about the industry, its career prospects and qualifications that are required (Fielden *et al.*, 2000). The Construction Industry Training Board (CITB) (2003) revealed that parents, educators and school pupils believe that construction industry jobs were limited to joinery, bricklaying, decorating and painting. Also, educators, parents, career counsellors and school undergraduates have insufficient information about the industry. Careers educators and career counsellors provide inaccurate and inadequate information on the construction industry to school undergraduates, graduates and school children. Due to wide range of courses and different career paths, professionals' careers counsellors find the subject for construction confusing (Gale, 1994). However, progress is made among graduate and undergraduate students, in respect to professional studies such as architecture and engineering, the construction industry career opportunity is not satisfactory when compared with other options (Harris, 1989). This is because career choices of girls and encouragement to go into construction occupations, is highly influenced by their teachers, family and friends (Agapiou, 2002). The decision to choose a career in the industry should be made earlier at schools' level

particularly for those who plan to be professionals in the industry.

The more students of both sexes know about the construction industry the more they become interested and likely select a career in the construction industry. School students considering a degree in construction found that, career opportunities in construction, higher education routes to professional status and knowledge of the nature of construction industry professional occupations are extremely important. Hence, careers about construction industry must be spread to school female students (Gale, 1994). Brown (2002) asserted that career choice is the process of selecting a career based on estimation of one's capability, values, and prerequisite skills in creating success in a given profession. It has to do with how the mental image of an individual is prepared and developed. According to Borchert (2002), one of the choices to be made by students is career selection that will have far reaching implications for their future plans. This decision will impact them throughout their lives. The essence of who the student is will revolve around what the student wants to do with their life-long work. The view that students have of the world is dependent on their past history. That history created, in part by the student's environment, personality, and opportunity, will determine how students make career choices. It then follows that how the student perceives their environment, personality, and opportunity also will determine the career choices students make.

Dainty, Neale and Bagilhole (1999) stated that female entrants to the construction industry were not likely to have been due to the advice to join the

industry by friends and family or by guidance teachers, or to have been advised by same-sex role models with experience of working in construction but most likely literature read targeted at attracting them to the industry. Madikizela (2008) concluded that the predominating factors influencing their career choice were salary, working conditions, opportunities for promotion and lifelong learning.

Determinants of women choice of career prospect in construction

The workplace/ environment: Women choose a career in the construction industry if the work environment provides good working conditions, a sense of responsibility and is challenging. There has to be variety and pleasant atmosphere with the prospect of continuous steady employment, bringing along a sense of security (Warren, 2003). Many women are drawn to the varied nature of construction. The day to day tasks is different; the spectrum of colleagues varies from labourers to engineers to owners. The circumstances change quickly, requiring flexibility and responsiveness. Some women are drawn to the challenge of specifically entering a field seen as non-traditional for woman (Warren, 2003). Johnson (2003) stated that in recent years, men have become far more accepting of women in the construction industry, yet for some women; it remains an uninviting and at times downright hostile environment. The excitement of choosing the career is clouded by the reality of the circumstances. Some women stated that male company owners frequently funnel subcontracts to their male pals, yet Donnell (cited in Johnson, 2003) stressed that a larger number of women are supervising construction sites and many of the project managers are now

women. This confirms the indication that in the last ten years the views of tolerating women in the construction industry have changed significantly.

Financial benefits: Women who choose construction career found that the work, in addition to giving them a better life financially, matched their background, their interests, personalities and talents. The women felt that money translated into economic freedom, translates into status (Ferguson, 1994). The ability to receive a substantial remuneration package is very important to the women and motivates them to choose their career (Bon, 1992). In the 1980's, when jobs were difficult to get according to Rosen (1987), (cited in Ricki 2007) the most ironic and most upsetting factor then was that the wage declines and the demise of jobs in USA occurred just at the point when large numbers of married women with children needed and wanted well-paid construction industry employment. In Nigeria, with the increase in the level of patronage by both the private and the public sectors of construction activities, there should be awareness that women must ensure they qualify themselves for employment even in difficult times within the construction industry. If they are qualified professionals, the expectation is there to receive a substantial remuneration.

Balancing work, with family and career: Working with people for most women is an attractive and strong motivational factor for choosing a career and results in job satisfaction. A woman wants good managers and colleagues to work with and prefers teamwork. The women want to feel they provide a service and have contact with the public (English, 2006). Balancing job and family responsibilities proved

the most important criteria and consideration when attracting women to the profession. Outside forces such as the need to take care of themselves and their children are very important to women. Women often make their choices with their family circumstances and responsibilities in mind (Fearful & Kamenou, 2006).

Level of satisfaction initiated in a construction industry career: Women found a sense of freedom following a career in the construction industry. "I am left alone to do my job all day". They found their job nice and creative and stated it was fun putting a building together. The women also felt a sense of accomplishment and chose their careers because they loved it (Ferguson, 1994).

Characteristics/features needed: It can be said that a job description writes its own profile of a suitable candidate. In choosing characteristics needed for success in the construction industry, both female and male indicated the same four criteria as most important: negotiating skill, patience, professionalism, and self-confidence (Bon, 1992). Qualities seen as the 'natural aptitudes' of women (customer care, communication, catering for peoples domestic and personal needs) are becoming more valued in the industry, this is especially true in managerial level. Women who want a challenge and are motivated to do something different choose a career in engineering and the construction industry (Ferguson, 1994).

3.0 Research Methodology

Data were collected using 3 different sets of structured questionnaires; these were self-administered to Senior Secondary School Three (SS3) students of a Senior Secondary School in Minna, 2013/2014 academic session 500 level

students of the Departments of Architecture, Building, Civil Engineering, Quantity Surveying and Surveying and Geo-informatics of a Federal University in Niger State, and Women Professionals that were employed by 52 construction firms in the Federal Capital Territory, Abuja. Out of the three data sets, only the respondents in the secondary school were randomly sampled by chosen 50% of the total population of 362 while the total population of the remaining two data sets were used (43 from the Federal University and 93 from the female professionals in Abuja). The conclusion about overcoming the barriers of female students' choice of built environment courses have been previously generalised to include secondary

schools' students, undergraduate and professionals, this study argues that both undergraduate and professionals basically have different motivating factors compared with secondary schools. The questionnaires were in two sections, the first section covers the profile information of the respondents while the second section covers the general information needed to know how the respondents came about the knowledge of the built environment courses, reasons for the choice of the courses and the challenges confronting the female professionals in practice. A total of 298 questionnaires were administered and only 186 were returned as shown in Table 1. The returned questionnaires were analysed using descriptive statistics.

Table 1: Response rate

Study Area	Number of questionnaires administered	Number returned	Response rate (%)
Science Secondary School (high school)	162	101	62.3
2013/2014 500 level students of Departments of Architecture, Building, Civil Engineering, Quantity Surveying and Surveying and Geo-informatics of a Federal University of Technology	43	29	67.4
Professional women in selected construction firms in Abuja	93	56	60.2
Total	298	186	62.4

4.0 Data analysis and discussion

This study x-rayed the perceptions of three different categories of respondents on the influence of career choice on women or females in the built environment. The argument presented here is grounded on the assertion of del Puerto (2011) who contended that the

motivational factors for female career in the built environment are not the same for secondary school, undergraduate students and women professionals. This section thus presents the results of the data and discussion of findings.

Analyses of responses of the secondary school students

Table 2 showed the results of the survey conducted among the secondary school students to investigate how the female students have the knowledge of courses in the built environment, out of which

37.6% of the students have heard about Architecture, 19.8% have heard about Building and Civil Engineering, 20.7% have heard about Quantity Surveying and only 1.98% have heard about Surveying and Geo-informatics.

Table 2: Knowledge of course

Courses	Frequency	Per cent
Architecture	38	37.6
Building	20	19.8
Civil Engineering	21	20.7
Quantity surveying	20	19.8
Surveying and geo-informatics	2	1.98
Total	101	100

When the medium of the knowledge of courses was examined as indicated in Table 3, 37.6% of the SS3 students heard about Architecture from their class mates, teachers, and from the internet. 19.8% heard about Building and Quantity Surveying from class mates, family, friends and teachers. 20.7% heard about Civil Engineering from teachers, internet, class mates and newspapers. Only 1.98% heard about

Surveying and Geo-informatics from their class teachers. This result is in line with the findings of Courts and Moralee’s (1995) who investigated issues relating to gender in the built environment professions and reported that family and friends are the most factors that influence career decisions amongst female in the building profession. This is an indication that 20 years on, the situation remains the same.

Table 3: Medium of knowledge of courses

Response	Frequency	per cent	rank
Architecture (Class mates, teachers, internet)	38	37.6	1
Building (Newspaper, teachers, My family)	20	19.8	3
Civil Engineering (internet, newspaper, mates in school, teachers)	21	20.7	2
Quantity surveying (family, friends, teachers)	20	19.8	3
Surveying and Geo-informatics (teachers)	2	1.98	5
Total	101	100	

The study investigated the drivers or motivating factors that influence the choice of career of the high school students in the built environment. From Table 4, 39.6% of the final year girls chose the course because they like it,

23.8% of them chose their courses because of career advice, 19.8%, 14.9% chose their career because of their teacher's advice and what their parents wanted respectively. 1.98% chose their career due to peer pressure.

Table 4: Reasons to study the above courses

Reasons		
Peer pressure		
Teacher's advice		
Career counsellor's guide	24	23.8
Parents' decisions	5	14.9
passion	40	39.6
Total	101	

Analyses of responses of female students' studying in the built environment

The respondents in the second category were the final year undergraduate students in the university studying one of the built environment courses. Table 5 showed the analysis of the responses of 500 level female students of Departments of Architecture, Building,

Civil Engineering, Quantity Surveying and Surveying and Geo-informatics of the University. From Table 5, 31.0% are in the Department of Architecture, 24.1% are in Civil Engineering, 20.1% are in Quantity Surveying Department, 13.8% are in Building Department and 10.3% are in the Department of Surveying and Geo-informatics.

Table 5: Taxonomy of Department

Department	Frequency	Per cent
Architecture	9	31.0
Building	4	13.8
Civil Engineering	7	24.1
Quantity surveying	6	20.1
Surveying and geo-informatics	3	10.3
Total	29	100

The study considered it essential to investigate the proposed course of study of the female students studying any of the built environment courses prior to the examination of their motivating factor in choosing career in the area. From Table 6, 31.0% chose

Architecture, 24.1% chose career in Civil Engineering, while 20.7%, 13.8%, 10.3% chose career prospects in Quantity Surveying, Building, Surveying and Geo-informatics respectively.

Table 6: Proposed course of study

course	frequency	per cent
Architecture	9	31.0
Building	4	13.8
Civil Engineering	7	24.1
Quantity surveying	6	20.7
Surveying and Geo-informatics	3	10.3
Total	29	100

Assessing the medium of knowledge of courses in the built environment revealed that 27.6% of the students knew about their courses from their parents and relatives, 20.7% knew about their courses through career counselling and class teachers, 17.2% knew about their courses from the internet/newspapers and 10.3% knew about their courses from friends and

classmates as shown in Table 7. The findings from the survey is partially in tune with the assertion of Clark and Schroth (2009) who investigated academic motivation in undergraduate students and concluded that undergraduates attended college to fulfil the expectation from their families and society.

Table 7: Medium of knowledge about the courses

Medium	Frequency	Per cent
Career counselling/advice	6	20.7
From parents and relatives	8	27.6
From class teacher	6	20.7
From friends/classmates	3	10.3
From internet/Newspapers	5	17.2
Total	29	100

Table 8 indicated what drives the choice of the university's students in choosing career in the built environment. The table showed that 51.7% respondents aspire to become professionals and help

to achieve sustainable change, 27.6% have passion for design and construction and 20.7% chose the courses because of pride in professional title like Architect, Engineer.

Table 8: Factors that motivated them to study the courses

Factors	Frequency	Per cent
To help achieve sustainable change in Construction industry.	15	51.7
Pride in professions title like Architect, Engineer etc.	6	20.7
Passion for design and construction	8	27.6
Total	29	100

Based on the argument presented in this paper that the experience as well as motivation among the respondents may be different, the study examines the likely challenges that often prevent female in the built environment from practising their professions after acquiring the knowledge. Thomas and Galambos (2004) and Sanusi (2007) provided the evidence that supported the argument presented here by affirming

that academic experience is the factor that has the strongest influence on choice of undergraduate student's career prospect. Table 9 showed that 27.5% of female students view construction as men's work, 31% considered construction as hard and a dirty job for women, 17.24% believed working in the built environment may likely affect their duties as women while 24.1 are scared of competing in "men's world".

Table 9: Reasons for not practicing construction professions

Response	Frequency	Per cent
Construction is seen as men’s work	8	27.5
It’s a hard and a dirty job for women	9	31.0
It may affect my duties as a woman	5	17.24
Fear of competing with male counterparts	7	24.1
Total	29	100

Analyses of responses of Professional women in 52 selected construction firms in Federal Capital Territory (FCT), Abuja

The third category of respondents were 93 women construction professionals found in the 52 selected construction firms in FCT Abuja. This category of respondents was selected because it was believed that the respondents have

better understanding of the involvement of women in construction and related jobs. From Table 10, 28.6% of the professional women are civil engineers, 26.8% are architects, 23.2%, 14.3%, 7.14% are quantity surveyors, builders and surveyors respectively. Of the 56 professional women in the selected firms, 33 are registered professionals with their respective registration bodies.

Table 10: Profession of respondents

Profession	Frequency	Per cent
Architecture	15	26.8
Building	8	14.3
Civil Engineering	16	28.6
Quantity surveying	13	23.2
Surveying and Geo-informatics	4	7.14
Total	56	100

Table 11 showed that 60.7% of the women liked construction as a job, 21.4% were there because of their

friends and parents and 17.6% were in the industry because of career counseling and teacher’s advice.

Table 11: Cause of motivation

Motivation	Frequency	Per cent
Passion for built environment profession	34	60.7
Career counsellor/teacher’s advice	10	17.6
Parents/friends	12	21.4
Total	56	100

From Table 12, 14.30% of the women have the fear of going into competitions with their male counterpart, 35.7%, feel they were underrated and harassed on

sites and 50.0% lacked enough confidence to lead and control because they were regarded as the weaker sex.

Table 12: Challenges in a male dominated work place

Challenges	Frequency	Per cent
Fear of competing with male counterpart	8	14.30
Women are under rated and harassed on site	20	35.7
Lack enough confidence to lead and control because they are seen as weaker sex	28	50.0
Total	56	100

Issues affecting the participation of women in the built environment profession

From Table 13, the mean score of 4.96 amounting to 87.1% relative to working against gender stereotypes and expansion of domestic labour pool deemed to be of very high extent and ranked 1st. The mean score of 3.68 amounting to 85.2 % shows that the help to increase the mobility of workers is also high extent and ranked 5th. The analysis of promoting industry careers by improving the image of industry has a mean score of 4.92, amounting to 85.2%, and the development of a highly skilled workforce that will support the future needs of the country has a mean score of 4.96, amounting to 85.2% are of very high extent. Preparing women to be more fully equipped to succeed in

gender segregated construction workplaces has a mean score of 4.89 and ranked 3rd, amounting to 81.5% is of very high extent. Help in boosting women and creating educational and career pathways for young and older women in the society has a mean score of 2.21, amounting to 63.0% is of low extent. Promoting female role models to encourage younger workers, has a mean score of 3.64 amounting to 63.0% is of high extent. Developing female-friendly workplaces and better inter-personal skills has a mean score of 1.21, amounting to 66.7% is of very low extent. The analysis showed that most of the issues raised are of high extent for the participation of women professionals in the construction industry.

Table 13: Reasons for the participation of women in the built environment profession

Issues	Mean Score	Standard Deviation	Factor Ranking
Help to tackle a number of human resource challenges		0.799	6 th
Help to increase the mobility of workers.		0.746	5 th
Help to cope with an aging Workforce.		0.883	8 th
Promotes industry careers by improving the image of the industry		0.403	2 nd
Help in working against gender stereotypes		0.402	1 st

Help in the development of skilled workforce that will support the future needs of the country	0.346	3 rd
Help in the career development	0.799	1 st
Prepare women to be more fully equipped in gender segregated workplaces	0.402	3 rd
Help in boosting women and creating educational pathways.	0.883	8 th
Promote female role models to encourage younger workers	0.799	6 th
Develop female friendly workplaces and better inter-personal skills.	0.983	10 th

5.0 Discussion of results

This study x-rayed the perceptions of four different categories of respondents on the influence of career choice on women or female in the built environment. The study's argument is grounded on the assertion of del Puerto (2011) who contended that the motivational factors for female career in the built environment are not the same for secondary school, undergraduate students and women professionals. The study revealed that most of the secondary schools' students considered were motivated to choose career in the built environment by their teachers and career counselors in their respective schools. Also, the university students studied gained knowledge about career in the built environment through parents, friends and career counselor's guide, while professionals posited that they were motivated by passion they have for the construction industry. This is in line with the assertion of Court and Moralee's (1995) that family and friends influence female students on whether to enter the construction industry or not. However, Maringe (2006) reported that male students consider parents, teachers

and career guidance as relatively unimportant to their decision making in respect of career in the built environment compared to their female counterparts. The findings also indicated that work in the built environment is seen as men's work and it's a hard and a dirty job for women as it tends to affect their roles in the house. This finding is analogous to the results that has been reported by previous researchers that the poor image of the industry, which is typically portrayed as promoting adversarial business relationships, poor working practices are among other factors that often discourage women participation in construction (Dainty *et al.*, 2000; Fielden *et al.*, 2000; Agapiou, 2002). However, Ling and Leow (2008) concluded that in order to retain graduate women in the construction industry, it is recommended that employers should introduce flexible work schedule; allow graduate women to work from home; and give them the same opportunities as their male counterparts. In examining the challenges faced by women that chose career in the built environment, this

study showed that women are seen as a weaker vessel in a male dominated industry and harassed on construction sites. This is in line with Amaratunga *et al.* (2006) who asserted that construction is a male dominated industry which indicates a significant barrier to female recruitment (entry), career progression (development) and retention. This also supports Vinnicombe and Singh (2002) who contended that senior women are rare in many male dominated companies such as construction, so that many women managers have few role models.

The respondents most especially the professionals ranked the ability of the industry in helping female workers against gender stereotypes; possibility of career development; and the development of skilled workforce that will support the future needs of the country as the reasons for choosing career in the built environment. The reasons advanced by the professionals were in tandem with the observation of Fisher (2007), who contended that more than ever, the construction industry offers women tremendous opportunities for employment, entrepreneurship and financial security, but women/female professionals represent a huge untapped resource for an industry begging for skilled labour and talented professionals. The issue regarding the lack of female professionals in the construction industry has become more prominent recently, attracting government and industry wide attention due to the skill shortage facing the industry. Parker and Skitmore (2005) also posited that continued career development is paramount to a job satisfaction and reduced job turnover regardless of experience level. However, Gurjao (2006) noted that

translating qualifications into employment seems to be the biggest barrier to entry in the construction sector most especially by women who are being referred to as weaker gender.

6.0 Conclusion

This paper explores overcoming barriers for female students' choice in built environment courses. Quantitative research approach was employed to sample the perceptions of females in high school, university and those in practice to achieve the objectives of the research. The study argued that the motivating factors responsible for choice of career in the built environment cannot be the same for the categories of the respondents considered. In spite of the similarities in the significance of the career choice determinants associated with the secondary school students, university and professionals in the construction industry, female decision-making process such as opportunities for promotion or career advancements and life learning opportunities, were considered more important by the professionals. Whereas the source of motivation for secondary school students as well as university females revolves around teachers, parental guidance as well as peer pressure or career counselor.

The findings reported in this study in terms of challenges faced by women in the built environment is not entirely different from what have been found by previous researchers in the construction industry. However, the research findings just like the previously reported researches identified that one of the key implications of the findings presented in this paper is the barriers of uncovering ways of drawing younger people both male and female in secondary schools into the construction industry due to its

unattractive nature for younger people especially women. Therefore, aggressive enlightenment is advocated

especially for females in order to increase their participation in the construction industry.

References

- Adeyemi, A.Y. Stephen, O.O. Aino. J and Emanuel, O (2006). Empirical evidence of women under-representation in the construction industry in Nigeria. *Women in Management Review*, 21(7), 567-577.
- Agapiou, A. (2002). Perceptions of gender roles and attitude towards work among male and female operatives in the Scottish construction industry. *Construction Management and Economics*, 20(8), 697-705.
- Amaratunga, R. D. G, Haigh, R. P., Shanmugam, M., Lee, A. J. and Elvitigalage, D. (2007) construction industry and women: a review of the barriers, in: *3rd International SCRI Research Symposium*, Delft University, Netherlands.
- Bon, R. and Hughes, W. (1992). Managing the ability gap. *Construction Management and Economics*, 10(4), 48-50.
- Borchert, M. (2002). Career choice factors of high school students. Unpublished MSc thesis submitted to the Graduate College, University of Wisconsin-Stout, Canada
- Brown, D. (2002). The Role of Work and Cultural Values in Occupational Choice, Satisfaction, and Success: A Theoretical Statement. *Journal of Counselling and Development*, 80, 48-56
- Clark, M. H. & Schroth, C. A. (2009). Examining relationships between academic motivation and personality among college students. *Learning and Individual Differences*, 20(1), 19-24.
- Construction Industry Training Board (2003). Construction skills foresight report http://www.citb.co.uk/pdf/research/skills_foresight_2003.pdf Retrieved on February 14 2013.
- Crawford, J. K. (2002). *A guide to improving organization performance*. New York: Marcel Dekker, Inc.
- Court, G. and Moralee, J. (1995) *Balancing the Building Team-Gender Issues in the Building Professions*, The Institute for Employment Studies, Report 284.
- Dainty, A.R.J., Neale, R.H., Bagilhole, B.M. (1999). Women's careers in large construction companies: expectations unfulfilled? *Career Development International*, 4(7), 353-357
- Dainty, A.R.J., Bagilhole, B.M. and Neale, R.H. (2000). A grounded theory of women's career underachievement in large UK construction companies. *Construction Management and Economics*, 18(2), 239-50.
- Dainty, A.R.J., Ison, S.G. and Root, D.S. (2004a). Bridging the skills gap: a regionally driven strategy for resolving the construction labour market crisis, *Engineering, Construction and Architectural Management*, 11(4), 275-283.

- Dainty, A.R.J., Bagilhole, B.M., Ansari, K.H. and Jackson, J. (2004b). Creating equality in the construction industry: an agenda for change for women and ethnic minorities. *Journal of Construction Research*, 5(1), 75-86.
- English, J. (2006). Keynote Address, Women in Construction: Lessons to be learned for South Africa. Paper read at the First Built Environment Conference in Johannesburg- South Africa.
- Fearfull, A and Kamenou, N. (2006). How do you account for it? A critical exploration of career opportunities for and experiences of ethnic minority women. *Critical Perspectives on Accounting Journal*, 17,883-901.
- Ferguson, T.C and Sharples, M. (1994). *Blue collar women: trailblazing women take on men-only jobs*. New Jersey: New Horizon Press.
- Fielden, S. Davidson, M. Gale, A and Davey, C. (2000). Women in construction: the untapped resource. *Construction Management and Economics*, 18, 113 – 121.
- Fielden, S.L., Davidson, M.J., Gale, A., and Davey, C.L. (2001) Women, equality and construction. *Journal of Management Development*, 20(4), 293-304.
- Fisher, C. (2007). Women: construction untapped resource. <http://www.acppubs.com/article/CA6469834.html> Retrieved on July 2 2013
- Foong-ming, T. (2008). *Linking career development practices to turnover intention: The mediator of perceived organizational support*. 17, 87-89
- Gale, A.W. (1994), “Women in non-traditional occupations: the construction industry”, *Women in Management Review*, 9(2), 3-14.
- Ginige, K. Amaratunga, D. and Haigh, R. (2007). Gender stereotypes: A barrier for career development of women in construction. Built Environment Education Conference, University of Salford.
- Greenhaus, J.H. and Callanan, G.A. (1994). *Encouraging more female Quantity Ssurveyors; Career Management*, (2nd Ed). Orlando: The Dryden Press.
- Gurjao, S. (2006). Inclusivity: The changing role of women in the construction workforce. . *African Journal of Business Management*, 5(16), 6717-6726.
- Harris Research Centre (1989) *Report on Survey of Undergraduates and Sixth Formers*, Construction Industry Training Board, King’s Lynn.
- Huselid, M. A. (1995). “The impact of human resource management practices on turnover productivity and corporate financial performance”, *Journal of Academy of Management*, 38, 635 —672.
- Johnson, S. (2003). Women hammering away in the construction industry. *The Mercury News*, 01 September:1.
- Kehinde, J. O. and Okoli, O.G. (2004). Professional Women and Career Impediments in the Construction Industry in Nigeria. *Journal of Professional Issues in Engineering Education and Practice*, 130(2), 115-119.
- Kolawole, J.O. and Boison, K.B. (1999). Women in construction:

- A case study of Nigeria. *Nigerian Journal of Tropical Engineering*, 1(1), 49-58.
- Ling, Y. F., and Leow, L. (2008). Enabling knowledge flow: Retaining graduate women in the Singapore construction industry. *Journal of Construction in Developing Countries*, 13(2), 65-81.
- Ling, F.Y.Y. and Poh, Y.P. (2004) Encouraging more female quantity surveying graduates to enter the construction industry in Singapore. *Women in Management Review*, 19(8), 431-436.
- Madikizela, K. (2008). An analysis of the factors influencing the choices of careers in construction by south African women. Unpublished MTech thesis submitted to Cape Peninsula University of Technology, Cape Town, South Africa
- Maringe, F. (2006) University and course choice: Implications for positioning, recruitment and marketing, *International Journal of Educational Management*, 20(6), 466-479.
- Paul, W. C and Michael, C. (n.d). The role of schools careers advisers in encouraging new entrants into construction. *School of the Built Environment*, Northumbria University, Ellison Building, Ellison Place, Newcastle upon Tyne, NE1 8ST, UK.
- del Puerto, C. L. (2011). The Influence of the Built Environment on Graduate Student Perceptions of Graduate School Experience. *Journal for Education in the Built Environment*, 6(2), 79-92.
- Ricki, G. (2007). Women in professional and leadership positions in the construction industry in South Africa. Unpublished Masters of Technology, Faculty of Engineering Tshwane University of Technology, South Africa.
- Sanusi, J. O. (2007). An exploratory study of undergraduate classroom experiences and occupational attainment in alumni satisfaction with university experiences. Unpublished PhD thesis, University of Missouri, Columbia.
- Strategic Skill Initiative (2005). Selecting the critical occupations and skill sets. www.indiana.edu/ssi/guide Retrieved on July 25 2013.
- Vinnicombe, S. and Singh, V. (2002). Sex role stereotyping and requisites of successful top managers. *Women in Management Review*, 17(3/4), 120-130.
- Warren, D. (2003). Construction fastest growing industry for women. *Charleston Regional Business Journal* Available at: <http://www.charlestonbusiness.com/issues/62/news/2755-1.html>>. Retrieved on 23 January 2013