**International Journal of Science, Engineering & Environmental**

**Technology (IJOSEET), 17(17): 137-145, 2025**
**ISSN 0794-9650**

www.repcomseet.org

# Effect of Labour Performance on Building Project Time Delivery in Lagos State, Nigeria

Musilihudeen O. A[a]., Osegahale G. E.[a.] Adeleke J. S.[b] & Ipaye M. A.

[a]Department of Building, Obafemi Awolowo University, Ile-Ife, Nigeria
[b]Department of Building Technology, Federal Polytechnic Ede, Osun State Nigeria
[c]Ministry of Water Resources, Small Towns, Water Supply and Sanitation Agency, Abere, Osun State

Corresponding author's email: Eeyo398@gmail.com

***Abstract*** *–This study assessed labour performance in construction projects in Lagos State, examined the factors influencing labour performance, evaluated the time performance of construction projects, and determined the effect of labour performance on construction project time delivery in Lagos State, Nigeria. These were with a view to enhancing project time delivery. Primary data were collected using structured questions, and secondary data were obtained from the achievement records of construction firms. The target population consisted of small and medium-sized contracting firms registered with the Lagos State government's Tenders Board, comprising 115 small-sized firms and 91 medium-sized firms. One hundred eighty-nine (189) questionnaires were returned out of a total of 198 administered to the respondents. This yields a rate of return of 95.45%. The data were analyzed using descriptive statistical methods, including mean scoring, average output, factor analysis, variance and spearman correlation analysis. The results show that trades such as Tillers, Bricklayers, Plumbers, and Iron benders, with the following mean scores (2.09, 2.14, and 2.23, respectively), need improvement in their performance. While trades such as carpenters, painters, and glaziers have mean scores of 2.80, 2.85, and 2.76, respectively, exhibit moderate to good performance, electricians, on the other hand, have a mean score of 2.90, which reflects high performance. This result confirmed that labour performance does not explain significant variation in project time delivery. The study concluded that addressing labour performance gaps through improved supervision, motivation and resources provisions are critical in minimizing delays and achieving project efficiency.*

***Keywords:*** *Building construction projects, Labour performance, Project Efficiency, Project Time Delivery*

## 1.0 Introduction

Labour performance is a critical determinant of the timely delivery of construction projects. Understanding the factors that affect and enhance labour performance, along with their impact on project timelines, is essential for improving the efficiency and effectiveness of construction activities (Bassioni et al., 2020). The performance of labour in construction projects plays a critical role in determining the success and timely completion of these projects. Labour performance refers to the efficiency, productivity, and effectiveness of workers involved in various construction tasks. However, labour performance varies widely due to several factors, impacting project timelines and overall outcomes. Several factors influence labour performance in construction projects within Lagos State (Abdul-Rahman et al., 2021). These factors can be broadly categorized into internal and external factors. Internal factors include workers' skills and experience, availability of tools and equipment, site management, and motivation levels (Al-Najjar, 2021). External factors encompass weather conditions, government policies, economic conditions, and societal attitudes towards construction work (Abdul-Rahman et al., 2021).

Understanding labour performance is not just a theoretical concept but a crucial aspect of any building project. It involves how well workers complete tasks, their efficiency, work quality, and overall contribution to the project's success. This understanding is essential to ensure projects are completed on time, within budget, and meet quality standard (Niyonkuru, 2021). Labour performance in building projects refers to the

efficiency, effectiveness, and productivity of the workforce. It includes factors such as skill levels, experience, motivation, work ethic, and labour resource management. High labour performance is characterized by timely task completion, adherence to quality standards, and efficient resource utilization (Yahaya et al., 2021; Ayegba et al., 2018). The performance of the labour force has a significant impact on project delivery. Timely project completion is crucial as delays can increase costs, result in penalties, and damage reputations. High labour performance ensures tasks are completed on schedule, reducing delay risks. Efficient workers maintain progress, adapt to changes, and handle challenges, keeping projects on track (Adedokun et al., 2019).

Labour performance also has impacts on the quality of work. Skilled and experienced workers produce high-quality outputs that adhere to design specifications and industry standards. Good workmanship reduces the need for rework, saving time and costs, and ensures durable and safe buildings that add long-term value. This is why this study assessed labour performance in construction projects in Lagos State, examined the factors influencing labour performance, evaluated the time performance of construction projects, and determined the effect of labour performance on construction project time delivery in Lagos State, Nigeria. These were with a view to enhancing project time delivery.

## 2. Methodology

The chapter outlined the methods employed to achieve the study's objectives, it elucidates the data requirements and collection methods, the study population, the sample frame and size, the sampling technique, the method of data analysis, and the expected contribution to knowledge. By emphasizing the relevance of the research to the construction industry. Both primary and secondary data sources were meticulously utilized to collect data for this study. The primary data involves the administration of questionnaires to project supervisor and skilled labour for small and medium contracting firms in Lagos State while the secondary data will be obtained from the archival records of the contracting firms which will consist proposed duration and actual duration of their project The study population consists of construction manager and skilled labour which includes bricklayers, carpenters, iron benders, electricians, plumbers, painters, tillers, and glaziers in small and medium-sized contracting films in Lagos State For this study, the sample frame was taken from the list of registered contractors within the Lagos State Tender Board. From Bureau of Public Procurement Agency (2022), a total of 304 contractors were discovered to have registered with the Lagos State Tender Board. According to this board one hundred and fifteen (115) were categorized as small-sized contracting firms, ninety-one (91) were categorized as medium-sized contracting firms making a total of two hundred and six (206) contracting firms.

## 3. Method of Sampling and Determination of Sample Size

Table 1 shows that 10% of 115 (12) were the sample size from small-sized contracting firms and 10% of 91 (10) were from medium-sized contracting firms which gives a total of 22 contracting firms.

Table 2 shows that 198 actual sample size was obtained by multiplying the total number of construction workers (9) which consists of construction manager, bricklayers, carpenters, iron benders, electricians, plumbers, painters, tillers, and glaziers by the contracting firms (22).

In order to achieve first objective of this study, data was obtained on the rating of performance of the skilled labours (bricklayers, carpenters, iron benders, electricians, plumbers, painters, tillers, and glaziers) by using 5-point Likert scale, 5, 4, 3, 2, 1 which represent very high, high, medium, low and very low respectively. For the second objective, primary data was obtained for this objective through a questionnaire survey. The data obtained included information on effect of labour performance on building project time delivery in Lagos State, Nigeria by using 5-point Likert scale, 5, 4, 3, 2, 1 which represents very high, high, medium, low and very low respectively. For the third objective, time performance of building projects, the information was obtained from the archival records of the contracting firms which consisted of proposed duration and actual duration of their previous projects in the study area. For the three objectives, data was obtained on the effect of labour performance on construction project time delivery.

The mean score for each variable of this study based on the Likert Scale of 1 to 5 is determined as follows:

$$\textbf{Mean score} = \frac{5n5+4n4+3n3+2n2+1n1}{n1+n2+n3+n4+n5} \quad \text{Equation (1)}$$

Where n1 = represent number of respondents that chose "Very Low"

n2 = represent number of respondents that chose "Low"

n3 = represent number of respondents that chose "Middle"

n4= represent number of respondents that chose "High"

n5= represent number of respondents that chose "Very High"

**Spearman's Rank correlation coefficient**

$r_s = 1 - \frac{6\sum D^2}{n(n2-1)}$ Equation (2)

$r_s/\rho$= spearman's rank correlation coefficient

di = difference between the two ranks of each observation$S^2$

n= number of observations

**Variation analysis**

$S^2 = \frac{\sum_{i=1}^{n}(Xi-X)}{n-1}$ Equation (3)

Where $S^2$ = Variance

n = The number of data point

Xi = Each of the values of the data

X= The mean of Xi

**Standard Deviation**

$\mathbf{S} = \frac{\sum(X-x)2}{n-1}$ Equation (4)

X = The value in the data distribution

x =The sample mean

n= Total number of observations

**Average Output**

Average output= Total output Equation (5)

Variable Units (L)

**Factor analysis**

$\mathbf{Xi = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \ldots.. + A_{im}Fm + V_iU_i}$ Equation (6)

Where;

Xi = ith standardized variable

Aij =Standardized multiple regression coefficient of variable *i* on common factor j

F= Common factor

Vi= Standardized regression coefficient of variable *i* on unique factor *i*

Ui=The unique factor for variable *i*

m= Number of common factors

Construction workers Average Output

## 4. Discussion of Results and Findings

Table 4 shows that the dataset on construction workers provides key insights into their experience levels and project involvement, revealing patterns in workforce capability and industry trends. The analysis categorizes workers across different professions, including construction managers, bricklayers, carpenters, iron benders, plumbers, electricians, painters, tillers, and glaziers. The workforce was further classified based on experience levels and the number of projects they had fully participated in.

The experience levels of construction professionals varied significantly across different workers. Construction managers, on average, possessed the highest years of experience (15 years), followed closely by electricians (12 years) and plumbers (11 years). These roles were often more specialized and required significant expertise, which is reflected in their longer tenure in the industry. Conversely, professions such as painters and iron benders tended to have lower average experience levels (7 and 8 years, respectively). This might indicate higher turnover rates or a lower barrier to entry for these roles. The distribution of experience categories revealed further insights. A significant portion of workers fell within the 5 to 10 years category, highlighting a relatively young and developing workforce. However, workers such as construction managers, plumbers, and electricians had a more even distribution across higher experience brackets, reflecting long-term career growth and retention. The presence of workers with more than 21 years of experience were most prominent among construction managers and electricians, suggesting these professions demand extensive knowledge and time to achieve senior positions.

The number of projects completed by workers were another vital indicator of their industry exposure and efficiency. Construction managers led in project involvement, averaging 18 completed projects, followed by electricians (14 projects) and plumbers (13 projects). These figures aligned with their higher experience levels and indicate that these roles are critical in overseeing and executing major construction activities. On

the other end of the spectrum, painters and iron benders had the lowest average project involvement (8 and 9 projects, respectively). This aligned with their lower experience levels and suggested that these workers might often engaged in smaller or short-term projects rather than large-scale constructions. The data indicated that most workers fell within the 5 to 15 project range, reinforcing that the majority of the workforces have had moderate project experience.
Table 5 shows the he result of the analysis of labour performance on the construction site. It was revealed in the study that Tiller had a mean score of 2.09, Bricklayer (a mean score = 2.14), Plumber (mean score = 2.14) and Iron Bender (mean score = 2.23) had the lowest mean scores. This indicated that these trades were perceived as requiring improvement in performance. Carpenter (mean score = 2.80), Painter (mean score = 2.85) and Glazier (mean score = 2.76) had the moderate mean scores, suggesting relatively better performance. Electrician on the other hand had a value of 2.90 as mean, reflecting average performance perceptions. While their contribution was not critically poor, there were room for improvement.

Table 6 provides an insightful comparison between the expected productivity levels of various construction workers and their actual performance on-site, highlighting discrepancies that might affect project efficiency. Across all categories, there was a notable shortfall in actual output compared to the average expected output, indicating potential challenges such as inadequate skill levels, unfavorable working conditions, material shortages, or inefficiencies in project management. The variance values further illustrated the extent of underperformance, with some trades exhibiting higher discrepancies than others.
For instance, painters demonstrated the most significant gap, achieving only 72 $m^2$ per day instead of the expected 120 $m^2$, resulting in a 48 $m^2$ shortfall. Similarly, plumbers experienced a drastic reduction in performance, completing only 17 meters per day instead of the expected 40 meters, with a variance of 23 meters. These large discrepancies suggested inefficiencies that might require urgent attention to avoid delays and cost overruns. Conversely, iron benders and electricians showed relatively better performance, with variances of 20 meters and 35 meters, respectively. Although still below the expected output, their deviations were less severe than those observed in other categories. Bricklayers and carpenters, despite their essential roles in structural development, also exhibit notable underperformance, with variances of 22 and 27 square meters per day, respectively. Specialized trades such as tillers and glaziers had lower absolute values, but their proportionate shortfalls were significant. Tillers only managed half of the expected output, while glaziers achieved less than half of their target, suggesting possible inefficiencies in labor allocation or worksite conditions affecting these trades specifically. The table underscored substantial inefficiencies across various worker categories, which might contribute to delays in project timelines, increased labor costs, and compromised quality. Addressing these gaps through improved training, enhanced worksite conditions, and better supervision could help bridge the productivity gap and improve overall construction efficiency.
This is involving findings on labour performance, factors influencing labour performance, time performance and effect of labour performance on construction firms. The findings revealed a mixed performance trend in the time delivery of construction projects, with delays being more prominent. Labour inefficiencies emerged as a key factor contributing to the negative variances; the findings from the analysis of 50 construction projects revealed a notable misalignment between proposed and actual project durations, highlighting significant delays across the majority of projects. The total variance of 179.1 weeks, with an average delay of 3.58 weeks per project, indicated a consistent trend of underestimating project timelines or encountering execution challenges. The total proposed duration of 2284.2 weeks was exceeded by an actual duration of 2391.3 weeks, representing a 7.84% increase, which suggests inefficiencies in planning and execution. The patterns observed show that while a few projects adhered closely to their proposed timelines, most experienced substantial delays. Projects with minimal variance demonstrated effective management and strong alignment between planning and execution (Ameh et al., 2020). However, projects with higher variances indicated potential challenges, such as ineffective scheduling, resource constraints, or unforeseen external factors. High variances observed in some projects might also point to broader systemic inefficiencies, including project management weaknesses or changes in project scope during implementation.
These delays carry significant implications for construction stakeholders. For contractors, delays can result in increased costs, reputational risks, and penalties. Clients face delayed project benefits and the potential for cost overruns, while the construction industry as a whole might suffer from reduced stakeholder

confidence due to persistent schedule overruns (Bageis & Fortune, 2020). Furthermore, delays can strain relationships between contractors and clients, complicating future collaborations.

Addressing these challenges requires a strategic focus on improving project planning, risk management, and execution processes. The adoption of advanced project management tools and techniques, coupled with enhanced training for project managers, can significantly improve time performance. Integrating technology, such as Building Information Modeling (BIM), and fostering real-time monitoring and evaluation practices would help mitigate risks and address delays promptly (Brambland et al., 2021). These findings emphasize the need for strategies to enhance workforce productivity, such as skill development, task optimization, and real-time progress monitoring. Memon et al. (2021) reported similar trends, where improved labour management reduced delays by 30%. The positive performance in certain projects aligns with this evidence. Moselhi et al. (2022) also linked better management practices to enhanced time performance. Furthermore, the results highlight the importance of effective project management practices, including accurate forecasting, resource planning, and proactive issue resolution, to reduce delays. Addressing these challenges will be essential for improving time performance in building projects across Lagos State and ensuring that labour performance contributes positively to timely project delivery.

The findings revealed that labour performance did not have a significant effect on building project time delivery. The concentration of responses in a single category, combined with non-significant model improvements and low pseudo-R-square values, suggested that other factors beyond labour performance may play more critical roles in influencing project time outcomes. The results resonate with Alaghbari et al. (2020), who stressed the importance of multifaceted approaches beyond labour to improve project delivery. The findings underscore the challenges in establishing a meaningful relationship between labor performance and project time delivery in construction firms. Ratcliffe et al. (2020) noted that while labour performance is critical, resource allocation and communication also significantly impact project timelines. Overall, the findings emphasized the limitations of using labor performance as a predictive factor for project time delivery in construction firms. Motivated and well- managed workers are more productive, contributing to faster project progress. Increased productivity means more work is completed in less time, helping to meet or even exceed project deadlines (Bernold et al., 2022). The imbalanced data distribution, low explanatory power, and mixed goodness-of-fit results suggested that other variables or contextual factors might play more critical roles in determining project timelines. Future research should consider broader datasets and additional predictors to better capture the dynamics influencing time delivery outcomes in construction projects.

In addition, the study findings showed that, time performance analysis of construction projects highlights frequent delays where actual durations exceed proposed timelines. Projects with significant negative variances often suffered from inefficiencies in labour management, delayed material supply, and poor task allocation. However, instances of positive variances demonstrate the potential for efficient labour performance and effective management to deliver projects ahead of schedule. The findings emphasize the need for improved planning, resource allocation, and scheduling to mitigate delays and enhance project efficiency. The effect of labour performance on project time delivery was further explored through regression analysis. The results indicate that while labour performance alone does not fully explain variations in project timelines, it plays a substantial role in influencing timely completion. Key contributors include worker motivation, skill levels, and the quality of supervision. Poor performance was associated with frequent errors, low productivity, and rework, which extended project durations. Conversely, high-performing labour teams were noted for their adaptability, effective communication, and adherence to safety protocols, all of which reduced delays and improved workflow continuity.

Overall, the findings emphasize that addressing deficiencies in labour performance requires a comprehensive approach involving training, improved supervision, better compensation, and access to modern equipment. These measures, coupled with enhanced project management practices, are essential to improving time delivery and achieving successful construction project outcomes in Lagos State.

The study on labour performance and its impact on building project time delivery in Lagos State reveals critical insights that inform the construction sector's efficiency and effectiveness. The study highlights significant disparities in performance across different labour categories, with electricians demonstrating relatively high productivity and roles like tillers, bricklayers, plumbers, and iron benders identified as requiring considerable improvement. This disparity highlights the importance of targeted skill

enhancement, motivation, and effective supervision in closing the performance gap to minimize delays and enhance overall project outcomes.

The analysis of time performance in construction projects reveals a consistent trend of delays, with several projects failing to meet their proposed schedules. These delays were attributed to inefficiencies in labour management, poor resource allocation, and scheduling disruptions. The conclusion drawn is that while some projects demonstrated efficiency under optimal conditions, the general trend suggests a need for improved planning, resource optimization, and real-time monitoring to enhance adherence to project timelines.

The effect of labour performance on project time delivery was evaluated, showing that while it may not fully determine project timelines, it significantly influences them. High-performing teams contribute to the timely completion of tasks through better coordination, communication, and adherence to safety protocols, whereas underperforming teams introduce delays due to errors, inefficiencies, and rework. The research concludes that addressing labour performance gaps through improved supervision, motivation, and resource provision is critical for minimizing delays and achieving project efficiency. The findings indicate that a holistic approach is required to enhance labour performance and project time delivery. This involves addressing systemic issues in skill development, management practices, and working conditions, alongside implementing targeted interventions to ensure the construction sector in Lagos State can consistently meet project demands and deadlines.

**Table 1: Small and Medium-sized Contracting Firms**

| Contracting firm | Sample frame | Sample size |
|---|---|---|
| Small-sized | 115 | 12 |
| Medium-sized | 91 | 10 |
| Total | 206 | 22 |

**Table 2: The Sample Size Table**

| Construction workers | Contracting Firm | Total |
|---|---|---|
| 9 | 22 | 198 |

**Table 3: Methods of Data Analysis**

| S/N | Objectives | Data Required | Methods of data Analysis |
|---|---|---|---|
| 1 | assess the labour performance of the construction projects in Lagos State | Labour performance in the construction projects of Lagos State | Mean Score and Average Output |
| 2 | examine the factors influencing labour performance in construction projects in the study area | factors affecting and enhancing labour performance in construction projects in the study area | factor analysis |
| 3 | assess the time performance of construction projects in the study area | Time performance of construction projects in the study area | Variation Analysis |

| | | | |
|---|---|---|---|
| 4 | assess the effect of labour performance on construction project time delivery in the study area | The effect of labour performance on construction project time delivery in the study area | Spearman correlation analysis |

**Table 4: Dataset of Construction Workers and their Level of Experience in Contraction project**

| Construction Workers | Average Experience (Years) | Experience Range (Minimum – maximum) | Average Project Involved | Project Range (Minimum – maximum) |
|---|---|---|---|---|
| Construction Managers | 15 years | 5 – 30 years | 18 projects | 5 – 30 projects |
| Bricklayers | 10 years | 3 – 25 years | 12 projects | 3 – 25 projects |
| Carpenters | 9 years | 2 – 22 years | 10 projects | 2 – 22 projects |
| Iron Blenders | 8 years | 1 – 20 years | 9 projects | 1 – 20 projects |
| Plumbers | 11 years | 4 – 26 years | 13 projects | 4 – 26 projects |
| Electricians | 12 years | 3 – 27 years | 14 projects | 3 – 27 projects |
| Painters | 7 years | 1 – 20 years | 8 projects | 1 – 18 projects |
| Tillers | 10 years | 3 – 24 years | 11 projects | 3 – 22 projects |
| Glaziers | 8 years | 2 – 21 years | 9 projects | 2 – 19 projects |

**Table 5: Labour Performance on the Construction Sites**

| S/N | Labour Performance | Mean Score |
|---|---|---|
| 1 | Electrician | 2.9048 |
| 2 | Painter | 2.8571 |
| 3 | Carpenter | 2.8095 |
| 4 | Glazier | 2.7619 |
| 5 | Iron bender | 2.2381 |
| 6 | Plumber | 2.1429 |
| 7 | Bricklayer | 2.1429 |
| 8 | Tiller | 2.0952 |

**Table 6: Output of Workers on Construction Sites**

| | Average Output | Actual Output | Variance |
|---|---|---|---|
| Bricklayer | 80 Sq.m/day | 58 Sq.m/day | 22 Sq.m/day |
| Carpenter | 102 Sq.m/day | 75 Sq.m/day | 27 Sq.m/day |
| iron bender | 120 Sq.m/day | 100 Sq.m/day | 20 Sq.m/day |
| Electrician | 300 meters of wire per day | 265 meters of wire per day | 35 meters of wire per day |
| plumber | 40 meters per day | 17 meters per day | 23 meters per day |
| painter | 120 m² per day | 72 m² per day | 48 m² per day |
| Tiller | 10 tiles per day | 5 tiles per day | 5 tiles per day |
| Glazier | 10 units | 4 units | 6 units |

**5.0 Conclusion and Recommendations**

The study on labour performance and its impact on building project time delivery in Lagos State reveals critical insights that inform the construction sector's efficiency and effectiveness. The study highlights significant disparities in performance across different labour categories, with electricians demonstrating

relatively high productivity and roles like tillers, bricklayers, plumbers, and iron benders identified as requiring considerable improvement. This disparity highlights the importance of targeted skill enhancement, motivation, and effective supervision in closing the performance gap to minimize delays and enhance overall project outcomes.

The analysis of time performance in construction projects reveals a consistent trend of delays, with several projects failing to meet their proposed schedules. These delays were attributed to inefficiencies in labour management, poor resource allocation, and scheduling disruptions. The conclusion drawn is that while some projects demonstrated efficiency under optimal conditions, the general trend suggests a need for improved planning, resource optimization, and real-time monitoring to enhance adherence to project timelines.

The effect of labour performance on project time delivery was evaluated, showing that while it may not fully determine project timelines, it significantly influences them. High-performing teams contribute to the timely completion of tasks through better coordination, communication, and adherence to safety protocols, whereas underperforming teams introduce delays due to errors, inefficiencies, and rework. The research concludes that addressing labour performance gaps through improved supervision, motivation, and resource provision is critical for minimizing delays and achieving project efficiency. The findings indicate that a holistic approach is required to enhance labour performance and project time delivery. This involves addressing systemic issues in skill development, management practices, and working conditions, alongside implementing targeted interventions to ensure the construction sector in Lagos State can consistently meet project demands and deadlines.

Based on the findings of this study, the following recommendations are proposed to enhance labour performance and improve the timely delivery of building projects in Lagos State:

(i) Introduce and expand vocational training programmes tailored to the specific needs of various trades, such as bricklaying, tilling, and plumbing, to enhance technical skills. Implement ongoing training programs to update workers on modern techniques, tools, and safety protocols. Encourage workers to obtain professional certifications by offering financial incentives or opportunities for career advancement.

(ii) Strengthen site management by employing experienced supervisors who can ensure workers perform tasks efficiently and adhere to timelines. Foster better communication and collaboration among workers and management teams to reduce misunderstandings and delays. Implement real-time monitoring and evaluation tools to track worker performance and project progress, enabling timely interventions.

(iii) Introduce performance-based incentives, such as bonuses or recognition schemes, to motivate workers to maintain high productivity. Ensure competitive wages and timely payment to workers, reducing dissatisfaction and boosting morale. Improved Working Conditions: Provide a safe, comfortable, and conducive work environment, including access to personal protective equipment (PPE) and basic amenities.

(iv) Ensure workers have access to modern, well-maintained tools and equipment to enhance efficiency and reduce errors. Strengthen supply chain systems to avoid delays caused by late delivery or shortages of construction materials. Budgetary Allocation: Allocate sufficient resources for labour-related expenses, minimizing disruptions due to financial constraints.

(v) By adopting these recommendations, construction firms, policymakers, and industry stakeholders can significantly improve labour performance and project delivery times. These measures will enhance not only the efficiency and profitability of projects but also contribute to the sustainable development of Lagos State's construction industry.

**Acknowledgements**

I want to specially acknowledge my supervisor Prof. Oseghale G. E. for his support and advice and all my lecturers in the Department of Building, Obafemi Awolowo University, Ile-Ife.

**References**

[1] Abdul-Rahman, I., Memon, A.H. & Abd-Karim, A. (2021) Relationship between Factors of Construction Resources Affecting Project Cost. International Journal of Construction Management, 7(1), 67-75.

[2] Adedokun, O. A., Ibironke, O. T. & Olanipekun, A. O. (2020). Vulnerability of Motivation Schemes in Enhancing Site Workers Productivity for Construction Industry's Sustainability in Nigeria. *International Journal of Sustainable Construction Engineering and Technology*, 18(10), 21-30
[3] Alaghbari, W., Kadir, M.R.A., Salim, A. & Ernawati, S. (2020) The Significant Factors Causing Delay of Building Construction Projects in Malaysia. *International Journal of Construction Engineering and Management*, 14(2), 192-206.
[4] Al-Najjar, J. (2021) Factors influencing time and cost overruns on construction projects in the Gaza Strip. *International Journal of Construction Engineering and Management*, 3(1), 13- 23
[5] Ameh, O. J., Soyingbe, A. & Odusami, K. (2022). Significant Factors Causing Cost Overruns in Telecommunication Projects in Nigeria. *Journal of Construction Developing Countries*, 15(2), 49–67.
[6] Ameh, O.J. and Osegbo, E.E. (2020). Study of Relationship between Time Overrun and Productivity on Construction Sites. *International Journal of Construction Supply Chain Management*, 1(1), 56-67
[7] Ayegba, F. F., Adeagbo, D. & Ayegba, C (2018) Assessment of the Impact of Skills Acquisition on the Productivity of Nigerian Construction Craftsmen Conference on Engineering, Projectand Production Management (EPPM). *Journal of Engineering Science and Technology*, 3(1), 142-150
[8] Bageis, A. & Fortune, C. (2020) Factors Affecting the Bid/No bid Decision in the Saudi Arabian Construction Contractors. *Journal of Engineering Science and Technology*, 3(1), 142-150
[9] Bassioni, H. A. & Mobarak, A.M. (2020) Causes of Delays in Building Construction Projects in Egypt. *Journal of Construction Engineering and Management*, 134(11), 831-841.
[10] Bernold, E.L. & Abourizk, M.S. (2022). Managing Performance in Construction. International *Journal of Productivity and Performance Management*, 65(3), 200-210
[11] Bramble, B. B. & Callahan, M. T. (2021). Construction Delay Claims. *International Journal of Structural and Civil Engineering Research*, 3(4), 70-76
[12] Memon, A.H., Abdul Rahman, I. & Abdul Azis, A. (2021) Preliminary Study on Causative Factors Leading to Construction Cost Overrun. *International Journal of Sustainable Construction Engineering and Technology*, 2(1), 57-71.
[13] Moselhi, O. & Khan, Z. (2022) Analysis of Labour Productivity of Formwork Operation in Building Construction. *International Journal of Productivity and Performance Management*, 75(3), 20-30
[14] Niyonkuru, F. (2021). Failure of Foreign Aid in Developing Countries. *Business and Economics Journal*, 18(6), 1-9
[15] Ratcliffe, J. & Stubbs, M. (2020). Urban Planning and Real Estate Development, Natural and Built Environment. *International Journal of Construction Engineering and Management*, 3(1), 13-23
[16] Yahaya, S., Yussif, I., Mohammed, A. & AbdulRahman, H. (2021). Performance Evaluation of Construction Projects: A Review of Approaches and Challenges. *Journal of Construction in Developing Countries*, 22(2), 103-126.