

PERCEPTIONS OF STRATEGIES FOR MINIMIZING SKILLED LABOUR SHORTAGES FOR BUILDING PROJECTS AMONGST BUILDING CONTRACTORS IN LAGOS STATE, NIGERIA

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Abstract

The aim of this study is to assess the perceptions of building contractors on strategies that can be adopted to overcome skilled labour shortages in the building industry. This is crucial as competitiveness is becoming entrenched in the industry for the survival of the practitioners. The client is requiring shorter time to carry out their projects and profit margins are reducing. Meanwhile, it is increasingly difficult to find skilled people in the various categories of artisans in building construction industry. There are also challenges of achieving good quality work as well as attendant time and cost overruns. Quantitative data was collected through a structured questionnaire survey using a five-point Likert scale for measurement of survey responses. The sample size of 115 was selected from the population using a simple random sampling technique. The study recommends that a standard training in organised institutions and supervised artisans' training on building sites are critical to address skill labour shortages in order to have substantial artisans who are capable of high skilled work. This is needed by all categories of artisans for meeting the demands of the industry. Improvement in socio-economic status of artisans, performance recognition, and financial incentives should be given a priority in the work place. These will help to create a performance-enhancing environment for the industry.

Keywords: Artisans' Training, Building projects, Skilled labour Shortages, Nigeria

INTRODUCTION

The challenges of having adequate and skilled artisans for construction works in building projects in Nigeria is increasingly becoming endemic. There are shortages of skilled manpower in the construction sector. Building construction artisans (masons, carpenters, plumbers, electricians, tilers) constitute the largest deficit in the estimated manpower requirements by occupational categories in Nigeria (Agbola & Olaoye, 2008). Meanwhile competition in the industry is becoming tougher. The time required to carry out trades work is becoming shorter, profit margins are reducing. It is increasingly difficult to find skilled people in the various works of artisans in building construction (Datong, 2007). According to Akplu and Amankrah (2008), it is becoming difficult to find skilled artisans to employ. Where they are available, it is difficult to retain them, and most lack the required skill which the construction industry needs. These shortages are affecting the quality of workmanship, causing delays and thereby compromising project cost and time of completion (Offei-Nyako; Osei-Tutu; Fugai & Adinyari, 2014).

This study therefore focuses primarily on perceptions of building contractors on the strategies that can be adopted to overcome the challenges of non-availability skill artisans on building

projects in the industry. There are palpable fears in the industry by practitioners of the possibility of extinctions of skilled artisans in the nearest future. The apprenticeship systems operative in the past that supplied time tested artisans in the industry are no longer functioning. The few available skilled artisans on construction sites are mostly foreigners, particularly from neighbouring West-African countries. The youth are mostly interested in activities that yield immediate monetary rewards. It is in the light of these realities that this study intends to find out the most appropriate strategy to adopt in addressing the problem of skilled labour shortages in building construction industry.

LITERATURE REVIEW

Employers of labour, organizations and countries do express their concerns about shortages of skilled labour in various fields of economic activities (Mateus, Allen-Ile & Iwu, 2014). The shortages of occupational skills required for performance within the construction sector is very critical (Mbeki, 2014). Breier and Erasums (2009) emphasize how crucial it is to have artisans in sufficient numbers to enhance infrastructural and economic development in a country. Building construction activities require adequate availability of skilled professionals and artisans in quantity and quality. These artisans (Bricklayers, Tilers, Carpenters, Moulder, Plumbers, Electricians, and Painters) form a large part of the site labour force and their input determines the quality of the products of the industry (Akindoyeni, 2005).

Ogbeifun (2011) emphasizes that the changing taste of clients has made it imperative for managers and craftsmen to seek solutions to the problem of skilled shortages through training and retraining. The lack of training programme policies also hinders development and those that have these policies hardly implement them. The lack of funds, even for those that are willing becomes a clog in the wheel of progress. Mbeki (2014) concluded that formal training is essential to deal with shortages of skilled artisans. Training helps workers to be in tune with modern technology, and enables them to work harder with modern equipment and tools. In the short and long run, training and learning increase productivity significantly.

In order to achieve expected efficiency through the skills of artisans, effective training is important. Sankaran (2009) describes training as a process of submitting a person to discipline and instruction, to educate, to bring up, and develop in habits of good behaviour and conduct. It emphasised further that such a person is expected to come to a desired standard of behaviour and efficiency. The study advocated for a well-funded and coordinated formal training and retraining programme for artisans and craftsmen. The training could be formal or informal. Awe, Stephenson and Griffith (2009) say that Nigeria has experienced various challenges in artisans training with no specified path for vocational training resulting in drastic decrease in the number of people trained. According to the study, the formal training institutions have lost focus and are not adequate for achieving their training responsibility.

Most technical colleges' orientation in Nigeria is towards preparing students for tertiary education. The initial objective of preparing a percentage of junior secondary school graduates for technical colleges has been defeated. The capital outlays to finance the practical contents of their instruction are heavy and, therefore, are not funded. This means the practical content has been almost eliminated (Awe, et.al, 2009). Odia and Omofonmwan (2007) identifies the lack of necessary facilities such as tools and adequate workshops as a hindrance to in-depth practical instructions. There is also an acute shortage of suitable, trained and

qualified vocational instructors. Oni (2007) advocates for proper funding of technical and vocational education. Training in Nigeria's technical colleges lays a lot of emphasis on paper qualification rather than acquisition of marketable skills.

Customarily, informal skills' training and apprenticeship was common among young people who could not progress academically after secondary school; or those who could not find work in the formal sector. Informal skills training is also attractive because it is self-financing and formal training institutions are not prepared enough to equip trainees to face the reality of the outside work place (Ziderman, 2003). Agbola and Olaoye (2008) emphasizes that informal training remains the most prominent means of skill acquisition for building construction industry. This could be through the traditional apprenticeship or vocational training schools. This means that the informal sector of the construction industry is very important.

There is need for highly trained cadre of craftsmen who are alive to their responsibilities in meeting the needs of their employers and the society. Artisans who are sensitive to cultural values, social nature of their activities resulting in the efficient use of materials and techniques are highly needed in the industry. The demand for efficient provision of services is becoming very important in the present globalised economy, and attention to this by practitioners is expected to enhance competitiveness. The desire of clients is for practitioners to meet their needs. An ill-paid and untrained workforce cannot produce efficient service. Meanwhile every employer desires competent, capable, highly motivated workforce to drive the goals of the organization. Enhanced training offers a platform to achieve all these (Dantong, 2007).

According to Sanni and Alabi (2008), the available training procedures for artisans in the construction sector can be categorized into six major types/ areas, and they are:

- i. Various apprenticeship programme for training building construction labour force.
- ii. Secondary vocational trade schools which include building trade sections.
- iii. Special training centres organized for the purpose of training construction workers
- iv. Mobile units used to compliment training given in a fixed centre or to provide short intensive courses in limited skills to people who would not otherwise have ready access to training for construction.
- v. Upgrading and retraining programmes for workers in the industry
- vi. Training for construction work as a component of youth employment and training schemes, pre-vocational training and community development programme.

Awe, Stephenson and Griffith (2011) adds that there is a need to evolve workable strategies to motivate and mobilize youths towards training in order to meet the skills need of the industry. More so, the attempt to operate the public private partnership model for project procurement requires recruiting and training the youth to acquire necessary skills in order to add value to the society. Mbeki (2014) emphasizes motivation of artisans to achieve better productivity. If artisans are motivated in their work they are likely to be more effective, productive and achieve greater results in their assignments. Such motivation includes performance recognition and financial incentives. Abdul-Hamid, Singh and Mazlan (2013) say that quality of construction product including housing and buildings are related directly to skilled manpower and that quality of workmanship remains topical issues in the construction industry. The study reports that various strategies are being adopted in the Malaysian construction industry towards addressing skilled labour shortages. These include borrowing

labour from other contractors; work rescheduling; working overtime; working during holidays; multiple shifts system; work automation; use of precast elements and contraction on critical activities. Others are maximization (full optimization) of available labour through incentives and hiring workers having multiple skills.

Tshelle and Agumba (2014) in their study of the causes of skills shortages in South Africa highlight possible measures the government can take to resolve artisans' skill shortages. The need to reinstate training schools for artisans was ranked first. This is expected to promote relevance in the training system and to make artisans employable. Collaboration with relevant private sector was also pointed out and that this will help artisans to acquire the needed exposure to practical learning. Other measures that can alleviate skills shortage include taking practical steps to improve socio-economic welfare of artisans by introducing market related salaries to retain them; monitoring and supervision of artisans and a compensation system for industry professionals to share their knowledge. Despite the major role of practical realisation of construction projects on site, the reality of the non-availability of skilled labour particularly in small and medium sized construction organization is alarming. Though the industry is acclaimed to be the highest employer of the nation's workforce, glaring challenges have affected productivity, quality of work, duration of projects and available profits (Bilau, Ajagbe, Kigbu & Sholanke, 2015).

RESEARCH METHOD

A field survey was conducted to collect data for the study. The study covered mostly building construction firms who are contracted for construction of fast rising, on-going housing estates in the administrative divisions of Lagos Island, Lekki and Epe in Lagos State. The construction firms are registered with real estate developers who engaged them for their housing estates development. For the field survey, a list of 140 construction organisations was obtained to serve as the sampling frame of the study. From this, a sample size was calculated from the following formula:

$$n = \frac{N}{1 + N(e^2)} \dots\dots\dots(i)$$

Where n = sample size, 1 = Unity

e = Level of significance = 0.05

N = Universe or population (Udofia, 2011).

This resulted in the minimum sample size of 104. Ten percent of 104 was added which resulted in 115 as the sample size for the study. Simple random sampling technique was used to select this number from the population. Quantitative data was collected through a structured questionnaire survey using a five-point Likert scale for measurement of survey responses. Each respondent was expected to indicate their perceived importance of the variables in the questionnaire using the scale: 5=highly important, 4=very important, 3=undecided, 2=less important and 1= not important. The bio-data of the respondents was analysed using basic descriptive statistics such as frequency and percentage distribution. The data obtained from the questionnaire were inferentially analysed using Kolmogorov-Smirnov Test in Statistical Package for Social Sciences (SPSS) version 20 and further tested with relative importance index (RII).

RESULTS AND DISCUSSION

Firms' Characteristics

One hundred and fifteen (115) questionnaires were distributed to different construction firms in the study area. Out of these, forty-seven were returned giving a response rate of 41% which is an acceptable rate in construction management research. According to Soetanto and Proverbs (2004), this relatively low response rate is common and acceptable in construction management research. Table 1 shows the characteristics of the respondents namely, the nature of the firms, the designation of respondent in the firms, the highest academic qualification, the professional qualification of the respondents and the professional experience of the respondents.

Table 1: Descriptive Analysis of the Construction Firm

Description	N	%	Description	N	%
Nature of Business			Professional Affiliation		
Sole Proprietorship	8	17.0	MNSE	10	21.3
Partnership	33	70.2	MNIA	11	23.4
Private Limited Liability	5	10.6	MNIQS	16	34.0
Missing System	1	2.1	MNIOB	4	8.5
Total	47	100.0	Missing System	6	12.8
			Total	47	100.0
Designation of Respondents			Years of Firm Experience		
Managing Director	40	85.1	1-10 years	7	14.9
Project Architect	5	10.6	11-20 years	14	29.8
Project Engineer	2	4.3	21-30 years	6	12.8
Total	47	100.0	Above 30 years	20	42.6
			Total	47	100.0
Highest Academic Qualification					
HND	17	36.2			
B.Sc.	30	63.8			
Total	47	100.0			

N= Number of respondents, % = percentage

Source: Fieldwork, 2018

The firms' experiences ranged between the intervals of 1-10 years (14.9%), 11–20 years (29.8%), 21–30 years (12.8%). Those above 30 years were 42.6%. This is an indication that the majority of the construction firms are well experienced in their trades. The respondents' educational affiliation were 21.3% of Nigeria Society of Engineers (NSE), 23.4% of Nigerian Institute of Architects (NIA), 34% of Nigerian Institute of Quantity Surveyors and 8.5% of Nigerian Institute of Building. The nature of firm consists of Sole Proprietorship (17.0%), Partnership (70.2%) and Limited Liability (10.6%).

The Firms' Perceptions

Table 2 shows the summary of Kolmogorov-Smirnov Test on perceptions of building contractors on strategies to minimise skilled labour shortages. From the table, all the identified strategies were statistically significant. This implies that all the training systems do contribute to the envisaged reduction in skilled labour shortages in the building industry. However, monitoring and supervision of artisans on training was ranked first. Formal training

in organized institution was ranked second, while financial incentives for artisans was ranked third. Motivation of artisans on training and at work, and improvement of socio-economic welfare of artisans, performance recognition of artisans were ranked fourth, fifth and sixth respectively. Other important strategies include knowledge sharing by professionals in the industry, informal training as apprentice on building sites, automation (use of precast units), shift systems, hiring of labour with multiple skills, work rescheduling for artisans, working overtime, and borrowing labour from other contractors.

Table 2: Summary of Kolmogorov-Smirnov Test showing constructions firms’ opinions on strategies to combat skilled labour shortages

Strategies	Mean	SD	Rank	P-value	Decision
Formal Training in organized institution	4.28	1.00	2nd	.044 = < .05	Significant
Informal training as apprentice on building sites	3.82	1.17	7th	.020 = < .05	Significant
Motivation of artisans on training and at work	3.97	1.06	4th	.040 = < .05	Significant
Performance recognition of artisans	3.72	0.83	8th	.015 = < .05	Significant
Financial incentives for artisans	4.05	0.76	3rd	.038 = < .05	Significant
Borrowing labour from other contractors	2.62	1.21	14th	.001 = < .05	Significant
Work rescheduling for artisans	2.85	1.18	12th	.025 = < .05	Significant
Working overtime	2.72	1.10	13th	.029 = < .05	Significant
Shift systems	3.08	0.98	10th	.017 = < .05	Significant
Automation (use of precast units)	3.18	1.05	9th	.028 = < .05	Significant
Hiring of labour with multiple skills	2.90	1.31	11th	.022 = < .05	Significant
Improvement of socio-economic welfare of artisans	3.95	1.10	5th	.030 = < .05	Significant
Knowledge sharing by professionals in the industry	3.90	1.39	6th	.039 = < .05	Significant
Monitoring and supervision of artisan on training	4.51	1.02	1st	.045 = < .05	Significant

SD = Standard deviation

The Relative Importance

However, according to Chan and Kumaraswamy (1997) cited in Doloji (2009), the mean score and standard deviation is not enough to determine the overall rankings. The relative ranking is therefore considered further using the Relative Importance Index (RII). It is evaluated using the following formula:

$$RII = \frac{\sum W}{AN} \quad (ii)$$

Where, W= the weight given to each factor by the respondents ranging from 1 to 5 on the likert scale.

A = the highest weight which is 5.

N = number of respondents which is 47.

Table 3 shows the ranking based on the RII calculated from equation 2. The highest RII shows the most critical factor and the lowest shows the less significant factor. *Formal Training in organized institution* with RII of 0.77, followed by *Informal training as*

apprentice on building sites and *Shift systems* with RII of 0.71 and 0.64 respectively. *Motivation of artisans on training and at work* is ranked fourth with RII of 0.61. The less critical factors are *Hiring of labour with multiple skills* with RII of 0.48, *Monitoring and supervision of artisan on training* with RII of 0.52, *Work rescheduling for artisans* with RII of 0.54 and *Performance recognition of artisans* with RII of 0.54. The calculated RII scores were interpreted using the scale RII ≥ 0.76 to be most significant, RII between 0.67 and 0.75 as significant, RII between 0.45 and 0.66 to be less significant, while RII ≤ 0.44 means not significant (Waziri & Vanduhe, 2013; Magutu & Kamweru, 2015).

Table 3: Summary of Relative Importance Index (RII) on strategies to minimize skilled labour shortages in building projects

Descriptions	RII	Rank	Remarks
Formal Training in organized institution	0.77	1 st	MS
Informal training as apprentice on building sites	0.71	2 nd	S
Motivation of artisans on training and at work	0.61	4 th	LS
Performance recognition of artisans	0.54	11 th	LS
Financial incentives for artisans	0.56	10 th	LS
Borrowing labour from other contractors	0.58	6 th	LS
Work rescheduling for artisans	0.54	12 th	LS
Working overtime	0.60	5 th	LS
Shift systems	0.64	3 rd	LS
Automation (use of precast units)	0.57	9 th	LS
Hiring of labour with multiple skills	0.48	14 th	LS
Improvement of socio-economic welfare of artisans	0.57	7 th	LS
Knowledge sharing by professionals in the industry	0.57	7 th	LS
Monitoring and supervision of artisan on training	0.52	13 th	LS

MS=Most Significant, S = Significant, LS = Less Significant

The results show that the most significant strategy in overcoming skill shortages is *formal training in organized institutions* (RII=0.77) while the significant strategy is *informal training as apprentice on building sites* (RII=0.71).

Discussion of Results

There are various dimensions of strategies that can be used for mitigating challenges of skilled labour shortages. This study investigated the perceptions of building construction firms on the relative importance of these strategies and discovered formal training in organised institution (RII=0.77) as the first, informal training as apprentice on building sites (RII=0.64) as the second, and the use of shift system (RII=0.64) as the third most important strategies. The fourth strategy is motivation of artisans on training (RII=0.61) as an incentive that can contribute in encouraging youths to take up training in building trades. These findings are in agreement with Oyedele, Jayeoba, Kadiri, Folagbade, Tijani and Salami (2015) which revealed that low skill and experience was revealed as the second most important contributing to poor construction quality in Nigeria. The study is also in line with Oyedele and Tham (2007) which acknowledged that the country is in dire need of skilled personnel in building construction. It stated further that the near absence of properly trained personnel is having adverse effects on the available infrastructure.

Experts in quality assurance in construction have earlier recognised the importance of training in maintaining quality in construction (Abdul-Aziz, 1996). The study argued that the internationally acknowledged quality in Japanese construction industry is as a result of training and education of its workforce. Bahn and Cameron (2012) equally emphasized the well-being of artisans in generating skilled labour supply in Australia. In contrast however, Odediran and Babalola (2013) confirmed that engaging artisans based on previous work and experience is more important than educational training and qualification. This study also agrees with Ogbeifun (2011) which advocated artisans' training through collaborative effort of the key stakeholders in the construction industry. Sanni and Alabi (2008) equally identified the crucial roles of providing artisans for the building industry through training via traditional apprenticeship system.

CONCLUSION AND RECOMMENDATION

As pointed out earlier, practitioners in the building industry are very concerned about the glaring challenges of lack of skilled artisans in the industry. There are very few available skilled artisans on construction sites. Most of those available for employment are foreigners. This results in capital flight from the economy. Our youth are mostly interested in economic activities that yield instant gratifications. The views of practitioners in respect of these strategies would complement efforts to address the problem successfully. In conclusion therefore, a standardized training involving monitoring of artisans on training is crucial to address the problem of skilled labour shortages. This is needed across all specialisations in artisans' work in order to meet the demands of the industry.

Considering the invaluable contributions of artisans to the delivery of building projects, the following recommendations, if taken, will help in the provision of solutions to the problems of skilled labour shortages.

- i. Training of artisans should be a priority for both the private sector and the government; more so, this can address the level of unemployment among the youth. This can be achieved through supervision of artisans on training, motivation of artisans on training and at work, and improvement of socio-economic welfare of artisans.
- ii. There is the need for conscious investment in the practical aspects of training through engagement of master tradesmen who can expose trainees to real-life practice as well as encouraging continuous interactions between trainees and the trainers.
- iii. Government should evolve strategies to encourage youths to go into these vocations. Incentives like little compensation for the trainers should be introduced. Equally it is important to address the problem of low wages for the artisans in the industry.
- iv. Policy should also be evolved through legislation to attach artisans to reputable construction organisations when they are taking construction contracts from government. Through this, experience gained in such places will help bridge the gap in the shortages of skilled labour in the industry.
- v. Collaborations among different professionals, contracting organizations and government agencies to create a robust roadmap for training on a continuous basis,

that encourages youths to learn the building trades (with incentives), should be encouraged.

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