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## Towards Improving Artisan and Craftsmen Productivity

To cite this article: L.M. Amusan *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **655** 012083

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# Towards Improving Artisan and Craftsmen Productivity

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**Abstract.** The construction industry plays a noteworthy part in contribution to the gross domestic product of developing countries. Nigeria being a developing country, the construction industry is highly labour intensive labour intensive. For the purpose of this study, the data collection instrument used was structured questionnaire making use of the 5-point Likert scale. Sample size of 52 was chosen from population frame of 60 construction firms was adopted for the study. The study found out among other things that there should be periodic increase in wages of artisans and craftsmen, schedule should be made flexible, provision of incentives and motivation, strategies such as periodic assessment of artisans skill should be implemented, stakeholders to have a say in artisan training and organizing training programs by construction firms. To this end the need for highly performing craftsmen construction industry is not debatable, Craftsmen are the major employee of the construction industry, since most of the work in the construction industry has to be done manually by hand, therefore they deserve to be well equipped and given the best of the training on account of their contributions.

**Keywords:** Artisan, Craftsmen, Construction Productivity, Informatics, Productivity

## 1.Introduction

In every industry, no matter how capital intensive or technologically driven a system is, there would always be a need for skilled or semi-skilled labour. In the construction industry, the skilled and semi-skilled workforce are referred to as artisan and craftsmen. In the context of this study, examples of artisans and craftsmen include: carpenters, masons, painters, steel benders among others. According to [1];[2], all craftsmen carries out essential activities vital to the success and completion of any type of building construction project. Though they might not be formally trained professionals, the role they play in the construction industry is undeniably vital. The population of Nigeria avails the construction industry of the huge man power needed as craftsmen and artisans. In recent time, the construction company faces the challenge of hiring skilled and high performing indigenous craftsmen and artisans. The performance of indigenous craftsmen has been on the decline over the years and this poses a serious threat to the success of building construction projects. In traditional construction practice, artisans are described as an individual that has been trained in art and vocation of carrying out a specific technical duties in the construction field. The task varies from carpentry and joinery, iron welding works, masonry, brick and brick laying, painting and decoration,



earthwork among others [4] described an artisan as someone who has been tutored and taught fundamental theory of a particular craft. Similarly, [5] describe craftsmen as someone who has been trained in a craft and is practicing it as daily work or means of a livelihood.

In construction parlance, craftsmen are regarded as one of the important link in the construction process, [6] and [7] submitted that craftsmen are meaningful statistics in the scale of construction work, they are usually at the fore front of construction activity and technical works. In the records of [1] and [2], they formed the highest percentage of construction workers the world over. At the outset of every construction work, there is always the need to involve some technical personnel in the construction activities taking place, services of certain personnel are necessary at different stages of the work, among the set of personnel that are usually involved are the craftsmen. In another related studies, [8];[9];[10] and [11] categorized craftsmen to include the following cadre of construction workmen: the masons, roofers, plasterers, masonry worker, soil dredgers, electrician, plumbers, ironmongers, welders, painters, steel workers, fibre workers and others.

Moreover, there is divergent view as regards the delineation of the craftsmen in line with their areas of responsibility, some school of thoughts classified the artisan based on their occupation agents, [9]; [10]; [11]; [12];[13] and [14], described Mason or Bricklayer in local parlance, as a tradesman that moulds and lay bricks during construction projects, and uses stone works in building façade decoration. They also take part in concrete work and casting. Similarly, carpenter is described as technical specialist that is skilful in the art of use of wood for carpentry work. Carpenters are involved in the trade coded as carpentry and joinery, a skilled craftsman works on carpentry related tasks and wood work. Another category works as carpenters and upholsters, in forming chair, tables and all other upholstery works. In all aspect of the craftsmen work, manual labour is involved because their work include physical work. Also, [12];[13] and [14] submitted that, another class of craftsmen are regarded as electricians, they are responsible for electrical connections in building using related equipment and tools. Electricians arc of responsibility include design of electrical plan of building, assisting engineer at construction stage during laying of conduit for electrical cables for new and old buildings. Similarly, landscaping works around building is undertaken by landscapers, landscaping involves planting of gardens and flowers around completed buildings for beautification purpose, in other words they can be called gardeners, or orchard planters. House painting is usually undertaken by a technician called painter and decorator, they are craftsmen and tradesmen that are responsible for painting and decoration of buildings [8];[9];[10] and [11].

Furthermore, more than ever before in the history of construction industry in Nigeria, engagement of artisans and craftsmen has become imperative, therefore those that are highly skilled and qualified would be a good addition to the sector, however some schools of thought believe that the present supply is short as compare to the volume of housing units the society is demanding, therefore the call for repositioning of construction sector. One of the basic need in Nigeria at present, is the provision of basic need especially shelter for everyone, this is in fulfilment of UNDP millennium development goal of provision of basic infrastructure for all by year 2030. Similarly, [11] alludes to the fact that foreign artisan are now cashing on the vacuum created by migrating in numbers to the Nigerian construction sector. This trend occurred because the demand for artisan is increasing geometrically without adequate training

to match, also this trend is creating attendant effect of shortage in provision of housing units and this was supported in [15]; [16];[17] and [18]. In another related study, [17] and [13] submitted that there is always a direct relationship between training and performance of artisan on sites. It was observed that the more highly qualified personnel that are engaged on a project the more the tendency for high efficiency of the projects while poor output is expected of projects that engage less qualified artisans.

Finally, as regards skilled artisan and craftsmen necessity and accessibility, the effect of talented artisans accessibility was discussed in past, analysing how artisan scarcity has thrown growing weight on firms. However, [3]; [17] and [13] noted that significance of engaging qualified artisans in the construction can't be under-evaluated as they have the capability of disposing of wasteful aspects, emerging from inadequately ongoing construction projects. [1] is of the opinion that accessing artisan and quality training system is one of the factors that induces high productivity. The quality and accessibility of skilled artisans and craftsmen is considered a significant factor in the efficacy and potency of the construction sector. Hence, different researches have examined and assessed the presence of incompetent artisans in the Nigeria construction sector and came to the conclusion that artisans and craftsmen that form the bulk of this skilled workforce should be properly trained and retrained. The role craftsmen and artisans play in the success of building construction projects therefore is undeniably important as they are engaged in the physically tasking practical process of building production. It against the above points that the study researched into the issue that surrounds their operational efficiency. The Nigerian construction industry comprises of several professionals, however, the majority of the workforce in the industry comprises mainly of skilled and semi-skilled personnel[3]. It on this note that this study was established to study issues around craftsmen improvement with a view to avoiding low quality delivery in the construction industry. The following aim and objectives are articulated to assist in defining work focus in this study.

### **1.1 Aim and objectives**

#### **1.2 Aim**

The aim of this project is to evaluate artisan and craftsmen performance in Nigeria and devise strategies for improvement. This would enable us come up with efficient procedures to rectify and correct artisan and craftsmen defects and poor performance on construction projects.

#### **1.3 Objectives**

The objectives of the research include:

- a. To assess the state of artisan and craftsmen training in the construction industry.
- b. To identify the critical success factor that influence artisan and craftsmen performance.
- c. To identify and assess the efficiency of past methods of training artisans and craftsmen.

d. To determine various methods that could be adopted to promote artisan and craftsmen performance.

## **2. Study Location**

The location of the study is Lagos State in Nigeria, while the centre of sample selection was the construction firms in Lagos State, Nigeria.

## **3. Material and Methods**

This section contains materials and methods used. It also contains the population sample, sample size, data collection method, analytical method and mode of presenting the research results.

### **3.1 Study Population**

Population of the study includes the construction firms that engage the services of craftsmen and artisans, therefore a population frame of 60 firms was selected for the study in line with the submission in similar studies such as [1]; [19] and [11].

### **3.2 Sample Size**

The sample size of fifty two (52) was selected from the population frame of 60 of the respondents which constitute the craftsmen drawn at random from the construction firms.

### **3.3 Data Collection**

Data collection is essential to ensure that the study's objectives can be achieved in a proper and structured way. To this end, a proper research methodology has to be established to avoid digression from the set aim and objectives and giving more understanding to how the study is to be carried out in an efficient manner.

### **3.4 Primary Data Collection**

Data collection instrument is a device for collecting data or measuring the variables which are used for answering research questions and/or testing hypotheses. For the purpose of this study, the data collection instrument used was structured questionnaire making use of the 5-point Likert scale ranging from strongly agrees to strongly disagree.

### **3.5 Questionnaire**

This is the primary source of data for this study. Questionnaire refers to a set of structured questions, devised for the purpose of study and geared towards receiving required data from correspondents.

### **3.6 Questionnaire Design**

The questionnaire is structured to gain information from the artisans and craftsmen on construction sites. The questionnaire is divided into five (5) sections. Section A contains background information of respondents as concerns name of organisation, gender, years of working experience, nationality and qualification. Section B assesses the state of artisan and craftsmen training. Section C assesses the influence of various critical success factors and the influence they have on artisan and craftsmen performance. Section D assesses the efficiency of past training methods in the construction industry and Section E devices strategies to promote artisan and craftsmen performance on building construction projects.

### **3.7 Administering the Questionnaire**

A set of 60 questionnaires was prepared while only valid 52 were used for the analysis. It was discovered that some are not valid. The questionnaires for this study were personally administered to artisans and craftsmen on building construction projects.

### 3.8 Secondary Data Collection

Secondary data are data that have been collected and well processed into meaning for and usable form by other individuals. It gives information already existing on a subject matter or study. This study incorporated the use of secondary data in the literature review making use of journals, articles, research paper, textbooks, internet sources among others.

### 3.9 Tools for Data Analysis

Mean item score, Simple percentages and relative agreement index were used as analytical tool on the generated data. Having considered the nature of the data and the achievement of the objectives set for the study, major tools of statistical analysis used include: Relative agreement index, Simple percentage and Descriptive statistics

### 3.10 Data Analysis and Presentation

### 3.11 Analysis of the Trade of the Correspondents

**Table 1 Respondent's Trade**

Trade	Frequency	Percentage (%)
Carpentry	13	25
Masonry	12	23.08
Steel fixing	12	23.08
Tiling works	7	13.45
Painting	4	7.69
Welding works	2	3.85
Plumbing works	2	3.85

Source: Field survey, 2017

From Table 1 above, it can be deduced that 25 percent of the total respondents trade designation is Carpentry, 23.08 percent practice Masonry. 23.08 percent of the total respondents carried out steel fixing works, 13.45 percent of the total respondent carryout tiling works, 7.69 percent practice painting, 3.85 percent of the correspondents were welders and 3.85 percent of the correspondents were also plumbers. From the total of 52 respondents who responded to the questionnaire, the Carpenter ranked highest with a percentage of 25 percent, the lowest percentage were the Welders and the Plumbers with a percentage of 3.85%.

### 3.12 Work Experience

**Table 2 Respondent Work Experience**

Year Interval	Frequency	Percentage (%)
1-10	13	25
11-20	29	55.77
21-30	8	15.38
<b>Above 30</b>	2	3.85

Source: Field Survey

From Table 2 above, it can be summarized, that, 55.77 percent of the total respondent have craftsmanship experience of 11-20 years, 25 percent of the respondent have 1-10 years of craftsmanship experience, 15.38 percent of the respondent have 21-30 years of craftsmanship experience, 3.85 percent of the respondents have working experience of above 30 years. From the total of 52 respondents who responded to the questionnaire, the number of working experience year interval of 11-20 were the highest respondent with a percentage of 55.77 percent, and the lowest percentage of working experience year interval was above 30 years with a percentage of 3.85%. Majority of the respondents (55.77%) had 11-20 years of craftsmanship experience, this authenticates the quality of response obtained from them.

### 3.13 Nationality

**Table 3 Respondent Nationality**

Nationality	Frequency	Percentage (%)
Nigerian	39	75
Ghanaian	5	9.62
Togolese	2	3.85
Beninese	6	11.53
Others	0	0

Source: Field Survey

Respondent nationality is presented Table 3 above, it can be deduced that 75 percent of the total respondent are Nigerians, 11.53 percent of the respondent are Beninese, 9.62 percent of the respondents are Ghanaian, and 3.85 percent of the respondents are Togolese. From the total of 52 respondents who responded to the questionnaire, Nigerian nationals were formed the majority of the respondents and ranked highest with a percentage of 75 percent, the lowest ranked was others making up 0 percent of the total respondents.

### 3.14 Qualification

**Table 4 Respondent Qualification**

Qualification	Frequency	Percentage (%)
Degree	0	0
Diploma	5	9.62
Apprenticeship	28	53.85
Others	19	36.54

Source: Field Survey

From Table 4 above, presents respondents qualification. that 0 percent of the total respondent were of the qualification of a Degree, 9.62 percent of the total respondent are of the Diploma qualification,

53.85 percent of the respondents are of the Apprenticeship qualification and for other qualification are with 36.54 percent of the total respondent. From the total of 52 respondents who responded to the questionnaire, the qualification Apprenticeship were of the highest respondent with a percentage of 53.85 percent and the lowest percentage of respondent are Degree with 0 percent.

### 3.15 Analysis of Artisan and Craftsmen Agreement

Mean Item Score (M.I.S) was used in analysing the collated data. The mean item score is given as

$$M.I.S = \frac{5(N.O.R. SA) + 4(N.O.R. A) + 3(N.O.R. SD) + 2(N.O.R. D) + 1(N.O.R. UN)}{5(SA+A+SD+D+UN)}$$

Where: Number of response = N.O.R; Strongly Agree = SA; Agree = A; SD = Strongly Disagree; Disagree = D; Undecided = UN. The rating is given as follows; Strongly Agree (SA) = 5, Agree (A) = 4, Undecided (U) = 1, Disagree (D) = 2, Strongly Disagree (SD) = 3

### 3.16 State of Artisan and Craftsmen Training in the Construction Industry

**Table 5 State of Artisans and Craftsmen Training in the Construction Industry**

Training Parameters	Index	Rank
There is freedom to choose one's desired trade or craft	0.82	1
Industry professionals contribute adequately to the training program on site	0.77	2
Onsite training provides sufficient knowledge and experience	0.74	3
Artisans and craftsmen are trained using recent/modern equipment	0.71	4
Trainee objections and questions are always addressed	0.69	5
Training of skilled workers is organized by construction companies	0.67	6
The equipment and tools provided during the training are sufficient	0.59	7
Training allowances are provided to ensure optimum performance	0.58	8
Work schedule allows for offsite training	0.56	9
Training times and locations are fixed and always consistent.	0.55	10
Training in the organization is carried out according to individual workers' needs	0.49	11
Industry professionals contribute to the training program off-site	0.42	12

Source: Field survey

Highest Rank= There is freedom to choose one's desired trade or craft

Lowest Rank= Industry professionals contribute to the training program off-site

Response of the correspondent is presented in Table 5. State of each parameter. State of artisans and craftsmen training in the construction industry is presented in Table 5. The freedom to choose one's desired trade or craft by an artisan or craftsman ranked highest with a relative agreement index score of 0.82, this indicates that prospective or intending artisans are allowed to venture into training for their desired trade and not compelled otherwise. Industry professionals' adequate contribution to the training program on site ranked second on this table with a relative agreement index of 0.77, Onsite

training provides sufficient knowledge and experience was ranked third with a relative agreement index of 0.74, Artisans and craftsmen are training using recent/modern equipment ranked 4 on the table with a relative agreement index of 0.71. However, Industry professionals to off-site training ranked least with a relative agreement index of 0.42. Artisan and craftsmen training and retraining is undeniably essential. The quality of the training in past and recent times has high impact of the quality of work done, which could be used assess an artisan or a craftsman's performance on a building construction project.

### 3.17 Critical Success Factors that Influences the Performance of Artisans and Craftsmen

**Table 6 Critical Success Factors that Influence the Performance of Artisans and Craftsmen**

Critical Success Factors	RAI	Rank
Wages paid insufficient as compared to work done	0.89	1
Introduction of Incentives enhances craftsmen performance	0.89	2
Opportunity to be promoted	0.86	3
Artisan wages are increased yearly or other wise	0.86	4
Wages are paid on time	0.85	5
Skilled personnel on site have adequate job security	0.84	6
Artisans and Craftsmen are given sufficient break time during work hours	0.84	7
Project target often puts unnecessary pressure on artisans	0.84	8
Adequate equipment are provided on construction site	0.74	9
New methods for carrying out tasks are introduced often	0.71	10
Allowance to engage in onsite training in trades other than there present trades	0.63	11
Motivation of artisan and craftsmen for exceptional work done	0.68	12
Provision of health and safety kit and personnel	0.56	13
Allowances are provided for individual artisan tools	0.55	14

Source: Field survey

Highest rank= Wages paid insufficient as compared to work done Lowest rank= Allowances are provided for individual artisan tools

Critical success factors influencing the performance of artisans and craftsmen is presented in Table 6. Critical success factor (CSF) is an administrative term for a component that is important for a project or venture to accomplish its main goal. It is a basic variable or action required for guaranteeing the achievement of an organization or a firm. The insufficiency of wages compared to work done ranked highest as a critical success factor with relative agreement index of 0.89, introduction of incentives as critical success factor to promote artisans' performance ranked second with relative agreement index of 0.88. Subsequently opportunity to be promoted, increase in artisans wages and timely payment of

wages ranked third, fourth and fifth respectively with relative agreement index of 0.861, 0.857 and 0.85 respectively. Provision of health and safety kit and personnel and provision of tool allowances ranked lowest with relative agreement index of 0.56 and 0.55 respectively.

From the table above and the deductions made, it is clear that skilled and unskilled workers on and off-site find perform better as a result of wage satisfaction. This satisfaction could either be in terms of its sufficiency compared to work done, periodic increase or timely payment.

Job satisfaction is very integral to the success of the goal of any organisation. In the case of artisans and craftsmen in construction industry, what gives the most satisfaction is the amount of monetary value attached to the work they carryout. When there is optimum satisfaction in form of remuneration, optimum performance is to be expected. Job satisfaction in form of wage increase on a periodic basis also promotes performance of artisans and craftsmen. Increase in wage annually, biannually or otherwise would go a long way in establishing loyalty amongst the skilled workers. This established loyalty helps to promote artisans and craftsmen optimum performance in the long run.

### 3.18 Assessing the Efficiency of Past Training Methods

**Table 7** Assessing the Efficiency of Past Training Methods

Methods	Index	Rank
Artisans and craftsmen often make mistakes during the course of their training	0.88	1
Certificates or diplomas are granted in training schools	0.85	2
Artisans and craftsmen training as they work cause delay in project delivery time	0.78	3
Artisans and craftsmen who train in technical schools are effective in carrying out tasks	0.77	4
Learn as you work method has proven effective in recent times	0.73	5
Training fees/dues on site are affordable	0.68	6
Trainees learning as they work are granted full access to equipment during their training	0.63	7
Technical schools are equipped with modern equipment	0.59	8
Technical schools are available and easily accessible for training	0.59	9
Trainees in technical schools have full access to all tools and equipment available	0.57	10
Technical schools are up to date with the current practices in the building construction industry	0.56	11
Adequate effort is put into training by tutors in training school	0.51	12
Available training schools follow a specially drawn out curriculum	0.49	13

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Technical training fees are affordable	0.46	14
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Source: Field survey 2017

Highest rank= Artisans and craftsmen make mistakes during the course of their training onsite

Lowest rank= Technical training fees are affordable

In recent times the major methods of training are dependent on the location i.e. either on site or offsite. Assessing the efficiency of past training methods is presented in Table 7. Mistakes made by artisans and craftsmen during the course of their training ranked highest with relative agreement index of 0.88, while the affordability of training and technical schools ranked least on the table with relative agreement index of 0.46. Ranking second on the table is the granting of diploma certificates by training schools with a relative agreement index of 0.85. Issues such as delays on project delivery time caused by artisan and craftsmen training on site ranked fourth with relative agreement index of 0.78. Following specially drawn out curriculum in training schools ranked 13 with a relative agreement index of 0.49.

From the information on the table, it can be deduced that the current practices as it relates to training artisans and craftsmen have not been as effective as they seem. Firstly artisans and craftsmen make mistake during training. This seems like a minor and obvious thing as it is expected of everyone to make mistakes at least once when trying something new. But these mistakes can be cost daring and could result in major setbacks and delay in project delivery time. Onsite training should be restricted to areas or task that are not immediate and would not cause any constraint in the project schedule. Certificates or diploma are issued to craftsmen and artisans upon completion of their training. This ranked second on Table 7. These certificates and diplomas would serve as proof of completion of training in a particular trade. With these certificate as proof, only trained craftsmen would be employed. The effectiveness of artisans and craftsmen that train in technical school is also an issue. Artisan that train in technical schools carryout tasks differently as compared to those that trained on site. On site artisans and craftsmen are trained under pressure whereas craftsmen trained in vocational schools are not. Ranking least on Table 4.8 is the affordability of technical training fees. A larger percentage of the respondents disagreed that technical training fees are affordable. The affordability of these training methods and strategies has a high influence on it accessibility.

### **3.19 Methods that could be adopted to promote the Performance of Craftsmen on a Construction Project**

**Table 8 Methods that could be adopted to promote the Performance of Artisans and Craftsmen in a Construction Project**

Performance Characteristics	Index	Rank
There should be periodic increase in the wages of artisans and craftsmen	0.97	1
Working schedule should be made flexible	0.95	2
Artisan and craftsmen should be incentivized and often motivated <b>output</b>	0.93	3
Modern plants and equipment should be accessible to trainees	0.93	4
Technical school graduates should be given special certificates or diplomas	0.92	5
A special curriculum is to be drawn for every trade	0.92	6

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Periodic assessment of artisans skill should be conducted	0.91	7
Industry stakeholders should have a say in the training of artisans	0.91	8
Training programs should be organized by construction firms often	0.89	9
Company recruitment of artisans should be stricter	0.79	10
On-site training should be restricted to only artisans with little past experience	0.64	11

Source: Field survey

Highest rank= There should be periodic increase in the wages of artisans and craftsmen

Lowest rank= On-site training should be restricted to only artisans with little past experience. From Table 8 it can be deduced that periodic increase in wages of artisans and craftsmen ranked highest with relative agreement index of 0.97, working schedule should be mad flexible ranked second with relative agreement index of 0.95. Provision of incentives and motivation ranked second with relative agreement index of 0.93, other strategies such as periodic assessment of artisans skill, stakeholders having a say in artisan training and Organisation of training programs by construction firms ranked 7, 8 and 9 respectively with relative agreement index of 0.911, 0.908 and 0.88 respectively. On-site training should be restricted to only artisans with little past experience ranked least on the table with relative agreement index of 0.64.

#### 4.12 Discussion of Findings

In this section, the discussion of the findings in this study are presented. It was discovered all of the respondents (100%) are male while there was no female respondent. This can be attributed to the tediousness and the nature of the work and work hours of the artisan or craftsman trade. 25% of the respondents are carpenters, 23.08% of the respondents are masons, 23.08% were steel fixers, 13.45% were tilers, 7.69% were painters, 3.85% are welders and 3.85 were plumbers as well. 25% of the respondents have working experience ranging from 1-10 year, working experience of 11-20 years are 55.77% of the respondents, 15.38% of the respondents have 21-30 years working experience while those above 30 years of working experience are 3.85% of the respondents. 75% of the respondents are Nigerians, 9.62% are Ghanaian, 3.85% are Togolese and 11.53% are Beninese.

In assessment of the state of artisan and craftsmen training in the construction industry, the contribution of professionals to onsite training on craftsmen and artisans ranked high has been very effective. This is because the required standard for the work is established and they play the role of supervisors as well. The onsite training also gives artisans the advantage of getting conversant with all equipment on site. Furthermore, organisation of training programs within construction firms is uncommon. From the analysed data, it can be seen that the work schedule for skilled and semi-skilled workers is not flexible. If it were to be flexible, it would allow for ease of off-site training. Offsite training in the construction industry is done in technical, vocational or trade schools. From the data

analysed, it has been deduced that professionals do not contribute to the learning program offsite. This negligent attitude towards the offsite training has made the strategy unreliable.

Critical success factors are those couple of things that must go well to guarantee success for an administrator, manager or an organisation and, along these lines they speak to those administrative or managerial areas that must be given unique and persistent attention regarding realization of optimum performance and organisational goals. Critical success factors incorporate issues fundamental to an organisation's ongoing projects and to its future achievement. From this study, the major critical success factors that are widely agreed to have influence on the performance of artisans and craftsmen are all remuneration related. The satisfaction an artisan or craftsman derives from the wage he receives has tremendous effect on his performance. In the case where the craftsman feels under-remunerated, the performance of said craftsman would be sub-par.

Furthermore strategies that could be adopted to promote performance for the table include periodic increase in wage; since artisans feel better appreciated and satisfied with monetary or financial reward. Flexibility of working hours should be adopted in the case where onsite training programs are not organised.

### **5.1 Conclusion**

This concluding chapter captures and explains the findings of this research work. The aim of the study is to evaluate artisan and craftsmen performance in Nigeria and devise strategies for improvement.

The study found out the following strategies could be adopted to promote performance they include the aim and objectives of the study have been achieved and the following conclusions were drawn; The fact presented below toes the line of submissions in [13];[20];[21]; [22] and [23].

- i. The poor contribution of professionals and stakeholders in the construction industry to training programs has not being helpful to quality of skill acquired by artisans and craftsmen.
- ii. The major critical success factors that influence productivity and incite performance in artisans and craftsmen are dependent on their financial satisfaction. Furthermore provision of incentives and motivation are very highly influential.
- iii. Training in the construction industry is categorised under formal and informal, and in recent times, their efficiency is questionable due to the poor performance and failure to deliver by indigenous artisans and craftsmen.
- iv. Any method or strategy that is to be used or adopted to promote artisan and craftsmen performance has to be aimed at satisfying them.

## 5.2 Recommendation

As a result of this research which was carried out via questionnaire administration, certain predicament as regards artisan and craftsmen performance were discovered. However, the following recommendations can be reached, they include;

- i. Artisan and craftsmen job satisfaction should be given uttermost priority because their satisfaction affects their task execution as well as their performance.
- ii. Training and retraining of artisans and craftsmen should be vied as an essential strategy. Construction firm should invest in the training and retraining of their craftsmen to promote optimum performance. Construction professionals and stakeholders should contribute to the skills acquisition programmes both onsite and offsite
- iii. The Council of Registered Builders of Nigeria (CORBON) and Nigerian Institute of Building (NIOB) should make policies that will regulate craft skill training in the construction industry. This could be done by drawing out a curriculum for skill acquisition under each trade
- iv. Construction firms should adopt the strategy of motivation and incentive provision for artisans and craftsmen.
- v. There be an implementation improved remuneration policy for artisans and craftsmen in the construction industry as well as provision of incentives, frequent motivation and adequate job security.

## Acknowledgement

The support of the Covenant University Centre for Innovation and Discovery is duly recognize in the supports given to the research and publication of this work.

## References

- [1] Bustani, S. (2000). Availability and Quality of Construction Craftsmen and Artisans in the Nigerian Construction Industry. *Journal of Construction Technology and Management*, 3(1), 91-103.
- [2] CalistusAyegba, A. E. (2014). Assessment of Craftsmen Turnover in the Construction Industry. *Civil and Environmental Research*, 6. 25-36.
- [3] Abdullah, A. B. (2011). Evaluation of Job Satisfaction and Performance of Employees in Small and Medium Sized Construction Firms in Nigeria. *Proceedings of the 2nd International Conference on Construction and Project Management*, 15, pp. 225-229. Singapore.
- [4] Akindoyeni, A. (7th July 2005). Nigerian Building Craftsmen; which way forward? Text of paper presented at the NIOB craftsmen's summit at Yaba College of Technology. Lagos.
- [5] AfuyeFunso, L. S. (2016). Impact of Motivation on Productivity of Craftsmen in Construction Firms in Lagos. *Nigeria International Journal of Economics and Finance*, 8,11-29.
- [6] Abiola, R. (2004). Productivity Improvement in Project Organization. *Journal of the Nigerian Institute of Quantity Surveyors*, 46(5), 17-22.

- [7] Ade Abdulquadrilau, M. A. (n.d.). Review of Shortage of Skilled Craftsmen in Small and Medium Construction Firms in Nigeria. *Journal of Environment and Earth Science*, 5.
- [8] Darren, O., & Mark, T. A. (2012). How Industrial Contractors are Handling Skilled Labor Shortages in the United States. 48th Associated Schools of Construction (ASC) Annual International Conference Proceedings. 12-29.
- [9] Hedidor, D. (2015). Performance Evaluation of Private Contractors in the Eastern Region of Ghana. *International Journal of Construction Engineering and Management*. 12,10-18.
- [10] Henry MwanakiAlinaitwe, J. A. (2007). Factors Affecting the Productivity of Building Craftsmen- Studies of Uganda. *Journal of Civil Engineering and Management*, 13,12-27.
- [11] AmusanLekan, Owolabi, OgundeTunji-Olayeni Patience, RaphealOjelabi, AfolabiAdedeji, Ugochukwu Robert (2017) Vocational Skill Mobility and Its Effect on Occupational Engagement among Tradesmen and Craftsmen in Building Sector. *Turkey Online Journal of Education Technology*. December 2017 Special Edition. 1-16
- [12] Mahamid, I. (2013). Principal Factors Impacting Labour Productivity of Public Construction Projects in Palestine: Contractors' Perspective. *International Journal of Architecture, Engineering and Construction*, 2. 12-26.
- [13] Medugu, N. I. (2011). Craft Skills Availability in the Nigerian Construction Industry: Perception of Contractors and Consultants. *The IUP Journal of Infrastructure*, 9(3), 63-73.
- [14] Ndibe, L. D. (2013). Strategy for Reduction of Unemployment Situation in Nigeria. *International Journal of Business and Management Invention*, 2(4), 13-17.
- [15] Yangben, P. N. (2014). Career challenges in construction craft training in technical vocational education and training in Ghana. *International Journal of Vocational and Technical Education*, 6.
- [16] Wahab, A. B. (2010). Stress Management among Artisans in Construction Industry in Nigeria., *Global Journal of Researches in Engineering*, 10, 2-19.
- [17] Olomolaiye, P. O. and Ogunlana S.(1989). An Evaluation of Production Outputs of Key Building Trades in Nigeria. *Construction Management and Economics*, 7, 75-86.
- [18] Usman, N. I. (2012). Training Of Contractors Craftsmen For Productivity Improvement. *Journal of Engineering and Applied Science*.6,2-15.
- [19] Agbo, A. E. (2014). Performance Evaluation of Labour Output of Indigenous Construction Firms in North- Central Nigeria. *Civil and Environmental Research*, 6.10-15.
- [20] Jos Nmadu, T. (1998). Human Resources Management: An Introduction. *Jofegan Associates Journal for apprenticeship and vocational training*, 261, 36-57.
- [21] Lawal, P. O.-O. (2011) Comparative Study of Work Output and Wages of Construction Craftsmen in the Nigerian Public Sector. *Mediterranean Journal of Social Sciences*, 2(3), 139 – 145.

[22] Ameh, O. J. (2013). Effectiveness of Non-Financial Motivational Scheme on Construction workers Output in Nigeria. *Ethiopian Journal of Environmental Studies and Management*, 6,14-26.