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Index of Preponderance on the Factors Affecting Labour Productivity in the Nigerian Construction Industry

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ABSTRACT: *The success of a construction project depends upon the performance of the input resources. The productivity parameters which need to be controlled in construction projects are labour productivity, equipment productivity and material productivity. The construction labour productivity is of great interest to the construction project practitioners because it affects project cost and time performance. Using a field survey research design with forty variables affecting construction project labour productivity distributed to construction project professionals in Imo and Abia states of Nigeria selected on stratified sampling technique. 82% respondents was achieved and mean score method was used to assess the index of preponderance of the factors of labour productivity. Among the variables; motivation of the workers with a mean score of 1.781 ranked first while political factors with a mean score of 0.293 was the least in terms of ranking. About 65% of the factors affecting low productivity were administrative while 35% were technological problems.*

KEYWORDS: *Construction, Productivity, Preponderance Project, Labour, Mean, Score.*

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I. INTRODUCTION

The success of any economic venture, construction contracting inclusive depends to a great extent on the quality of its management. Some elements of defect must therefore be inherent within the management systems prevalent in the construction industry. Construction projects have some particular attributes that set construction firms apart from other business. These attributes require special management attention, different from management activities in other firms.

Construction management in a developing economy like Nigeria is on the average primarily directed at the management of funds and the work force. In a developed economy the efficient management of materials and equipment may be the main focus. The success of a construction project in terms of cost, duration and quality relies on the administration of various inputs like labour, materials, tools and equipment and capital. The resource inputs at the project site include men, materials, machinery and money. These inputs produce outputs in the form of work, the success of a project depends upon the performance of these input resources. Productivity provides the scale to measure the performance of these input resources.

The term "productivity" as commonly understood implies the ratio of output to input. But productivity conveys different meanings to different people. Various terms connected with productivity are worker's productivity as quantity of work done per man-hour, material productivity as quantity of work done per unit of materials and equipment productivity as quantity of work done per equipment hour. The various productivity parameters which need to be controlled in construction projects are labour productivity, equipment productivity and material productivity.

Among the input to achieve the project objectives, the labour force is the most complex one to handle. According to Valadkhai (2005) labour productivity is defined as maximum appropriate apply of manpower in order to move towards the goals of organization with minimum time and minimum cost.

In Nigeria the productivity of labour is particularly important especially where most of the construction projects are still on manual basis. These labour force are the ones that literally put the works in place with their hands and sweat.

Vignash and Janagen (2015) highlighted the factors affecting low productivity in construction projects from non professionals in the construction industry to disruption of power/water supply. Enshassi et al (2007) listed the factors effecting labour productivity from leadership to supervision. The international journal of construction management highlighted the most significant factor of labour productivity from errors and omission in design drawings to physical fatigue of the labour force.

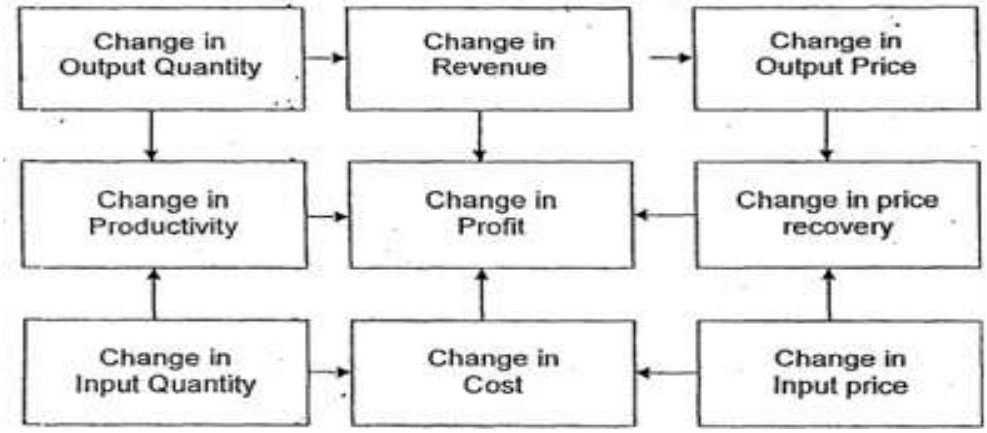
The objective of this study is to identify, explore and rank the relative importance of the cardinal determinants of construction labour productivity in Imo and Abia states of Nigeria.

II. PRODUCTIVITY AND PROFITABILITY

Cost reduction is a method of utilizing and improving effectively the resources of production. It is the production of goods and services to the nation at a minimum cost whether in public service facilities or in private manufacturing goods.

Productivity performance and cost reduction are correlated when cost of production is reduced, productivity is improved and performance enhanced. Cost reduction increases profits and when higher profit is declared, more investment is made, greater amenities are provided and wages increased:

Fig. 1: Impact of productivity on profits



Adapted from Adindu (2012)

Profitability of many establishments will depend on productivity, as an input cost of the firm is optimized. Quality of goods relates to value components such as suitability and price. The mode in Fig. I shows that quality of purchased products have impact on four major areas. Quality of material inputs has direct influence on the quality of materials used. Quality of material inputs affect components of the model. There is direct relationship between quality and price. Higher quality is associated with higher prices. Quality of materials input influences product output components. Productivity can be enhanced by increasing the quality and quantity of outputs. The service factor related to the products purchased for companies operations needs, have impact on productivity and profitability. Productivity arises when the quantity of materials inputs decreases, the quality of inputs increases and the cost of materials and services utilized decreased Adindu (2012). This model relates productivity to profitability.

Management Techniques:

The purpose of investment is to make more profits and if productivity is associated with profits, resources of production must be controlled using the following management techniques.

Work Study

Work study is a study of project activities designed to eliminate waste of time and unnecessary work. It is defined as "the systematic, objective and critical examination of all factors governing the operational efficiency of the specified activity in order to affect improvement". It involves investigation into various processes and

procedures of utilizing the resources of production; manpower, materials, equipment and land economically in order to improve existing method.

Work study is applied to improve productivity and reduce waste of resources. Work study employs two interrelated techniques method study and work measurement. The contractor by application of this methods will make the labourer Work harder, achieve effective performance and reduce waste of time. For the construction industry to achieve a determined production, the contractor must be prepared to assess his work content and the findings of his investigation will be implemented to improve productivity and reduce waste of resources. The result of the analysis can be applied to criticize past performance Of foremen and enthrone good management. This is true with the relationship between labour and supervisors, and supervisory processes and procedures were considered as exercising a remarkable degree of influence on performance and productivity by respondents. All the elements evaluated can be assessed using work study. It improves labour relations.

Work Measurement

Work measurement is defined as the systematic determination of the proper time to be allowed for the effective performance of a defined task carried out by a specified method. It sets standards for achieving the economic control of manpower by determining the time required for work to be done. Work measurement has been proved to provide means of costing and labour planning at project conception.

This technique can be applied by engineering and building contractors because of its suitability for repetitive work, and based on the techniques which include; predetermined time, standards, time study and synthesis on standard data. When management employs inefficient methods or when there is observed specification and design defects, work content is increased. It is necessary to measure work in order to determine bases for incentives, guides management, and forms a measure of control of resources of production in a most economical way.

Work measurement is the measurement of the cost of human labour. It form basis of comparisons. It relates to standard performance which refers to the optimum rate of output that can be accomplished by a trained craftsman.

To apply the technique, a construction activity is divided into elements of work and the time to perform. Each element is measured including break period and provides a standard time to cover the work measured.

The productivity measurement factors include:

(i) Supervision of individual worker output.
(ii) Comparison of output against input in terms of time, cost, materials, labour, etc.
(iii) Following planned procedures in project execution
(iv) Reduction in accident and accident - free work
(v) Execution of work according to specification
(vi) Monitoring of staff performance in stages.

Method Study

Method study and work measurement are interdependent. While the later is concerned with human effort — amount of time spent on a job; the former is connected with the way in which work is executed.

Method study examines the method of doing work in order to create a better method. The goal of method study is to critically assess the actual situation of the project in order to improve on the situation by elimination of unnecessary work and waste.

The techniques involve include the

- selection of a project to be studied
- record the observed facts in project environment
- examine the procedure critically
- develop a realistic and most practical economic and efficient method
- implement the improved method and
- sustain the improved method by regular monitoring.

Value Engineering

Value Engineering is a Systematic evaluation of a project design in order to achieve the most value for every naira of cost. The concept centres financially on careful analysis and evaluation of every function and activity and, utilization of methods that will reduce costs. It considers costs of operation, effective planning and organizing and capability to know all factors that improve the total project costs.

The Project Manager and the Contractor are value engineers if they possess good knowledge of construction methods, techniques and cost control.

The benefits of value engineering which improves productivity and performance include:

(i) developing step by step process of undertaking a project during the five phases of construction projects, thus
- conceptional phase (briefing stage)
- programme planning phase (tendering phase)
- design phase
- construction phase
- close out and start up phase (commissioning)

(ii) Optimizing the design phase of the project

(iii) Enhance the critical analysis and evaluation of a design in order to improve it and thereby reduce project cost and time and improve quality of work.

(iv) Provides bases of team work and providing alternatives of all project activities leading to cost reduction, timely competition of project and making sure the quality satisfies the owner's wants.

(v) Provides opportunity of developing functional estimate that encourages innovation and creativity.

Value Engineering is process of function, worth, cost and value. Value refers to the relationship of value to costs. Value index is a symbol of performance and productivity.

$$VE = \frac{Worth}{Cost} = \frac{Utility}{Cost}$$

Other techniques that improve productivity and enhance performance include break even model, dynamic and linear programming, maintaining a valid data base, research and development, financial assets, technology, safety precautions, quality control and worker rules process and experience.

III. METHODOLOGY

Questionnaire was designed to capture the relevant factors of construction labour productivity in both Imo and Abia states of Nigeria. 100 questionnaire were administered to the various construction project participants ranging from the construction managers, project supervisors, clients, Architects, Engineers Quantity surveyors and construction project financers. The forty questions were based on a five-point scale of rating. The respondents were advised to choose from very often, often, sometimes, rarely and never. The distribution of the questionnaire was carried out based on expert judgement to the built environment professionals in the two states.

Percentages and mean score were used in the data analysis. The data were reduced to the standard form with base equal to 100 through the use of percentages which in fact facilitates relative comparisons. In the comparison of factors, the higher the percentage rating, the higher or the comparatively more significant the importance attached to the factor.

The mean is a value which is typical or representative of a set of data. With the mean score method, scores or numerical values were assigned to each of the statement that describes the factor of construction labour productivity in order to measure the intensity or degree of agreement by the respondent for example 2 = very often, 1 = often, 0 = sometimes – 1 = rarely and – 2 never. The mean score for each item or factor was then determined from the scores, and the number or frequency of responses for each score. The mean score (MS) is mathematically represented as

$$\text{Mean score (MS)} = \frac{\sum axi}{N} \quad (-2 \leq MS \leq 2)$$

Where

MS is the mean score

a – the respective weighting of the factors (2, 1, 0, 2, and – 1)

xi – the number of respondent for each weighting

N – the total number of respondents

$\sum$ – capital Greek sigma which means summation, that is, the sum of

In investigating the factors of construction labour productivity the weighted average formula was used in assessing respondent ranking of importance. The weighted average for each of the variables was obtained from the sum of the product of the proportion of the responses involved from each group compared to the total number of receipt (n/N) and the corresponding mean score of that group in respect of individual variable. The weighted average is given as

$$WA = \frac{\sum[(n) \text{ X } MS]}{N} \quad (-2 \leq WA \leq 2)$$

Data Presentation And Analysis

One hundred copies of the questionnaire were distributed to the construction professionals in Imo and Abia states of Nigeria. Eighty two responded to the questionnaire representing eight two percent of the respondents.

Table 1 categorization of respondents

Organization	Number	Percentage
Client	15	18.3
Consultant	11	13.4
Contractor	49	59.8
Others	7	8.5
Total	**82**	**100**

The analysis of the data in Table 1 shows that 73.2 percent of the respondents are either in the construction sub-sector and therefore the background information supplied by them was deemed adequate and reliable.

Herbsman and Elis (1990) classified the factors causing law productivity under two groups namely (technological factors and administrative factors). The technological factor group includes, the project factors, factor related to material specification and location. The administration related factors includes the management techniques such as construction methods and resource management, project administration factors and social factors.

The analysis of the forty factors of productivity listed in the study shows that 26 factors out of the 40 factors causing low productivity were administrative factors representing 65% of the cause of low productivity while the technological factors accounted for 35 percent of the cause of low productivity.

Table 2: Index of factors of productivity in the construction industry

S/N	FACTORS AFFECTING LABOUR PRODUCTIVITY	Very often (2)		Often (1)		Sometimes (0)		Rarely (– 1)		Never (– 2)		Total		Mean score	Index
		No	%	No	%	No	%	No	%	No	%	No	%		
1	Delay in responding to request for information	46	56.098	12	14.63	6	7.317	3	3.659	15	18.293	82	100	0.866	18
2	Wrong crew size	55	67.073	11	13.41	10	12.2	3	3.659	3	3.6585	82	100	1.368	6
3	Clarity of project specification	54	65.854	7	8.537	13	15.85	2	2.439	6	7.3171	82	100	1.232	10
4	Co-ordination level among design disciplines	32	39.024	20	24.39	9	10.98	3	3.659	18	21.951	82	100	0.549	28
5	Working overtime	29	35.366	20	24.39	9	10.98	14	17.07	10	12.195	82	100	0.537	30
6	Rework	56	68.293	8	9.756	1	1.22	6	7.317	11	13.415	82	100	1.121	13
7	Inclement weather	25	30.488	22	26.83	6	7.317	12	14.63	17	20.732	82	100	0.317	38
8	Physical fatigue	46	56.098	13	15.85	12	14.63	6	7.317	5	6.0976	82	100	1.085	14
9	Non-professionals in construction project	66	80.488	4	4.878	7	8.537	2	2.439	3	3.6585	82	100	1.561	3
10	Material shortage during construction	46	56.098	8	9.756	13	15.85	5	6.098	10	12.195	82	100	0.914	15
11	Leadership of construction team	44	53.659	21	25.61	10	12.2	2	2.439	5	6.0976	82	100	1.180	11
12	Time allowed for work	32	39.024	14	17.07	12	14.63	3	3.659	21	25.61	82	100	0.402	34
S/N	FACTORS AFFECTING LABOUR PRODUCTIVITY	Very often (2)		Often (1)		Sometimes (0)		Rarely (– 1)		Never (– 2)		Total		Mean Score	Index
		No	%	No	%	No	%	No	%	No	%	No	%		
13	Manpower requirement	36	43.902	11	13.41	15	18.29	11	13.41	9	10.976	82	100	1.098	23
14	Motivation of the workers	72	87.805	4	4.878	2	2.439	2	2.439	2	2.439	82	100	1.781	1
15	Materials and tools used for construction work	60	73.171	5	6.098	4	4.878	9	10.98	4	4.878	82	100	1.317	7
16	Specified quality of construction work	36	43.902	10	12.2	23	28.05	7	8.537	16	19.512	82	100	0.524	29

17	Supervisor of the construction team	51	62.195	8	9.756	9	10.98	5	6.098	9	10.976	82	100	1.061	16
18	Errors and omission in design drawing	41	50	11	13.41	8	9.756	7	8.537	15	18.293	82	100	0.683	22
19	Change to order during execution	28	34.146	20	24.39	11	13.41	8	9.756	15	18.293	82	100	0.463	32
20	Type of construction project	26	31.707	22	26.83	6	7.317	10	12.2	18	21.951	82	100	0.341	36
21	Variation in cost of materials	29	35.366	13	15.85	20	24.39	5	6.098	15	18.293	82	100	0.439	33
22	Stoppage because of owner/land owners	31	37.805	21	25.61	5	6.098	7	8.537	18	21.951	82	100	0.88	31
23	Labour disruption	40	48.78	11	13.41	10	12.2	5	6.098	12	14.634	82	100	0.756	20
S/N	**FACTORS AFFECTING LABOUR PRODUCTIVITY**	**Very often (2)**		**Often (1)**		**Sometimes (0)**		**Rarely (– 1)**		**Never (– 2)**		**Total**		**Mean Score**	**Index**
		No	%	No	%	No	%	No	%	No	%	No	%		No
24	Delay in material deliveries	42	51.22	15	18.29	8	9.756	10	12.2	7	8.5366	82	100	0.915	17
25	Disruption of power/water supply	61	74.39	7	8.537	10	12.2	5	6.098	9	10.976	82	100	1.293	8
26	Improper scheduling of work	40	48.78	24	29.27	9	10.98	4	4.878	5	6.0976	82	100	1.097	12
27	Shortage of critical construction equipment	61	74.39	7	8.537	8	9.756	5	6.098	4	4.878	82	100	1.415	5
28	Improper planning of project initiation procedures.	39	47.561	11	13.41	7	8.537	11	13.41	14	17.073	82	100	0.610	25
29	Poor site layout	44	53.659	13	15.85	5	6.098	8	9.756	12	14.634	82	100	0.841	19
30	Mobilization and demobilization factor	28	34.146	19	23.17	3	3.659	14	17.07	18	21.951	82	100	0.305	39
31	Lack of heat/rain shade	37	45.122	15	18.29	6	7.317	6	7.317	18	21.951	82	100	0.573	27
32	Safety of workers	59	71.951	11	13.41	6	7.317	4	4.878	2	2.439	82	100	1.476	4
33	Political factors	24	29.268	21	25.61	8	9.756	13	15.85	16	19.512	82	100	0.489	40
34	Unfair wages	69	84.146	5	6.098	2	2.439	3	3.659	3	3.6585	82	100	1.695	2
35	Morale and attitude	59	71.951	3	3.659	8	9.756	6	7.317	6	7.3171	82	100	1.256	9
36	Lack of training and re-training	34	41.463	15	18.29	13	15.85	6	7.317	14	17.073	82	100	0.598	26
37	Start/stop work	20	24.39	13	15.85	34	41.46	8	9.756	7	8.5366	82	100	0.378	37

S/N	FACTORS AFFECTING LABOUR PRODUCTIVITY	Very often (2)		Often (1)		Sometimes (0)		Rarely (– 1)		Never (– 2)		Total		Mean Score	Index
		No	%	No	%	No	%	No	%	No	%	No	%		
38	Poor communication network	38	46.341	14	17.07	7	8.537	8	9.756	15	18.293	82	100	0.634	24
39	Dearth of investment in R & D	29	35.366	15	18.29	14	17.07	8	9.756	16	19.512	82	100	0.402	35
40	Lack of compensation	39	47.561	10	12.2	16	19.51	5	6.098	12	14.634	82	100	0.719	21

The information in table 2 shows that among the 40 factors of productivity the least mean score is 0.239 and the highest mean score is 1.781. The variable that ranked first is motivation of the workers. When workers are motivated, their behaviour are directed towards a goal or need, employees and managers need to know what people desire from a job. The following motivation devices may be used to motivate different workers (i) Financial rewards (ii) Advancement and promotion (iii) Achievement and recognition (iv) Training and development of workers (v) Participative management (vi) Improved work environment. On the other hand the motivation of workers depend on many variables such as (a) personality of the worker
(b) nature of the job (c) technology (d) culture of the people
(e) economy of the country (f) employees position status
(g) circumstance and situation of the worker.

The second in the mean score is unfair wages to the workers. There is no had and fast rule relating to the minimum wage for the construction workers as different wages are being paid in different sites. This normally prompt the construction workers to migrate to where they will be better remunerated, since there is no job security. The one off nature of the construction industry has been adduced as one of the reasons for the none participation of construction workers in any trade unionism. This also informs the reason why their wages cannot be jointly negotiated, as it is the case in government establishment. The workers in turn do not work with full loyalty in this respect.

The third in the index of preponderance is with a mean score of 1.561, which is the non-professionals in construction projects. The non professionals in the construction projects might not be able to assess the work content and the findings might not be implemented to improve productivity. The technique applied by engineers and builders include pre-determined time, standards, time study and synthesis on standard data. It is necessary to measure work in order to determine bases for incentives, guide management and form a measure of control of resources of production in a most economical way.

The fourth in the index of preponderance is safety of the construction workers with a mean score of 1.476. Accidents have high impacts on labour productivity, various accident types occur at the site such as an accident causing death and resulting in a total work stoppage for a number of days. An accident that causes an injured person to be hospitalized results in a work decrease of the crew for which the injured employee worked. Small accident resulting from nails and steel wires can stop work and thus decrease productivity (Sanders and Thomas 1991). Even insufficient lighting shows decreased productivity because sufficient lighting is required to work efficiently and employing a safety officer helps worker to recognize the required safety regulations and to follow them which can reduce the number of accidents, thus increasing productivity.

The fifth in the index of preponderance is shortage of critical construction equipment. Plant and equipment constitute a substantial portion of the construction costs in a project. The assessment of equipment performance needs experience. The equipment capability to perform an assigned task under a given site situation can best be determined from the on-site actual trials or it can be assessed from its past performance records of operation under similar site conditions. The equipment performance at the site of work depends upon many situational factors that influence the output. These situational factors may include the equipment serviceability conditions the effect of terrain, the accessibility to work site, working space restrictions, weather conditions working conditions including timings, logistic and equipment vendor support and the availability of local resources like operators equipment renting facilities, power and water supply fuel and lubricants. In order to simplify this evaluation, the prominent situational factors, other than those considered while computing equipment output norms, can be grouped under two headings viz (a) controllable and uncontrollable factors.

Wrong crew size with a mean score of 1.476 is the sixth in the index of preponderance. These men are generally lead and preferred to be lead by their kind. They appreciate and generally go for leaders that have gone "through it all". Consequently, they are usually organized around tested foremen. A foreman heads a craft unit, and reports to a supervisor. Most supervisors attain their position from the foreman cadre. The trade supervisor is in charge of a number of construction activities and craft units relating to his trade. He directs the workforce, selects equipment, personnel and material needed to accomplish his assigned works. The site supervisor as distinct from trade supervisor co-ordinates the works of the various craft foremen through the sectional supervisors and in turn reports directly to management or to a project manager depending on the size and complexity of a project or the company's organization set up. The field management can adjust the crew size to be larger or smaller depending on the problem at hand to solve productivity problems.

The 7^{th} in terms of index preponderance is materials and tool used in the construction work with a mean score of 1.317. The material management is one of the most important factors in construction industry. Productivity can be effected if required materials or tools for the specific are not available at the correct location and time (Alinaitwe et al. 2007). Selection of the appropriate type and size of construction equipment often affects the required account of time. It is therefore, essential for the managers to be familiar with the characteristics of the major types of equipment commonly used in construction. The size of the construction site and the material storage location has a significant impact on productivity because labourers require extra time to move required materials from inappropriate storage locations, thus resulting in productivity loss (Sanders and Thomas 1991).

Disruption of power/water supply with a mean score of 1.256 and the 8^{th} in the index of preponderance. Poor environmental conditions, heat, light, ventilation leads to low productivity. Reduction in the workers fatigue while at work will enhance his efficiency. Fatigue reduction can be achieved by making the workers comfortable with normal expenses. The labour productivity can be improved by reducing such unproductive time that workers use to seek for drinking water or conveniences.

The information in Table 2 shows that the morale and attitude of the workers ranked 9^{th} in the index of preponderance with a mean score of 1.256. The field management is suppose to find out the source of problem of the workers. The spirit of workers is based on willingness, confidence, discipline and cheerfulness to perform work or tasks can be lowered due to a variety of issues. The most common are increased conflicts, disputes excessive hazards, overtime, over-inspection, multiple contract changes and disruption of work rhythm, poor site conditions, absenteeism and unkept workplace.

The 10^{th} in term of index of preponderance is clarity of project specification with a mean score of 1.232. Generally projects come across some design, drawings and specification changes during construction. If drawings or specifications are with errors and unclear, productivity is expected to decrease since workers in the field are uncertain about what needs to be done. As a result, task may be delayed or have to be completely stopped and postpone it until clear construction. There is a 30% loss of productivity when work changes are being performed (Thomas et al 1999) work inspection by the supervisor is an essential process to proceed. The supervisor cannot cast concrete before an inspection of the formwork and steel work.

The 11th position in the index of preponderance is the leadership of the construction team with a mean score of 1.180. Lack of labour experience is a major factor which negatively affects labour productivity. Supervisor's absenteeism stops the work totally for activities that require their attendance, such as casting concrete and backfilling, further delaying inspection of the completed work in turn, leads to delays in starting new work. The absence of any crew member may impact the crew's production rate with fewer resources and with a different crew member.

Improper scheduling during construction project with a mean score of 1.097 and 12th position in the index of preponderance. Planning is one of the most critical factors which affect productivity when project is delayed in start time, time line of activity is shorten to achieve milestones and to complete project on schedule. Using float in overall schedule, schedule compression can be possible without shortening the time of an activity. Sometimes schedules are not fully loaded with resources. The updated schedule shows the delay and shows the project finish date on time without changing the activities duration.

The other variables of labour productivity are as shown in the data in table 2 and the indexes of preponderance indicated alongside with the mean scores. The other variables that ranked between 35th and 40th are as discussed below.

Dearth of investment in Research and Development ranked 35th with a mean score of 0.402. The research and development has been stressed as an important one in order to devise new and more effective working methods. The institutions of higher learning should be encouraged in this area through adequate and steady funding. The contractors organization must however, be carried along in this pre-exercise because they are best suited to identify the areas which such research must focus on.

The type of construction project with a mean score of 0.341 ranked 36th according to the index of preponderance. The types of activities and construction methods also influence labour productivity though the methodology used for controlling each of the productivity parameters is similar. It can be divided into four stages is defining the control purpose, measuring the actual performance, computing productivity performance variances and identifying causes for these variances and applying corrective measures as necessary.

The 37th in the index of preponderance is the start / stop work issue. The stop work notice is used when public safety is threatened. If the work is performed outside the permit "the stop work" notice is also used. The inspectors must make decisions regarding conformance to specifications or code. Individuals and professional bodies has not be sanctioned, hence the patronizing of quacks and emergency contractors with no regard for profession ethical code has been a feature of the Nigerian society.

Inclement weather with a mean score of 0.317 was the 38th in terms of the index of preponderance. Some of the natural factor can affect labour productivity, some of these natural factors which are job-site weather condition and geographical locations. Labour is also affected poorly by unfavourable weather conditions. Psychologically workers tend to become restless and irritable. If weather is to extreme such as heavy rainfalls, too hot or too cold. It can decrease productivity.

The 39th in the index of preponderance is the mobilization and be mobilization of workers. This relates to moving resources on and moving off to projects as a result from changes or delays, causing work disruptions. Productivity may drop during these periods as time is lost when crew members move from one area of work assignment to another.

The least in the index of preponderance is political factor with a mean score of 0.293. Law and other, stability of government are essential for high productivity in the construction industry. The governments taxation policies influence willingness to work and expansion of plants.

RECOMMENDATIONS

1. Construction project supervisors to intensify effort to improve on the administrative factors causing low productivity. Since the study indicated that the technological factors contribute only 35% of the cause of low productivity.
2. Construction workers to be well motivated to improve on the level of labour productivity.
3. Construction workers to be carried along in the pre-exercise of construction project through training.
4. Work study and method study to be employed in construction projects to improve on the labour productivity and profit of the contracting organization.

IV. CONCLUSION

Prior knowledge of labour productivity during construction work can save money and time. The problem of low labour productivity is more of administrative than technological hence attention should be given to the variables with the higher mean score values in the index of preponderance. Management should apart from encouraging the crew to work faster but to improve its role in construction management activities. The construction manager's input are the resources deployed for achieving the desired output.

Work scheduled or reassigned during holidays such as thanksgiving, Christmas, New Year's are often impacted with stop-starts. Workers tend to discuss the time off and lose previous momentum with a drop in productivity before they get back in routine.

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