

Strategies for Skill Development in the Nigerian Construction Industry

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Abstract—Skill shortage has become a serious problem requiring urgent attention in the Nigeria construction industry, the poor quality of projects deliveries can be attributed to the dwindling stock of competent skilled construction workers and the influx of unskilled, inefficient and dissatisfied workers who see the sector as a last resort. The aim of this paper is to examine the strategies for skill development in construction industries in Abuja, Nigeria. The objectives are: To identify causes of skills- gap on Building projects in Abuja, Nigeria, and to examine strategies that will bridge the identified skills- gap. Basic literatures on construction practice left no doubts that the successful realization of construction projects requires the committed action of professionals and vocational trade operatives. The existence of a functional team is the number one rule for a successful construction process. Furthermore, it exposes issues on training and vocational skills in the construction Industry. The paper relied extensively on secondary information to establish the indicators and nature of skill gap. Field survey of some Building projects sites in Abuja, Nigeria compliment the secondary information on the existence of skill gap. The study therefore recommend that stakeholders should evolved skill acquisition policies which involve public private partnership and government should develop scheme for the recognition of skills through the assessment and certification of skills with appropriate knowledge. Encourage young men and women to enter apprenticeships to check occupational segregation and provide equitable .and high-quality training for both young men and women in the Construction Industry.

Keywords—Construction industry, Nigeria, Skill development, Strategies.

1. INTRODUCTION

The construction industry is one of the driving forces behind the socio-economic development of any nation. It plays a leading role in improving the quality of the built environment [10]. A common characteristic is the growing demand for

construction projects, especially in developing nations, as a result of the rising standard of living and urbanization; and the associated need to provide shelter for their citizens [6]. The provision of facilities involves a large financial outlay, which makes the construction industry focus more on materials, personnel and machinery [10]. The poor quality of projects deliveries can be attributed to the dwindling stock of competent skilled construction workers and the influx of unskilled, inefficient and dissatisfied workers who see the sector as a last resort. There are indeed a few that see construction crafts as career worth coming to. This scenario will inevitably result in skill-gap, an issue of major concern in view of its invariable impact to the national economy.[12].There are no accurate statistics of trade skill-gap in the construction industry, however, The poor quality of projects deliveries can be attributed to the dwindling stock of competent skilled construction workers and the influx of unskilled, inefficient and dissatisfied workers who see the sector as a last resort {18} observe that, despite the importance of construction craftsmen to the industry, large number of them still remain untrained, even though the construction industry, all over the world have been implementing skills acquisition programmed to meet the demand of sporadic change in technologies. [7] Noted that, construction craftsmen are operatives who contribute skillfully with their hands in the practical realization of a projects in a construction industry. Hence the need of enhanced skill development has been advocated to contain unpredictable workloads in the construction industry and reduced high cost involve in keeping idle labor.

[3] stated that, the term skills development is used to describe a wider array of institutions and activities influencing employment and earnings, but also covers every form of informal education, provided there can be seen, a positive influence on the ability on the individuals to accomplish a specified task. According to [5] the building industry is one of the economic sectors that will continue to play an important role in contributing to national economic development.[20] suggests that training and development should be viewed as veritable tools that help to improve the outdated nature of the construction industry in to a modern construction industry through updating of staffs and manpower

development. the greatest challenges currently facing the construction industry in Nigeria, is the current average age of trained craftsmen and artisans in the sector is between 45-50 years and fewer skilled workers are available to replace the aging workforce [11]. [8]. views this reason is not far-fetched because of the ever increasing sophistication in this age of computer technology which has made it compulsory for organization to meet changing situations with globalization in the construction industry and clients demands. [9] Found that, Motivation of skilled workforce can be achieved in many ways, but whatever method is adopted, it must be realized that economic rewards must be among the chief consideration. [1] Suggested that, employers may report shortages of particular workers, or difficulties in filling vacancies, either because there are not enough of them or else those who are available do not possess skills deemed necessary by employers, such as computer literacy.

Phenomenon of Qualifications Framework National vocational qualifications (NVQ) are competence- based qualifications acquired at workplace that demonstrate that the holder has the (national benchmarked) skills and aptitude required to perform the job in question [21]. It is equally beneficial for trainees in the Technical and Vocational Education and Training (TVET) system, as well as for the industry and employers [2]. Reasons for introducing NQF/NVQF vary across different countries. However, in most cases they include: (a) promoting lifelong learning; and (b) enhancing quality assurance and recognition. These two categories of qualifications framework goals have been concisely described [22]. Nigeria's NVQF Initiative: Journey so Far Nigeria's move to introduce vocational qualifications framework began in 2004, with a sensitization seminar organized in partnership with British Council [15]. This was followed by a long period of study of NVQFs in other Commonwealth countries, by personnel of National Board for Technical Education [15], and other government agencies concerned with skills development. Requirements for Operating NVQF to appreciate the challenges of institutionalizing a successful NVQF, it is necessary to consider the typical setting under which such frameworks operate in most countries [21]. According to [19] skills are inbuilt abilities for task accomplishment. These skills development policies are partially different from general education or labour policies because they not only include young people who have completed their education but also adult workers, school drop-out and disadvantaged group [24].

According to [12], skills are what an individual possesses which may be learnt informally and/or on-the-job. Skill- Gap is the difference in the skills required in the job and the actual skills possessed by the employees. A "Skill- Gap" arises when a worker does not have all the skills necessary to do the job effectively. Therefore, skill- gap refer to the situation where a company has employees but they are not

skilled enough to meet the organization's objectives. [17]. Reported that, Skills shortage in Nigeria is characterized by the following:

- Few applicants possess the right skills
- Few applicants possess the experience that the company believes the position warrants.
- Few applicants possess the qualifications that the employers believe they need.

Legion of Artisans and craftsmen from neighboring West African countries on our building projects. The aim of this paper is to examine the sustainable strategies for bridging skill- gap, in construction industries in Abuja, Nigeria, with objectives of identifying the causes of skills- gap on Building projects and to examine sustainable strategies that will bridge the identified skills- gap in Abuja, Nigeria.

2.1 MATERIALS AND METHOD

This paper covers construction projects within Abuja, the Federal Capital Territory of Nigeria, from which a sample of projects were selected. The sample comprises both public and private projects, using both criterion-based and stratified random sampling techniques. 50 questionnaire were administered, 45 were returned, resulting to a response rate of 90%. 5 point Likert scale was used as the assessment scales in the survey presented to respondents. This likert scale is a scale developed by rensis likert, to measure the opinions, attitudes, and expectations of a group of people about social phenomena (i) Very low (ii) Low (iii) Average (iv) High (v) Very high

The most important instrument used in this research is the questionnaire for the fact that quantitative approach was adopted. A questionnaire was structured to obtain primary data from respondents. This involves collecting data from the respondents. The purpose of dissemination of questionnaires is to explore and measure the value of the most important physical and demographic attributes that influence performance at the study area. The questionnaire was sent out for pilot test. The purpose of pilot test is to ensure that the questions will provide required data undoubtedly. The questionnaire was design to achieve the research objectives. It consist an introduction and two parts. The introduction gives a description of the survey, its purpose and objectives. The first part of the questionnaire is related to general information about the respondents. The respondents was requested to answer general information pertaining to their classification and experience in construction.

The analysis of the acquired data through questionnaire distribution was processed using the [SPSS] software version 22. Defects and poor quality in buildings are often associated with the poor performance of skilled artisans in building industry, the performance process of skilled Artisans in Masonry, Carpentry, Plumbing, Iron-bending, Electricals, Tiling and Painting in the Nigerian Building Industry has not been determined. The outcome of this work is expected to assists

contractors in the Nigerian construction industry to be able to manage their Construction works and even the firm's effectively.

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Table one show the features of construction professionals in Abuja, Nigeria with their qualification, experience and area of specialization.

Table 1: Features of Construction Professionals

	SUB FEATURES	CIVIL ENGRS		ARCHITECT		BUILDERS		Q.S		CLIENT PROJECT MERGE		TOTAL	
		N	%	N	%	N	%	N	%	N	%	N	%
Sex	Male	8	100%	8	80	12	80	7	100	5	100	45	
	Female	0	0	2	20	3	20	0	0	0	0		
	Total	8	100%	10	100%	15	100%	7	100%	100	100%		
Age	20 – 40yrs	2	25%	4	40%	5	33	2	28.5	1	20	45	
	40 – 60yrs	4	50	5	50	7	48	4	57	3	60		
	>60yrs	2	25	1	10	3	19	1	14.5	1	20		
	Total	8	100	2	100	15	100	7	100	5	100		
Qualification	OND/HND	1	12.5	1	10	2	13.3	2	28.5	1	20	45	
	B.Sc	2	25	4	40	3	20	4	57	4	80		
	M.Sc	3	25	5	50	7	46.7	1	14.5	0	0		
	PhD	2	37.5	0	0	3	20	0	0	0	0		
	Total	8	100	10	100	15	100	7	100	5	100		
Experience	1 – 5yrs	1	12.5	2	20	1	6.7	1	14.5	1	20	45	
	6 – 10yrs	1	12.5	2	20	2	13.3	2	28.5	1	20		
	11 – 15yrs	2	25	2	20	5	33.3	2	28.5	2	40		
	16 – 20yrs	2	25	2	20	4	26.7	2	28.5	1	20		
	>20yrs	2	25	2	20	3	20	0	0	0	0		
	Total	8	100	10	100	15	100	7	100	5	100		

area. The questionnaire was sent out for pilot test. The purpose of pilot test is to ensure that the questions will provide required data undoubtedly. The questionnaire was design to achieve the research objectives. It consist an introduction and two parts. The introduction gives a description of the survey, its purpose and objectives. The first part of the questionnaire is related to general information about the respondents. The respondents was requested to answer general information pertaining to their classification and experience in construction

Objective one: To identify causes of skill- gap on Building projects in Abuja, Nigeria.

Table 2: Presentation of Mean Ranking for Objective one (1)

	Mean	Std. Deviation	Ranking
Lack of incentive	3.61	1.318	1
Lack of training and development	3.60	1.251	2
Lack of supports from senior management	3.59	1.017	3
Lack of improving on previous mistakes	3.58	1.107	4
Lack of appropriate contractors policies	3.52	.994	5
Inadequate design information.	3.50	.954	6
Poor motivation by contractors	3.49	1.059	7
Poor scheduling and planning	3.47	1.029	8
Lack of awareness among practitioners on skill gap	3.47	1.073	9
Designing uneconomical	3.45	1.076	10
Shortage of skill workers	3.41	.929	11
Lack of experience	3.37	1.210	12
Use of unskilled labour	3.34	.957	13
Lack of quality and control mechanism	3.34	1.255	14
poor monitoring	3.32	1.137	15
Poor attitude to work	3.30	1.336	16
Unskilled workers	3.29	1.241	17
Incorrect scheduling and planning	3.29	1.250	18
Lack of adherence to specification	3.26	1.147	19
Poor workmanship	3.25	1.188	20
Poor communication and coordination skills	3.25	1.274	21
Inappropriate construction method	3.20	1.091	22
Poor site management and supervision	3.14	1.243	23
Difficulty in interpreting specifications	3.14	1.108	24
poor management of plants and materials	3.13	1.021	25
Inappropriate use of materials and equipment's	2.95	1.229	26
Poor workers/management relationship	2.94	1.273	27
Sabotage	2.80	1.138	28
Working overtime	2.63	.967	29

Objective two (2) to examine the measures of bridging the identified skill- gap.

Table 3 Presentation of Mean Ranking for Objective Two (2)

Descriptive Statistics			
	Mean	Std. Deviation	Ranking
Enhancing Skills Shortages of Tiling	3.23	1.360	1
Enhancing Skills Shortages of Electrician	3.20	1.350	2
Enhancing Skills Shortages of Iron-bending	3.08	1.399	3
Enhancing Skills Shortages of Masonry	3.03	1.406	4
Enhancing Skills Shortages of Carpentry	2.98	1.301	5
Enhancing Skills Shortages of Plumbing	2.98	1.400	6
Adequate infrastructural services	2.77	1.520	7
Provision of quality and appropriate tools.	2.71	1.548	8
Enhancing Skills Shortages of Painting	2.66	1.406	9
Information and Communication Technology (ICT)	2.61	1.493	10
Provision of Health and Safety mechanism	2.59	1.441	11
Provision of Skills training programmed where certificate are issued to competent Artisans	2.59	1.626	12
Good wages and remuneration to skilled Artisans	2.58	1.634	13
Drug abuse counseling	2.57	1.418	14
Establishing industry base skills acquisition centers	2.50	1.554	15
Valid N (listwise)			

Table 4: Training and Development Opportunities of Nigeria Construction Professionals

Development and Training Opportunities	Coaching Training	Yes No Total	4 4 8	50 50 100	Yes No Total	6 4 10	60 40 100	Yes No Total	5 10 15	33 67 100	Yes No Total	3 4 7	42 58 100	Yes No Total	3 2 5	60 40 100
	On the Job Training	Yes No Total	4 4 8	50 50 100	Yes No Total	5 5 10	50 50 100	Yes No Total	10 5 15	67 33 100	Yes No Total	4 3 7	58 42 100	Yes No Total	3 2 5	60 40 100
	In-House Training	Yes No Total	5 3 8	62.5 37.5 100	Yes No Total	6 4 10	60 40 100	Yes No Total	10 5 15	67 33 100	Yes No Total	5 2 7	71.5 28.5 100	Yes No Total	0 5 5	0 100 100
	Development Training	Yes No Total	2 6 8	25 75 100	Yes No Total	3 7 10	30 70 100	Yes No Total	5 10 15	33 67 100	Yes No Total	2 5 7	28.5 71.5 100	Yes No Total	0 5 5	0 100 100
	Special Training	Yes No Total	1 7 8	12.5 87.5 100	Yes No Total	3 7 10	30 70 100	Yes No Total	3 12 15	25 75 100	Yes No Total	2 5 7	28.5 71.5 100	Yes No Total	2 3 5	40 60 100

3.1 RESULT AND DISCUSSION

Features of the Respondents

The features of the Nigeria construction professionals used for the study were investigated as a background to the understanding and discussion of result. For this purpose, five features namely sex, age, qualification, experience and the responsibilities of stockholders on training and development. The result shows that more than 80% of the Nigeria construction professionals are all male with age range between 40-60years, with academic qualification of Master's and Doctorate Degree respectively and working experience within 10-20 in construction industry. Below illustrates the quantitative results obtained from the survey conducted on causes of skill-gap on building projects in Abuja. The data were analyzed using mean ranking, where the result of the findings provides an indication of the causes of skill-gap on building projects in Abuja as objective one. Respondents were asked to rate the variables on the five point Likert scale rating of 1-5 (Very low to Very height). The results were arranged from the highest to the lowest mean value of three (3) top most significant factors and two with least significant values on the causes of skill-gap on building projects in Abuja.

Lack of incentive on this part illustrates the results of descriptive analysis for objective number one (1). The result of the survey indicated that, the most significant factor on the causes of skill-gap is the Lack of incentive. Respondents rated the variable with highest mean value of 3.61 with std of 1.318. The result was supported by several findings of researches conducted ({12}; {17}; and {4}). The second ranked factor on the table in objective one (1) is Lack of training and development which has 3.60 means value with STD of 1.251. The respondents agreed that this is also one of the factors that have significant contribution to causes of skill-gap. The

result was supported by several findings of researches conducted ({16}; {8}; {18} and {25}). This indicates Use of appropriate tools and equipment for skilled workers is a critical issue that stakeholders concern should addressed in order to train skilled workers to the global technological trend toward efficient and productive work.

The third ranked factor on the table is Lack of supports from senior management, which has 3.59, means value with the std of 1.017. The respondents agreed that this is also one of the factors that have significant effects on the production process of skilled artisans in building production. The result was supported by several findings of researches conducted in and outside the Nigerian construction industry ({16} ;{8}, {18}, and {25}). The lower factors that are significant on the causes of skill gap are sabotage, it was revealed in the result of these findings with 2.80 mean values and STD of 1.139. Deliberate non adherence to specification and corruption are problems sabotaging the efforts of any organization. The result was supported by several findings of researches conducted ({12}; {17}; and {4}). The least factor that is significant on this objective is working over time, it was revealed in the result of these findings with 2.63 mean values and STD of 0.967. Working overtime always affects the artisan's performance in building production. A good foreman works for a specified period of time to be the keystone of the company in projects delivery. This result was supported by findings of researches conducted ({12}; and {17})

The quantitative results obtained from the survey conducted on measures of bridging the identified gap. The data were analyzed using mean ranking, where the result of the findings provides an indication on measures of bridging the identified gap, as objective two.

The factor that is most significant on the measures of bridging the identified skill gap is the Enhancing Skills Shortages of tiling. The result of these findings having 3.23 and 1.36 mean values and STD. It is believed that outdated machines for operation such as such vibrators, flooring machines and powered machinery which are old and obsolete and outdated are not effective for construction projects, and apparently resulted to low production process of skilled artisans' productivity. Several researches supported this finding such as {21}. The result was strongly supported by various researches such as {2} and {23} Enhancing Skills Shortages of electrician is another factor that is significant on the ways of bridging the identified skill gap. The result of these findings having 3.20 means values with STD of 1.350. Provision of personal protective equipment to skilled artisans such as; nose masks, eye goggles, hand gloves, overalls wear and helmets is a manifestation of the fact that construction firms recognize the advantages of providing appropriate working tools for safety of individual skilled workers as major labour-saving devices for productivity improvement.

Another factor that is significant is Enhancing Skills Shortages of iron bending, it was revealed in the result of these findings with 3.08 mean values and STD of 1.399. The result was supported by several findings of researches conducted ({4} and {24}, {17}; and {13}). Good wages and remuneration to skilled Artisans normally resulted to efficient performance and enhance productivity in construction site, and there are also wages differentials across organizations, because of lack of define skills competence and experiences structure of the skilled artisan's. The lower factors that are significant on the measures of bridging the identified skill gap is drug abuse counseling, it was revealed in the result of these findings with 2.57 mean value and STD of 1.191. Drug abuse has drastic effects on artisan's performance and their health in general. The result was supported by several findings of researches conducted ({12}; {17}; and {4}). The least factor that is significant on this objective is establishing industry base skill acquisition centers, it was revealed in the result of these findings with 2.50 mean value and STD of 1.128. Training artisans to be competent in skills acquisition centers will improve skilled competence performance in building production. A good foreman is said by many Skilled Artisans competence to be the keystone of the company in projects delivery. This result was supported by findings of researches conducted ({12}; and {17}) From the result it shows that stake holders participation on training and development was not encouraging as development training response was 25%, special training 20%, and on the job training 50%. Good wages and remuneration to skilled Artisans normally resulted to efficient performance and enhance productivity in construction site, and there are also wages differentials across organizations, because of lack of define skills

competence and experiences structure of the skilled artisan's.

4.1 CONCLUSION

Professional regulatory bodies in the Nigeria built environment have the statutory responsibility to ensure professionalism and competencies of their licensed members. A regulating body with a mandate of a sector skill council has the responsibility of identifying skills gap and facilitating the process necessary for bridging the gap. The following strategies should be adapted for addressing skill- gap in the building industry.

Training; poor workmanship apparent in buildings across the country make up training existing artisans and craftsmen imperative. Research: paucity of reliable information on skills gap creates the need for an extensive research to obtain data on the actual supply of skills and demand for skills. Performance Enhancement: employers ought to develop standard for improving productivity of workforce. Guidance and counseling: reaching out to secondary school leavers to consider technical vocation is a strategy worth considering. Standardization and categorization of skill requirement: with increase in size and complexity of building projects, the quality of work force ought to be enhanced.

Government should develop natural schemes for the recognition of skills through the assessment and certification of skill with appropriate knowledge whether or not they were acquired in the informal and formal apprenticeship system. It is also recommended that government should encourage young women to enter apprenticeship to check occupational segregation and provide equitable and high-quality training for both young men and women to reduce male domination.

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