



Assessment of Skills and Competencies Offered By Built Environment Graduates in Construction Firms in Abuja

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Abstract

This study assessed the skills and competencies offered by built-environment graduates in construction firms in Abuja with the view of bridging the gap between academic knowledge and professional practice. Data was collected from 159 construction companies listed in the Abuja business directory using structured questionnaires with a response rate of 91.8%. A random sampling technique was adopted for the study. The analysis of the data was carried out with the use of percentage and mean item score. The study identified 10 drivers of the development of skills and competencies for built environment graduates in the construction firms in Abuja, of which individual resources are the most significant. Findings from the study also revealed that financial difficulty and rapid technology advancement are the most significant barriers to the development of skills and competencies for built environment graduates, while verbal and written communication (basic skills) and entrepreneurial and managerial competencies are also significant barriers. It was, however, concluded that the skills and competencies of built-environment graduates in construction firms in Abuja can significantly bridge the gap between academic knowledge and professional practise and enhance their level of employability, provided certain strategies are effectively implemented.

Major recommendations from the study were that academic institutions offering built environment courses should ensure that their curriculums are relevant with respect to industrial needs; graduates need to change their attitudes and personalities to be competitive; and the government must be committed to assisting with employability skills training.

Keywords: *Built Environment, Construction Firms, Competencies, Graduates, Skills.*

Introduction

The construction industry is widely regarded as a job creator on a global scale. The construction industry in Nigeria employs about 25% of the country's workforce along its value chain, making it the second-largest employer of labour after agriculture (NBS, 2015). In the first quarter of 2019, it also contributed 4.09% to real Gross Domestic Product (GDP) and about 70% of fixed capital formation (NBS, 2019). Despite the large employment potential and the contribution of the construction industry to national growth, Nigerian professionals working in the built environment face challenges in finding work (Bolaji, 2020). Recent official data on youth (age 15–35) unemployment in Nigeria shows that 29.7% of the youth are unemployed, and a further 25.7% are underemployed (working less than 40 hours a week). This comes to 55.4%

(CNBC Africa, 2019; Mailafia, 2020). The built environment refers to the man-made environment and includes both the buildings in which people spend their time (homes, schools, workplaces, factories, etc.) and their supporting infrastructure (Bolaji, 2020). The Built Environment Professions (BEPs) comprise several specialised disciplines in a bid to meet the changing needs of clients and cope with the complexities of modern construction (Bolaji, 2020). Professionals in the built environment include Estate Surveyors and Valuers, Land Surveyors, Civil/Structural Engineers, Builders, Mechanical and Electrical (M/E) Engineers, Town Planners, Architects, and Quantity Surveyors. Currently, there are 100 tertiary institutions producing thousands of built-environment professionals annually for the nation's construction industry. This is made up

of 47 universities and 53 polytechnics and a total of 502 approved academic programmes in the built environment in Nigeria (Bolaji, 2020; Joint Admission and Matriculation Board, 2019).

In order to excel in today's diverse and competitive industry, Eldeen et al. (2018) established that employers in various countries, including the USA, Ireland, South Africa, and Australia, among others, expect graduates to possess skills other than mere subject knowledge. Saad and Majid (2014) blamed the educational system and practises in developing countries that focus on theoretical concepts rather than practical learning for the unemployment challenges, thereby reducing graduates' chances of meeting the demands of their employers. Also, Ahn et al. (2012) noted that in addition to a solid technological foundation in construction skills, graduates of built-environment courses must also learn competencies such as teamwork, communication, innovation, and problem-solving skills. Employers demand a workforce with specific competences and personal talents in addition to strong academic credentials (Ogundele and Kayode, 2013). As a result, it is critical that graduates learn practical skills that will help them excel in the construction industry. Various studies have determined the relevant skills and competencies required of graduates in various built-environment disciplines across the globe from the perspectives of both graduates and professionals, with the goal of transforming graduates into confident, aggressive, and purposeful individuals to bridge the gap between unemployment and job creation (Ahn et al., 2012; Moreno et al., 2012).

Most of the current studies in Nigeria and elsewhere looked at competencies from the viewpoint of employers, and some of them reported similar skills emphasised by employers and experienced professionals in the built environment, with a few of them reporting some discrepancies that could be explained by environmental factors (Acheampong, 2013; Maina, 2018; Maina and Daful, 2017). In the current literature, the perspectives of students and graduates, which can improve the consistency and balance of approaches to improving the situation, have been largely ignored. It is within this perspective that this research will assess the skills and competencies offered by built-environment graduates in construction firms in Abuja.

The following objectives were formulated:

- i. To examine the drivers of the development of skills and competencies for built environment graduates in construction firms in Abuja.

- ii. To examine the barriers to the development of skills and competencies for built environment graduates in construction firms in Abuja.

LITERATURE REVIEW

Drivers of the Development of Skills and Competencies for Built Environment Graduates in Construction Firms in Abuja

In order to better understand the questions surrounding employability, it is essential to examine its drivers.

1. Situational factors

The first important group of antecedents contains the situational factors. In a general way, situational factors constitute one part in the formation of the perception of a situation. The employability literature identifies three major categories of such situational factors: labour market structure, labour market opportunities, and organisational factors.

2. Labour market structure

In terms of situational factors, it could be argued that the structure of the labour market is one of the most fundamental determinants of employability. If there were no jobs, it would be difficult for people to assess themselves as employable. Indeed, the total number of available jobs, as well as the percentages of part-time and full-time jobs and the percentages of temporary and permanent jobs available are examples of the structure-related factors within local and global labour markets that can affect individual's employability.

3. Labour market opportunities

However, it is not only the general supply of jobs that is of interest when discussing the situational factors that may affect employability. Several authors talk about a segmented labour market, where people in different segments have different opportunities. One such view concerns the dual labour market, where the labour market is seen as being divided into two segments, a primary and a secondary (von Hauffe *et al.*, 2015). Employees in the primary segment are characterised as having “high wages, good working conditions, employment stability, chances of advancement and equity” (von Hauffe *et al.*, 2015) whereas those individuals in the secondary segment could be described as having “low wages and fringe benefits, poor working conditions, high labour turnover, and

little chance of advancement” (von Hauffe *et al.*, 2015). It is suggested that the secondary segment employees may be stigmatised, since it is difficult to advance from the secondary to the primary segment (von Hauffe *et al.*, 2015). Similar to this is a theory by Atkinson (1984) which divides the labour market into a core section and a periphery section. Here, the core labour force is considered to be those with permanent contracts and good working conditions, while the peripheral labour force consists of the temporary workers, who have more instable working conditions (Atkinson, 1984). Studies have pointed out the significance of labour market positions for broader career opportunities (Pinto, 2018). People holding a job close to the core of the labour market – the primary segment as it is referred to in the dual labour market theory – have better opportunities of gaining employment than those individuals positioned in the secondary or periphery segment (von Hauffe *et al.*, 2015).

4. Organisational factors

Organisational factors are another type of situational factor that is held to be important for employability. These factors comprise what organisations do to make it easier for their employees to be employable, including the factors surrounding employees’ entering and exiting of an organisation. The standards that companies apply when hiring people can influence how difficult or easy it is for a job applicant to enter the organisation. Once employed, certain factors may either encourage or hinder people’s attempts to enhance their employability.

5. Individual resources

Even though situational factors are found important in the formation of the perception of employability, a number of individual factors are also viewed as important in the framework of perceiving situations. Hence, different individuals who are in the same situation may interpret their possibilities of getting new employment differently (Moolman *et al.*, 2014, Ali *et al.*, 2019). Accordingly, the same reasoning could be applied to the perception of employability. Thus, knowledge and skills, social capital, abilities and person-specific factors, demographics and dispositions have all been considered to be antecedents of perceived employability.

6. Knowledge and skills

In the literature, the most commonly referred to individual resources that are of importance for employability are knowledge and skills. Those individuals who have a higher formal education as well as a range of generic skills and labour market experience are supposed to have a better possibility of getting new employment. In the literature, knowledge and skills is a collective term that covers a wide range. For example, Prikshat *et al.* (2019) maintain that employability assets include knowledge, skills and attitudes, and they distinguish between three types of assets. The first, baseline assets, refers to one's basic skills and attributes, such as integrity, while intermediate assets encompasses two kinds of occupational skills: those which are connected to the specific occupation, and generic skills, which are more general in nature. Finally, they argue that all individuals possess high level assets, which is the kind of knowledge that contributes to organisational success, such as team working and self-managing.

7. Social capital

In addition to knowledge and skills, social capital has also been regarded as important for an individual's ability to find employment. Social capital consists of a social structure that is productive in the sense that it facilitates the possibilities of undertaking certain actions that otherwise would not have been possible (Pinto, 2018). In other words, social capital is an individual resource consisting of those contacts that are of value when finding employment. The social structure carries with it norms, trust, knowledge, relationships and nodes to other people and this structure forms an available network that is useful when searching for jobs (Pais-Montes *et al.*, 2019, Asonitous *et al.*, 2019).

8. Attitudes

A third large group of individual-oriented factors that may affect employability are the attitudes of the individual. In a general way, attitudes are supposed to be crucial in the determination of individuals' behaviour (Lianes *et al.*, 2019). However, attitudes refers to a group of factors that comprise many different types. In the context of employability, it is typically argued that attitudes towards work and how people approach their job seeking are vital aspects in the formation of employability.

9. Demographics

A group of determinants that are worth noting as individual factors, although they are not as easy to affect, are demographics factors. Age and gender are, in the literature, considered to have an influence on employability. In some studies, men are found to have better options in the labour market, and are therefore viewed as more employable (McQuaid and Lindsay, 2005). Moreover, it has also been argued that the development of the labour market has gone in a direction that favours men's possibilities of finding employment (Van der Heijde and Van der Heijden, 2005). Concerning age, studies have found that older individuals have more difficulties than their younger counterparts in regard to finding employment (Van der Heijde and Van der Heijden, 2005).

10. Dispositions

Finally, a group of factors that should also be mentioned in this section are the dispositional factors. Several interactionist theories include the dispositions of neuroticism, affectivity, locus of control, self-esteem, and self-efficacy in their models of what forms the perception of a situation. For example, Ornellisi *et al.* (2019) refer to efficacy beliefs as important for the appraisal of the situation. How individuals look upon their possibilities to shape and affect their current situation is of importance when determining their appraisal of it. Furthermore, affectivity is repeatedly argued to be a vital factor in determining the perceptions people have of their environment (Ali *et al.*, 2019).

Barriers to Development of Skills and competencies for Built Environment Graduates in Construction Firms in Abuja

Previous research by Obiegbo (2002), Olaitan *et al.* (2006) and others affirm host of other components that combine together to cause skills gap part of which are: demand for multi-skill approach, demand for new skills, lack of educational training, rapid change in technology and inappropriate skills and inadequate training. It has been noted that the construction craftsmen have been criticized due to incompetency in their various disciplines and this has caused a bad impression on the kind of jobs produced and delivered. They are not regarded because of their low performance and poor work attitude which has an adverse effect on the industry.

Researches have been conducted in this regard and noted the challenges therein (Yang and Chang, 2005; SLIM report, 2002; Chan and Kaka, 2003; Cotton *et al.*, 2005; Alinaitwe *et al.*, 2008; Nowak, 2005). These factors contributing to the skills barrier are further discussed below.

1. Demand for multi-skills approach

The Single skills approach is where workers master one specific craft trade. This is common in Nigeria and it is becoming increasingly inappropriate for the present-day industry (Aphanite *al.*, 2003). It is also among the factors that causes skills gap. Conversely, multiskilling is the ability of a worker to carryout various jobs learnt in formal and non-formal setting which involves acquisition of skills knowledge and attitude used in various roles in the workplace. Multiskilling according to Collins dictionary is the act of training workers and entrants to engage in different roles and jobs. Ejohwomu *et al.* (2006) highlighted that parts of the benefit of multiskilling is that it validates for a longer period of employment and gives maximum rate of income, it equally allows longevity of employment and also gives maximum income with reduced number of employees. Multiskilling have been discussed by different researchers to be very effective on issue of employment and job related issues in area of skilled workers and craftsmanship (Lill, 2009).

Multi skilled workers have a variety of skills and these makes them to be competitive and they stay longer on project embarked upon (Lill, 2009; Ejohwomu *et al.*, 2006). There are some disadvantages of multiskilling. These include meeting license requirements, resistance to change and lack of training (Dada and Ekpe, 2006).

Investigations in this area are still sparse in Nigeria (Murray *et al.*, 2002). However skilled workforce in any construction trade arguably needs to be competent in one or more profession so to allow them to have the ability to operate and familiar with operations, and equipment's in use in construction industry (Ness, 2009).

2. Demand for new skills

Currently there is a call for new skills demand in construction industry, this was due to technological development and the introduction of information technology in construction industry, which is required in operating tools and

equipment's by the labour pool for work (Mackenzie *et al.*, 2000; Cordery, 1989). Introduction of new technologies to the construction industry have redefined and called for new skills in order to improve performance and productivity (Wells and Walls, 2003). Introduction of new technology has greatly affected the performance of the craft men due to the out-of-date training they had previously acquired coupled with lack of various types of skills and showing lack of expertise as previously mentioned.

3. Lack of educational training

It is widely known and have been criticised, that, most craft men are not competent and lack adequate skills in their profession. This has been traced back to education and training curriculum which needs to be reviewed according to Oketch, (2007); Awe, (2010) and Olaitan *et al.* (1999) respectively. The lack of competence and adequate skills has contributed greatly to skills gap in Nigeria. The issue of education is a worldwide problem. Many researchers argued that even in developed countries, the issue of quality of education is dwindling and is a major concern for all. Therefore, it is considered by many studies as the main reason for the skills gap (World Bank, 2007; Livanos, 2009).

The main reason for the unstable education is that the curriculum guiding the programme of study has not been reviewed and developed to suit the industry need for sometimes (Namuddu *et al.*, 2017). Inappropriate skills and inadequate training from non-experts to the craft trainees (Oketch, 2007; Olaitan *et al.*, 1999) has contributed greatly to skills gap challenges in the construction industry. In that vein Awe (2010) attributes the laxity, on the part of educational body guiding the program of study. Looking at the vocational and technical education in Nigeria, it is vividly shown and specified in the curriculum that the number of hours assigned to teaching theory is much more compared to practice of skills which contributed to low impartation of skills in students (Awe, 2010; Olaitan *et al.*, 2000). Invariably, the problem most times is not the curriculum, but the untrained instructors. Therefore, technical education board should make it mandatory to run a development programme for instructors so as enhance their knowledge in imparting the right attitude and skills into their students (Nicoleau and Sackman, 2017).

It is better to equip the technical training institutions as there are no well-structured and equipped laboratories/workshops for training. The existing laboratories are out of date and even stocked with grossly inadequate tools and equipment for training (Awe, 2010). To be engaged into the construction industry as a skilled worker, requires the entrant to be versatile and be ready to adapt to changes in technological innovation, this requires the labour pool especially the craft men to be highly skilled in their various profession, therefore technical training institutions in Nigeria should make it mandatory to instill skills that are relevant to industry need, there is need for the worker to be expert in his profession (Awe, 2010; Oketch, 2007; Mackenzie *et al.*, 2000; Forde and Mackenzie, 2004).

4. Rapid technology advancement

Recently construction industry all over the world undergo technology advancement in every area of their work. There have been a lot of technological advancement in various places of work as a result of the effects of globalization and rapid revolution in information technology. The information technology compliance coupled with the advancement in technology has made it mandatory for everybody including the skilled workforce in the construction industry to adapt to changes. Regardless of the changes, yet industries and schools in the country are yet to comply with this trend and make it available for training. This, however, has a negative impact on performance and competency of the workforce (Ede, 2013; Femi, 2014). This calls for demand of new skills in the craft workforce.

5. Inappropriate skills and inadequate training

The lack of inadequate training and transfer of inappropriate skill has contributed to skills gap, coupled with textbooks that are out-of-date which the instructors use in transferring and imparting training to students (Udofia *et al.*, 2012). In that vein, Awe *et al.* (2010) stress that facilities for practical works in most technical colleges are obsolete and not functioning, coupled with non-availability of modern tools and equipment for vocational training. It has been noticed that the curriculum guiding the technical college disciplines is not delivering much needed employment skills due to non-competency on part of the instructors and curriculum developers (Nicoleau and Sackman, 2017).

6. Staff being new on the role

Inexperience and poor workmanship on the part of the craft worker, contributed to the issue of skills gap coupled with being new on the job role. The inability to effect changes, and to fully operate and utilise the new technology and the intricacies of the new job role creates skills gap more than ever before (Awe, 2010; Oketch, 2007; Mackenzie *et al.*, 2000; Forde and Mackenzie, 2004). The shortage of craft skilled workforce in the construction industry to adapt to changes with the recent advancement in technology with the use of tools and equipment have been problematic for a long time. This require the education and training to collaborate with the construction industry to look

RESEARCH METHODOLOGY

A quantitative research approach was adopted in this study. The use of structured questionnaires was employed for data collection in order to achieve the study's objectives. The collected data was analysed using the Mean Index Score (MIS).

The population constituted the number of building and engineering construction firms operating within Abuja and registered with the Abuja business directory. The register of Abuja's business directory has 255 construction firms registered business addresses. This makes up the population size for the study.

The sampling frame for this study was the professional in charge of graduates in the construction firm, and the questionnaire was administered per firm to the professional in charge of graduates (new intake). Glenn's (2013) equation was used in order to arrive at a sample size that will serve as a representative of the entire population of construction firms in the study area. A total of 255 construction companies listed in the Abuja business directory was substituted in Glenn's (2013) equation, and an estimated sample size of 159 respondents was arrived at by a respondent from a firm. Therefore, the sample size for the study was 159. The questionnaire (designed in a five-point Likert scale format) addressed issues relating to the research objectives respectively.

RESULTS AND DISCUSSION

Result and Discussions on the Drivers of the Development of Skills and Competencies offered by Built Environment Graduates in Construction Firms in Abuja.

In order of importance, the use of MIS was applied to the drivers of the development of skills and competencies offered by built environment graduates in construction firms in Abuja. The result of the MIS analysis is presented in Table 1.

Table 1: Drivers of the Development of Skills and Competencies

Drivers	Mean	Rank	Decision
Individual resources	4.85	1 st	Very significant
Labour market opportunities	4.76	2 nd	Very significant
Labour market structure	4.56	3 rd	Very significant
Situational factors	4.37	4 th	Significant
Organisational factors	4.23	5 th	Significant
Social capital	3.83	6 th	Significant
Knowledge and skills	3.48	7 th	Moderately significant
Attitudes	3.04	8 th	Moderately significant
Dispositions	2.95	9 th	Moderately significant
Demographics	2.94	10 th	Moderately significant
Average MIS	3.90		Significant

Table 1 shows that the most significant drivers for the development of skills and competencies for built environment graduates in construction firms in Abuja are: individual resources (MIS = 4.85); labour market opportunities (MIS = 4.76); and labour market structure (MIS = 4.56). Other drivers for the development of skills and competencies for built environment graduates are also significant and moderately significant. These range from situational factors (MIS = 4.37) to demographics (2.94). Averagely, all the drivers for development of skills and competencies for built environment graduates in construction firms in Abuja are significant (average MIS = 3.91).

In support of this finding, Moolman et al., 2014, Von- Hauffe *et al.* (2015), Pinto, 2018, Ali *et al.* (2019) identified in their study of individual resources, labour market opportunities, labour market structure, situational factors, organisational factors and social capital as the drivers for development of skills and competencies for built environment graduates.

Result and Discussions on the Barriers to the Development of Skills and Competencies for Built Environment Graduates in Construction Firms in Abuja

The use of MIS was employed to reduce the barriers to the development of skills and competencies for built environment graduates in construction firms in Abuja in order of significance. The result of the MIS analysis is presented in Table 2.

Table 2: Barriers to the Development of Skills and Competencies for Built Environment Graduates in the in Construction Firms in Abuja

Barriers	Mean	Rank	Decision
Financial difficulty	4.85	1 st	Very significant
Rapid technology advancement	4.61	2 nd	Very significant
Inappropriate skills and inadequate training	4.18	3 rd	Significant
Lack of Educational Training	3.86	4 th	Significant
Demand for new skills	3.52	5 th	Significant
Demand for multi-skills approach	3.27	6 th	Significant
Poor educational system	2.80	7 th	Moderately Significant
Staff being new on the role	2.47	8 th	Less Significant
Average MIS	3.69		Significant

Table 2 revealed the result of MIS for the eight identified barriers to the development of skills and competencies for built environment graduates in construction firms in Abuja. It was shown that the most significant barriers are financial difficulty, rapid technology advancement, inappropriate skills, and inadequate training, with MIS values of 4.85, 4.61, and 4.18, respectively. While Staff being new to the role, was identified to be insignificant with MIS values of 2.47. On average, all the identified barriers to the development of skills and competencies for built environment graduates in construction firms in Abuja are significant (average MIS = 3.69).

Findings from the studies by Obiegbo (2002), Olaitan *et al.* (2006), and others affirm that the following are barriers to the development of skills and

competencies for built environment graduates: Lack of educational training, rapid change in technology, inappropriate skills, and inadequate training are in support of the finding of this study by establishing that the financial difficulty and staff being new to the role have contributed to the skills gap, coupled with textbooks that are out-of-date, which the instructors use in transferring and imparting training to students (Udofia *et al.*, 2012).

CONCLUSION AND RECOMMENDATIONS

This study discovered that existing literature pertaining to employability skills shows a gap between expected and possessed skills in students. This results in a gap, leading to a lack of understanding of the quality of graduates and hence a lack of confidence in built environment graduates by employers. In view of this, the study assessed the skills and competencies offered by built-environment graduates in construction firms in Abuja with the view to bridging the gap between academic knowledge and professional practice. Data was collected from 159 construction companies listed in the Abuja business directory using a structured questionnaire with a response rate of 91.8%. The analysis of the data was carried out with the use of percentage and mean item score. The results of the analysis carried out led to the conclusions made in this chapter.

The most significant drivers of the development of skills and competencies of built environment graduates in construction firms in Abuja are individual resources, labour market opportunities, and labour market structure. On average, all the drivers for the development of skills and competencies for built-environment graduates in Nigerian construction are significant. The most significant barriers to the development of skills and competencies for built environment graduates in construction firms in Abuja are financial difficulty and rapid technological advancement. On average, all the barriers to the development of skills and competencies for built-environment graduates in construction firms in Abuja are significant. In view of the findings and conclusions of this study, the following recommendations were made:

- i. Built environment graduates should pay more attention to individual resources; labour market opportunities; and labour market structure in

order to build up a better driving force for enhancing their level of employability.

- ii. Built environment graduates should be strengthening their skills and competencies in the areas of Verbal and written communication; entrepreneurial skills; and technology know-how in order to overcome the barriers of Financial difficulty and Rapid technology advancement so as to enhance their level of employability.

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