

Contributing Factors Of Poor Construction Worker's Productivity In Gombe State- Nigeria

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Date of Submission: 01-10-2022

Date of Acceptance: 10-10-2022

ABSTRACT: Productivity is considered as an important facet of the construction industry which can be used as indicant for evaluating the efficiency of production and rating of economic growth from corporate and individual viewpoint. Poor labor productivity of construction workers is identified as the most appalling problems affecting the success and overall performance of Nigerian construction Industry. Therefore, the main objective of this paper is to identify the factors contributing to poor productivity of construction workers in Gombe State, Nigeria. This was achieved through quantitative approach where 150 questionnaires were administered to architects, quantity surveyors, builders and civil engineers. Subsequently, 125 valid responses retrieved from the respondents were analyzed using SPSS (Version 23.0). The findings reveals; lack of labor motivation, unavailability of experienced labor, design complexity level, unavailability of suitable tools and working overtime as the top five most significant factors contributing to poor productivity of construction workers. The study recommends; contractors should be committed in engaging skill workers that have technical skills to deal with design complexity. Incentive and welfare of workers should be maintained by the contractors to improve their productivity thereby motivating them. Finally, equipment and tools that can suit the work should be provided by the contractor to improve productivity performance of workers.

KEYWORDS: Construction workers; Factors; Productivity

I. INTRODUCTION

Construction industry is the most heftiest and challenging industry all over the world. Human resource plays a significant role in improving productivity of construction industry. With the effective and maximum utilization of human resources, productivity can be increased substantially. Productivity is one of the factors impelling the growth of construction industry and it is mostly connected with the performance of construction workers (Alaghbariet al., 2019). Globally, construction is an important sector of the national economy as it plays a gigantic role in providing employment and revenue to many nations (Chigara & Moyo, 2014). However, construction industry rely on productivity for its survival and growth. Therefore, productivity performance of construction industry is very crucial as it contribute significantly to Gross Domestic Product (GDP) (Alaghbariet al, 2019). As explored in the literature, construction works were categorized in to numerous facets. According to Odesola et al. (2013) construction projects are categorized under four broad assortments. These includes; building construction, industrial construction and special-purpose projects as well as infrastructural construction

In Nigeria, the industry has capacity to provide labor of several trades to both skill and non-skilled operatives because of its dynamism. (Kuroshi & Lawal, 2014). Productivity of is an essential aspect of the construction industry which can be used as indicant for evaluating the efficiency of production and rating of economic growth from corporate and individual viewpoint. However, productivity has occupied a locus in the

construction industry because it encouraged cost savings and effective use of resources which is the main concern of both developed and underdeveloped nations (Karimet al. 2013). In today's competitive market, productivity of workers is regarded as one of the determining factors deteriorating the success and performance of any organization (Odesola et al., 2013). Many study remarked that the rate of construction productivity is declining. Karim et al. (2013) elucidated that productivity performance of construction workers in the Nigerian public service is not encouraging. Therefore, craftsmen's poor productivity is labeled as one of the appalling issues confronting construction industries particularly those in developing nations.

Poor productivity of construction workers can lead to cost and time overrun which in turn resulted to abandonment of projects. Thus, there is need for addressing this issue in the construction industry. Odesola (2012) reviewed 75 factors that impacted construction workers negatively. These factors were categorized in to five clumps namely; workers related factor, management related factors, project related factors, natural related and environmental related factors. Delays in execution of many projects was as a result of poor productivity of workers, consequently these projects are wretched with a lofty cost overrun (Muhammed et al., 2015). This has caused a lot of dissensions among the stakeholders in the construction industry. The success of any project can be determined by the productivity of construction workers. However, this might be impaired by several variables. These variables encompasses factors connected to materials, labor, equipment and tools, political, financing, construction methods and environment (Mahamid et

al., 2013). Construction workers performance related problems has stimulated the declining of construction productivity for many years (Siriwardana&Ruwanpura, 2012). There were few research on construction workers productivity in Nigeria. Therefore, lack of sufficient data and evaluation method was the reason that makes the issue of productivity unexplored in the construction industry. As majority of the studies conducted were on site specific (Kuroshi&Lawal, 2014; Muhammed et al., 2015). Therefore, this study is required as both individual and group factors contributing to poor construction worker's productivity will be explored extensively. A total of twenty eight (28) factors were reviewed from literature and considered for further evaluation to reveal the most significant factors and groups of factors contributing to poor productivity of construction workers.

II. LITERATURE REVIEW

Construction worker's productivity is defined by Rashid (2015) as the number output realized to the number of inputs in construction production; it is also described as an average evaluation of the efficiency of construction production. Efficiency here entails capability of production to generate incomes which can be measured by formula $\text{output rate less input rate}$. Odesola et al. (2013) remarked that productivity of construction is among the three most important critical success factors for measuring the performance of projects construction, the other two are cost and quality. The identified factors responsible for poor construction worker's productivity were presented in Table 1.

Table 1: Identified Factors Contributing to Poor Productivity of Construction Workers

No.	Factors Contributing to Poor Construction Worker's Productivity	Reference
Technical Factors (TF)		
1	Delay in responding to requests for information's	Shinde&Hedao 2017;
2	Rework	Rashid 2015
3	Clarification in technical specifications	Gupta&Kansal 2014
4	. Layout of Site	Jarkas&Bitar 2012
5	Extents of variations/change order during execution	Ibbs 2012; Shinde&Hedao2017
6	Stringent inspection by the engineer	Gupta &Kansal 2014
7	Crowding of labor or stacking of trades	Rashid 2015; Gupta &Kansal 2014
8	Design complexity level	Ibbs2012
9	Compatibility and consistency among contract	Shinde&Hedao2017

	document	
10	Delay in inspection by the engineer	El-Gohary& Aziz 2014; Gupta &Kansal 2014
Management Factors(MF)		
11	Method of construction	Fulford& standing 2014
12	Delay in making payment	Shinde&Hedao 2017; Small and Baqer 2016.
13	Labor supervision	Murodif&Erizal 2016
14	Lack of construction manager leadership	Ranasinghe et al. 2012; Rashid 2015
15	Sequence of work	Alaghbari et al., 2019; Small &Baqer 2016
16	Labor interference and congestion	Mahamid, 2013
17	Unavailability of suitable tools	Rasid 2015; Gupta &Kansal 2014
18	Material shortage	Shinde&Hedao 2017; Alaghbari, et al. 2019
19	Lack of training offered to operatives	Mahamid 2013
20	Working overtime	Small &Baqer 2016
External Factors (EF)		
21	Rain	Li et al. 2016; Gupta &Kansal 2014
22	Sandstorms	Gupta &Kansal 2014; Li et al., 2016
23	High/low temperature	Gupta &Kansal 2014; Shinde&Hedao 2017
24	High winds	Gupta &Kansal 2014
25	High humidity	Li et al. 2016; Shinde,&Hedao 2017
Human Labor Group(HF)		
26	Laborfatigue	Chigara&Moyo, 2014 ;Rashid 2015
27	Lack of labor motivation	Shehata& El-Gohary 2011
28	Unavailability of experienced labor	Chigara&Moyo, 2014; Gupta &Kansal 2014

III. METHODOLOGY

Quantitative approach had been used as a method of data collection in this study, which involved administration of well-structured questionnaire to architect, quantity surveyor, civil engineer and builders working in Gombe state, Nigeria. The list of contracting and consulting companies were obtained from Corporate Affairs Commission (CAC) so as to arrive at considerable population sampling. By using simple random

technique, a total of 150 questionnaires were distributed to the same respondents mentioned above via email and hand distribution. The designed questionnaire consists of Likert scale of 1-5 and closed ended questions which formed the basis for selection of variables in order of significance as envisaged by the respondents. All the responses derived from 125 retrieved questionnaire were analyzed using SPSS (Version 23.0).

IV. RESULT AND DISCUSSION

Table 2: Respondents Demography

1. Respondent's Nature of Work	Frequency	Percentage
Consultants	54	43
Contractors	71	57

	125	100
2. Respondent's Profession		
Architects	49	39
Quantity Surveyors	40	32
Civil Engineers	21	17
Builders	15	12
	125	100
3. Respondent's Qualification		
PhD	9	7
Master's Degree	45	36
Degree	66	53
Diploma	5	4
	125	100
4. Respondent's Years of Working Experience		
1-5	11	9
6-10	18	14
11-15	39	31
16-20	42	34
Above 20	15	12
	125	100

Table 2 above illustrated that 54(43%) and 71(57%) of the respondents partook in the survey were consultants and contractors respectively. While, 49(39%) were architects and 40(32%) of the respondents were quantity surveyors. In addition, 21(17%) and 15(12%) respondents were civil engineers and builders respectively. On the other hand, 9(7%), 45(36%), 66(53%) and 5(4%)

respondents have PhD, Masters, Degrees and Diplomas respectively as their highest qualification. Moreover, as shown on the table 11(9%) of the respondents ticked 1-5 as their years of working experience while 18(14%), 39(31%), 42(34%) and 15(12%) have 6-10, 11-15, 16-20 and above 20 as years of working experience.

Table 3: Individual Factors Contributing to Poor Productivity of Construction Workers

S/No.	Factors	Mean Value	Individual Ranking	Group Ranking
1	Lack of labor motivation (HF)	4.03	1	1
2	Unavailability of experienced labor (HF)	4.01	2	2
3	Design complexity level (TF)	3.99	3	1
4	Unavailability of suitable tools (MF)	3.95	4	1
5	Working overtime (MF)	3.90	5	2
6	Material shortage (MF)	3.85	6	3
7	Rain (EF)	3.81	7	1
8	Delay in responding to requests for information (TF)	3.79	8	1
9	Rework (TF)	3.64	9	2
10	Labor fatigue (HF)	3.50	10	3
11	High winds (EF)	3.42	11	2
12	Extents of variations/change order during execution (TF)	3.38	12	3
13	Lack of construction manager leadership (MF)	3.25	13	2
14	Clarification in technical specifications (TF)	3.18	14	5
15	Crowding of labor or stacking of trades (HF)	3.21	15	4
16	Lack of training offered to operatives (TF)	3.16	16	3
17	Labor interference and congestion (MF)	3.05	17	2

18	Labor supervision (MF)	2.93	18	7
19	High/low temperature (MF)	2.87	19	3
20	Sequence of work (MF)	2.82	20	8
21	Method of construction (MF)	2.77	21	9
22	Delay in making payment (MF)	2.64	22	10
23	High humidity (EF)	2.51	23	4
24	Delay in inspection by the engineer (TF)	2.40	24	6
25	Compatibility and consistency among contract document (TF)	2.33	25	7
26	Site layout (TF)	2.30	26	10
27	Stringent inspection by the engineer (TF)	2.24	27	10
28	Sandstorms (EF)	2.15	28	5

Table 3 above presented the results of ranking in respect of 28 contributing factors of poor construction worker's productivity. The results were arranged in ascending order from highest to the lowest value of mean values as shown on the table. The top five (5) most significant factors contributing to poor productivity of construction workers were revealed from twenty eight (28) variables. These includes; Lack of labor motivation inclined on average index of 4.03 was ranked 1st

among the factors contributing to poor productivity of construction workers in Gombe state. Unavailability of experienced labor with average index value of 4.01 was ranked 2nd while design complexity level with average index of 3.99 was ranked 3rd. Moreover, unavailability of suitable tools and working overtime inclined on average index values of 3.95 and 3.90 were ranked 4th and 5th respectively.

Table 4: Groups of Factors Contributing to Poor Productivity of Construction Workers

No.	Groups of Factors Contributing to Poor Construction Worker's Productivity	Group Mean	Group Ranking
Technical Factors (TF)			
1	Delay in responding to requests for information	3.79	
2	Rework	3.64	
3	Clarification in technical specifications	3.18	
4	Layout of Site	2.30	
5	Extents of variations/change order during execution	3.38	
6	Stringent inspection by the engineer	2.24	
7	Crowding of labor or stacking of trades	3.21	
8	Design complexity level	3.99	
9	Compatibility and consistency among contract document	2.33	
10	Delay in inspection by the engineer	2.40	
	Average Mean	3.05	3
Management Factors (MF)			
11	Method of construction	2.77	
12	Delay in making payment	2.64	
13	Labor supervision	2.93	
14	Lack of construction manager leadership	3.25	
15	Sequence of work	2.82	
16	Labor interference and congestion	3.05	
17	Unavailability of suitable tools	3.95	
18	Material shortage	3.85	
19	Lack of training offered to operatives	3.16	
20	Working overtime	3.90	
	Average Mean	3.23	2

External Factors (EF)			
21	Rain	3.81	
22	Sandstorms	2.15	
23	High/low temperature	2.87	
24	High winds	3.42	
25	High humidity	2.51	
Average Mean		2.95	4
Human Labor Group(HF)			
26	Labor fatigue	3.50	
27	Lack of labor motivation	4.03	
28	Unavailability of experienced labor	4.01	
Average Mean		3.85	1

As shown on Table 4 each group of factor has individual factors contributing to poor construction workers productivity. From the results of analysis human labor factor with highest average mean value of 3.85 was ranked 1st among significant groups contributing to poor productivity of construction workers in Gombe State. This was as a result of significance of human labor factors such as; lack of labor motivation and unavailability of experienced labor. Management factor with average mean value of 3.23 was ranked 2nd due to the significance factors leading to poor productivity of construction workers. These are; unavailability of suitable tools, working overtime and material shortage. Finally, ranked 3rd was technical factor with average mean value of 3.05, this finding was as a result of significance factors under technical group. These includes; design complexity level, delay in responding to requests for information and extents of variations/change order during execution.

V. CONCLUSION

The objective of this study is to identify factors contributing to poor productivity of construction workers in Gombe State. The survey was carried out using structured questionnaire form comprising of twenty eight (28) factors. A total of 125 valid responses derived from the questionnaire were analyzed using SPSS (Version 23.0). From the analysis, the most significant factors contributing to poor construction worker's productivity were unveiled as follows; lack of labor motivation, unavailability of experienced labor, design complexity level unavailability of suitable tools and working overtime. On the other hand, human labor factor, management factor and technical factor were revealed as the most significant groups of factors contributing to poor construction workers productivity in Gombe State, Nigeria. This study will help construction

stakeholders in Gombe state to be conversant with the identified factors responsible for poor productivity of construction workers and proffer solution to each to ensure in order ensure effective productivity of construction operatives. Conclusively the study further re-affirms the significance of productivity of construction workers in Gombe State, Nigeria.

VI. RECOMMENDATION

Based on the results revealed in this study, the researcher put forth recommendation as follows;

1. All contractors should be committed in employing skill workers that have technical skills to deal with design complexity.
2. Incentive and welfare of workers should be maintained by the contractors to improve their productivity thereby motivating them.
3. Equipment and tools that can suit the work should be provided by the contractor to improve productivity performance of workers.
4. There is need to consider improving methods in further research.

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