LABOUR-RELATED FACTORS AFFECTING CONSTRUCTION PROJECT PERFORMANCE IN EDO STATE

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BEING A PROJECT SUBMITTED TO THE DEPARTMENT OF QUANTITY SURVEYING
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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
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DECLARATION

I declare that this project is an original work carried out by me, **Chiamaka Annastacia Achinaulo** with Matriculation Number **ENV2002797** in the Department of Quantity Surveying, Faculty of Environmental Sciences, University of Benin, Benin City.

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CERTIFICATION

We certify that this project with the title: **Labour-Related Factors Affecting Construction Project Performance in Edo State** submitted by **Chaiamaka Annastacia Achinaulo**, with Matriculation Number **ENV2002797** has satisfied the regulations governing the award of Bachelor's Degree in Quantity Surveying from the University of Benin, Benin City, Edo State.

Supervisor: Prof. C. P. Ogbu Signature: …..…..…… Date: ……

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External Examiner: Prof. O.A Awoledele Signature: …..…..…… Date: ……....

DEDICATION

This project is dedicated to God Almighty, whose grace and guidance have sustained me throughout this journey. I also dedicate it to my beloved parents Mr & Mrs Mentus Achianulo, whose prayers, support, and encouragement have been my greatest strength. To my friends and colleagues who stood by me with motivation and assistance. This work is a reflection of your love, support, and belief in me.

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My appreciation extends to NIQS Edo State Chapter, YQSF Edo State Chapter, NAQSS National Chapter, construction professionals and firm representatives in Edo State who participated in the study and provided valuable information. Their willingness to share their experiences made this research possible. I am equally grateful to my classmates and friends for their constant support, motivation, and helpful suggestions.

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ABSTRACT

Construction projects are frequently affected by labour-related problems that disrupt project delivery and reduce overall performance. This study examined labour-related factors affecting construction project performance in Edo State. It evaluated the frequency and severity of labour-related factors, ascertained differences in the severity of labour-related factors on the performance of construction projects and determined the influence of labour-related factors on project cost performance in Edo State. A quantitative research approach was employed through the administration of a structured questionnaire to professionals in contracting firms such as architects, builders, M&E engineers, quantity surveyors, civil and structural engineers. The data collected were analyzed using descriptive statistics and Kruskal Wallis H test to determine, differences in the effects of labour-related factors on project cost performance in Edo State. The findings reveal that, the most frequent and severe labour-related factor affecting project cost performance is time management. The severity of most labour-related factors do not differ for different firm sizes and cost performance levels. However, the severity of *occupational education level and experience* was observed to be significantly different among micro, small and medium construction firms. While *training* was observed to be significantly different for different cost performance levels. The study recommends that micro construction firms should employ highly skilled and experienced labourers. The study demonstrated the contribution of labour-related factors to construction cost performance.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The construction industry is one of the key drivers of social economic growth and infrastructural development in Nigeria. Issues related to labour ranging from skill deficits, labour disputes, and inadequate remuneration have been identified as significant constraints on project performance (Akomah et al., 2020).

The Nigerian government's investment in construction reflects its commitment to infrastructure driven growth. According to the Central Bank of Nigeria (CBN), Federal Government capital expenditure reached N1.90 trillion in 2022, with recurrent deficits constraining public investment in subsequent years (CBN, 2023). The Budget Office of the Federation further indicates that the 2023 Appropriation Bill allocated N4.37 trillion to capital projects, representing over 20 percent of total federal spending, these funds support a broad range of construction activities (Budget Office of the Federation, 2023). Notably, the National Bureau of Statistics (NBS) reported that construction contributed N18.7 trillion (9.4 percent of GDP) in 2022, highlighting both government and private sector engagement in the industry (NBS, 2024).

At the subnational level, Edo State's capital investment demonstrates similar prioritisation of infrastructure. The 2023 Edo State Budget initially earmarked N185.64 billion for capital expenditure, later revised to N147.73 billion to reflect fiscal adjustments (Edo State Government, 2023). Private sector participation in Edo State is also notable, financed through a billion private equity arrangement, exemplifies large scale non-governmental investment in construction (Idowu,

2023). Together, public and private capital outlays in Edo State exceed N500 billion annually, reflecting a dynamic construction ecosystem.

Cost performance of project in Edo State, remains a challenge in delay project completion, low productivity and high turnover has inflated direct wage bills by 20 percent, through overtime and repeated rework, poor industrial relations and weak attendance monitoring contribute to both time, cost and quality. Collectively, these findings underscore labour dynamics as a critical determinant of construction cost performance in Edo State. The construction workforce in Edo State is characterized by a heterogeneous mix that includes local artisans, migrant labourers, and professionals such as engineers and architects. The industry faces a chronic shortage of skilled labour, compounded by an aging workforce and the diminishing appeal of construction trades among the youth. This situation is further exacerbated by socio economic factors like low remuneration and poor working conditions, which discourage long term commitment and optimal performance among workers (Adagba, et al., 2021). Construction projects in Edo State, continue to underperform largely due to labour-related factors affecting construction project performance which includes, challenges manifest in cost overruns, schedule delays, and compromised quality (Ijigah, 2023).

1.2 Statement of Research Problem

Despite numerous investigations into labour-related constraints in Nigerian construction, a clear gap remains in understanding how these factors interact specifically within Edo State, previous research focused more on isolated issues such as skill deficits, absenteeism, and industrial disputes, but often adopts a broad focus on singular factors have underscored the cost implications of absenteeism and low productivity (), while (Dada and Jagboro, 2018) examined competencies among labourers, yet none have compared labour-related factors affecting

construction project performance in relation to time, cost and quality in Edo State. Therefore, this research seeks to bridge these gaps by conducting a comprehensive assessment on the frequency and severity of labour-related factors affecting project cost performance executed by micro, small and medium construction firms in Edo State.

1.3 Research Questions

To achieve the stated objectives, this study was guided by the following research questions:

1. What are labour-related factors affecting construction project performance in Edo State?com

2. What is severity of labour-related factors affecting construction project performance in Edo State?

3. What differences exist in the severity of labour-related factors on the performance of projects executed by micro, small and medium construction firms in Edo State?

4. What influence do labour-related factors have on cost performance of construction projects in Edo State?

1.4 Aim and Objectives of the Study

This study aims to investigate labour-related factors affecting construction project performance in Edo State with a view to improving the performance of construction projects executed by construction firms of all sizes in the state. The objectives of the study are as follows:

1. Examine frequency of labour-related factors affecting construction project performance in Edo State

2. Ascertain severity of labour-related factors affecting construction project performance in Edo State

3. Ascertain differences in the severity of labour-related factors on the performance of construction projects executed by micro, small and medium construction firms in Edo State

4. Determine the influence of labour-related factors on project cost performance in Edo State.

1.5 Hypotheses

Ho1: There is no significant difference in the severity of labour-related factors on the performance of construction project executed by micro, small and medium sized construction firms in Edo State.

Ha1: There is significant difference in the severity of labour-related factors on the performance of construction project executed by micro, small and medium sized construction firms in Edo State.

Ho2: There is no significant relationship between labour-related factors and the cost performance of construction projects in Edo State.

Ha2: There is significant relationship between labour-related factors and the cost performance of construction projects in Edo State.

1.6 Scope of the Study

The study is confined to Benin City, Edo State, Nigeria, and data were obtained from professionals in construction firms, the study focuses on professionals in contracting firms. Although none professionals are sometimes designated as site supervisors, this study focused solely on Architects, Builders, M&E Engineers, Quantity Surveyors, Civil and Structural Engineers, working for contractors.

1.7 Significance of the Study

The research contributes board insights on how workforce dynamics shape time, cost and schedule performance. It highlights strategies on skill gaps in providing a relevant long-term.

The findings offer evidence on which labour constraints, with a clearer understanding of these drivers by firm size, practitioners can optimize resource deployment, tailor workforce development strategies, and implement practical measures to improve site productivity and control costs more effectively.

Policy makers and regulators will benefit from insights into how labour supply, regulatory compliance, and certification requirements affect construction project performance. By revealing the relative severity of labour challenges among different firm sizes, the study supports the design of targeted support programs, such as training grants for small enterprises or apprenticeship schemes for micro-sized firms, as well as the refinement of construction industry regulations to enhance project efficiency and stimulate sustainable economic growth in Edo State. Overall, this research aligns with its objectives by identifying the key labour-related factors impacting project performance, demonstrating how their effects differ across firm sizes, and clarifying their direct cost implications, thereby informing academic theory, industry practice, and policy formulation.

1.8 Definition of Terms

Construction: This is the process of planning, designing, and building infrastructure, it involves the use of both human and material resources to deliver a completed project.

Severity: Indicates the level of seriousness or impact that a particular issue or factor has on a construction project.

Cost: Financial resources required to carry out a construction project, includes the cost of materials, labour, equipment, and other related expenses needed to complete the project.

Time: The duration required to complete a construction project from the inception stage to commissioning.

Quality: Quality is the degree to which the construction work meets the expected standards, specifications, and client requirements.

CHAPTER TWO

LITERATURE REVIEW

2.1 Preamble

This chapter offers an exhaustive survey of work concerning labour-related factors affect the performance of construction projects in Edo State, Nigeria. Acknowledging labour as the fundamental element of construction, the review integrates conceptual frameworks and empirical findings to demonstrate how workforce dynamics shape project schedules, financial outcomes, and overall delivery efficiency in relation to time, cost and quality (Ameh & Osegbo, 2011).

2.2 Labour

Labour in construction refers to the human effort, physical and mental, applied to project activities. Workers range from artisans such as masons and carpenters to specialized engineers and site managers, the composition of the workforce influences the division of blue-collar workers and white-collar workers (Akomah et al., 2020).

2.3 Labour-Related Factors Affecting Construction Project Performance in Edo State

Labour-related factors influence construction projects through a variety of interwoven mechanisms that affect cost, time, and quality. One critical factor is the unavailability of skilled workers. When a project lacks personnel with the necessary technical expertise, supervisors spend additional time overseeing less experienced staff and correcting mistakes, which drives up costs and delays progress (Ameh & Osegbo, 2011). Construction projects rely heavily on the human workforce such as white collar and blue-collar workers, and understanding the specific labour factors is essential to improving performance outcomes. In Edo State, several interrelated issues influence how effectively projects progress from start to finish. This section explores the

most significant labour-related factors and broader literature to contextualize their impact. Construction labour productivity is critical to project success, influencing project costs, timelines, and overall quality. Frequent absenteeism and high turnover disrupt team dynamics and workflow continuity, forcing managers to reassign tasks and onboard replacements midstream, further complicating scheduling and budget control (Idowu & Aligamhe, 2023).

Labour-related factor is driven into personal attribute and work environment factors, which are the key factors, leading to poor project performance. Worker's attribute holds a specified tasks in the construction industry which leads to efficiency and quality performance of work when attribute is meant and skilled. Furthermore, work environment factor plays a virtue role in shaping the working system of the workers, this can lead to external or internal factors. Disputes between management and labour organizations can escalate into strikes or work stoppages, halting critical activities and requiring renegotiation of timelines, threat of conflict can undermine morale and reduce cooperation, slowing decision making and undermining efficiency (Akanni et al., 2015). Alongside these social dynamics, inadequate safety measures lead to accidents, bringing work to a temporary standstill for investigations and corrective action, and increasing indirect costs.

Delays in one area, often due to shortages or mismatches in worker skills, can create a bottleneck that delays downstream tasks, multiplying the initial impact across the project timeline. Finally, lack prospects for advancement, diminishes, reducing effort and openness to adopting more efficient practices. The productivity and reliability of construction workers hinge upon individual characteristics. Higher educational attainment correlates with faster assimilation of complex methodologies and strict adherence to project specifications, reducing error rates (Goswami,

2018). Similarly, workers boasting extensive tenure and prior experience in comparable projects demonstrate greater autonomy and produce results of superior quality (Mbachu, 2015). Psychological factors such as job satisfaction and commitment shape attendance patterns and workmanship quality, with motivated employees less likely to abandon assignments prematurely (Barczak et al., 2010). Physical health also plays a critical role, since healthy workers maintain stamina and minimize unplanned absences, the scarcity of formal vocational training programs restricts enhancements in these attributes, perpetuating low productivity cycles (Akomah et al., 2020).

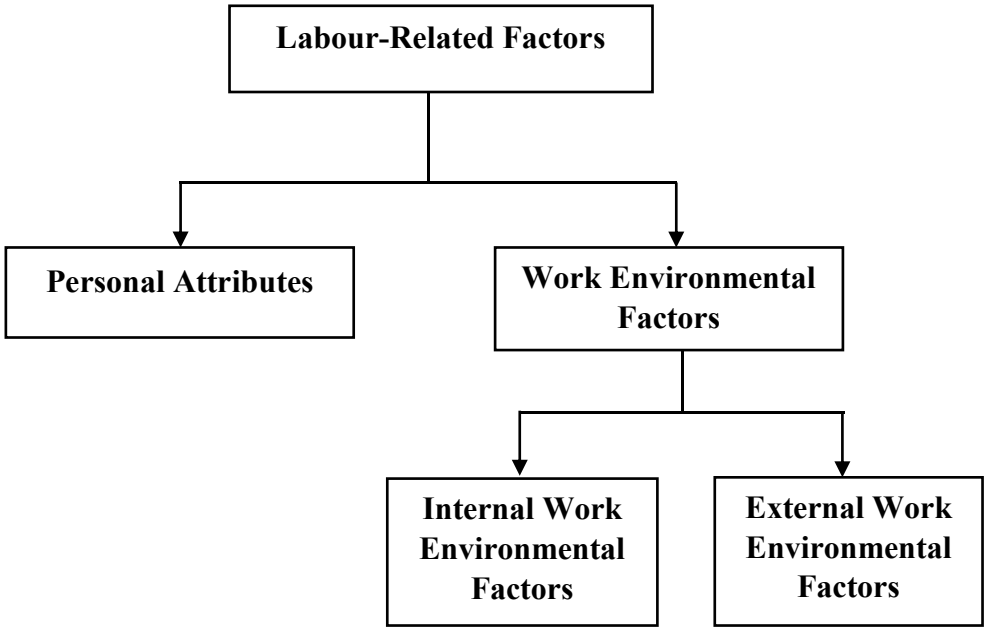

Figure 1: Conceptual framework of the study (Source: Ameh & Osegbo 2011; Aibinu &Jagboro, 2002)

2.3.1 Personal Attributes Affecting Construction Project Performance

Construction workforce effectiveness in Edo State hinges not only on collective labour inputs but critically on individual traits that shape performance. Education level determines a worker's facility with reading technical plans, adhering to safety protocols, and assimilating new

techniques, those with stronger literacy and training backgrounds quickly grasp complex instructions and need less corrective oversight (Almaktari, 2017). Extensive field experience fosters intuitive problem solving, as seasoned workers draw on past projects to foresee potential issues, suggest practical solutions, and uphold consistent craftsmanship under tight deadlines. Motivation and mindset directly impact work quality and reliability (Sarfraz et al., 2018). When workers feel their efforts are justly recognized through fair wages, career pathways, or positive feedback, they display greater dedication, exhibit fewer unplanned absences, and willingly embrace productivity enhancing practices. In contrast, perceptions of inequity or stagnation can lead to disengagement, declining output, and a higher propensity for errors.

Physical stamina and mental resilience are equally vital. Construction tasks demand sustained energy and acute focus, labourers in good health maintain steady progress while rigorously observing safety measures, thereby reducing accident (Almaktari, 2017). Moreover, adaptability under stress, whether coping with sudden design revisions or challenging site conditions, enables individuals to maintain momentum without compromising quality. In environments where formal certification opportunities are scarce, personal initiative becomes the bedrock of skill enhancement. Proactive workers seek peer-led tutoring, practical experimentation, and self-study to bridge training gaps. This intrinsic drive, shaped by curiosity, pride in workmanship, and commitment to professional growth, empowers individuals to elevate both their own capabilities and the collective performance of the team, a dynamic also observed in Edo State's construction sector (Ameh & Aigbavboa, 2018).

Table 2.1: Personal attributes affecting construction project performance

S/N	Workers characteristics as factors affecting construction project performance
1	Skills
2	Abilities
3	Occupational education level
4	Experience
5	Age
6	Gender
7	Health
8	Nationality
9	Training
10	Religion
11	Marital status
12	Physical stamina
13	Physical agile
14	Time management
15	Diversity
16	Manual dexterity
17	Organization
18	Addiction
19	Personal issues
20	Work style
21	Work value
22	Habits
23	Worker's integrity
24	Leadership
25	Sense of observance of regulations

Source: (Akwuobi, 2023)

2.3.2 Work Environment Factor Affecting Construction Project Performance

The work environment encompasses all the conditions under which construction labour operates, and these factors play a crucial role in performance of construction projects. These can be categorized into internal and external factors. Internal factors are those arising from within the construction firm or worksite, while external factors are influences beyond the firm's immediate control, particularly government policies and regulatory frameworks (Mosaku & Fagbenle, 2019).

2.3.2.1 Internal Work Environmental Factors

Internal work environment factors are those elements that firms directly control and organize within the construction site. These include site layout, safety protocols, access to materials and equipment, supervision quality, and communication systems. A disorganized worksite causes payment delays, inadequate remuneration, poor industrial relation, lack of technology adoption, which ultimately reduce labour productivity. A well-structured environment promotes coordination, timely task execution, and minimizes idle time (Tunji-Olayeni et al., 2018).

Effective supervision and strong leadership ensure that workers are guided, motivated, and productive. Poor supervision, on the other hand often leads to confusion, conflicts, and increased rework. Communication is another vital element without clear, timely dissemination of instructions or changes, workers may make costly errors or duplicate efforts. Also, worker welfare including sanitation, rest areas, personal protective equipment, and medical support directly influences morale and retention. Poor welfare conditions can demotivate labourers, contributing to absenteeism, low productivity, and higher staff turnover (Mbachu, 2015).

Table 2.2: Internal work environmental factors affecting construction project performance in Edo State

S/N	Internal work environmental factors	References
1	Payment delays	Gündüz et al., (2013)
2	Inadequate remuneration	Ballhysa and Blloku (2014)
3	Unfavorable working conditions	Sweis (2013)
4	Health and safety concerns	Sweis (2013)
5	Ethnic and cultural tensions	Fearon and Laitin (2000)
6	Religious differences	Day (2002)
7	Lack of career progression opportunities	Agyekum and Ampratwum (2020)
8	Inefficient performance evaluation	Bekr (2015)
9	Insufficient onsite motivation	Rahimian and Kolo (2017)
10	Poor industrial relations	Gluszak and Lesniak (2015)
11	Corruption and mismanagement	Chan and Owusu (2017)
12	Ergonomic and physical fatigue issues	Gashahun (2020)
13	Training facility constraints	Almaktari (2017)

Table 2.2: (Cont'd) Internal work environmental factors affecting construction project performance in Edo State

S/N	Internal work environmental factors	References
14	Inadequate incentive structures	Almaktari (2017)
15	Lack of technology adoption	Dick-Sagoe and Arthur (2016)
16	Skilled labour shortage	Memon and Rahman (2012)
17	Unskilled labour availability	Memon and Rahman (2012)
18	Inadequate training and certification	Shebob and Dawood (2012)
19	Weak apprenticeship systems	Wong and Vimonsatit (2012)
20	High labour turnover	Karimi and Piroozfar (2012)
21	Low labour productivity	Kamanga and Steyn (2013)
22	Poor work ethics and discipline	Aziz and Hafez (2013)
23	Inadequate manpower planning	Almaktari (2017)
24	Mismatch between labour supply and	Kesevan and Gobidan (2015)
25	demand	Almaktari and Hong (2017)
26	Language barriers	Rahimian and Kolo (2017)
27	Ergonomic and physical fatigue issues	Gluszak and Lesniak (2015)
28	Onsite conflict	Chan and Owusu (2017)
29	Poor workmanship	Gashahun (2020)
30	Loss of man hours	Almaktari (2017)
31	Poor client contractor relationship	Al-Emad and Nagapan (2015)
32	Contract dispute	Dada and Jagboro (2012)
33	Insecurity	Ameh and Osegbo (2015)
34	Theft	Al-Emad and Nagapan (2015)
35	Discrimination and racism	Dada and Jagboro (2012)
36	Unsafe practice	Ameh and Osegbo (2015)

2.3.2.2 External Work Environmental Factors

External work environment factors relate to broader conditions influenced largely by government policies, economic trends, and societal dynamics. One of the most significant external factors in Edo State is the regulatory framework established by the government. Policies related to labour laws, taxation, health and safety standards, and lack of environmental compliance hinders construction progress (Akanni et al., 2015).

2.3.2.2.1 Union Interference

Labour unions, while vital in safeguarding worker rights, sometimes obstruct workflow through sudden strikes, rigid wage demands, or by insisting on the use of specific labour regardless of skill. These disruptions often lead to project delays, reduced productivity, and strained industrial

relations (Akanni et al.,2015). In extreme cases, unions may block access to sites or halt work entirely if their demands are unmet, affecting both time and cost performance.

2.3.2.2.2 Political Interference

Political factors influence contract awards, impose personnel, or delay permits and approvals for political leverage. This undermines merit-based project management and contributes to inflated costs and schedule overruns (Olanrewaju and Anavhe 2020). Political meddling can also erode public confidence and create a hostile work environment, particularly in projects with high visibility or government funding.

2.3.2.2.3 Government Policy and Regulation

Government policy and regulation directly affect the operating environment for contractors. Inconsistent application of regulations, bureaucratic delays in permit processing, and unclear zoning laws create uncertainty for contractors and developers. For example, fluctuating environmental compliance requirements and sudden policy shifts regarding safety standards have stalled multiple projects in Edo State (Tuniji-Olayeni et al., 2018). These regulatory inconsistencies can also lead to unplanned redesigns or penalties that jeopardize project profitability.

2.3.2.2.4 Micro-economic Factors

Micro-economic factors such as inflation, exchange rate instability, and rising fuel prices significantly impact material costs, labour wages, and logistics. An increase in the cost of construction inputs such as cement, reinforcement steel, and diesel lead to budget overruns and, in some cases, project abandonment (Akanni & Akpomiemie, 2015).

Collectively, these external conditions though outside the firm's immediate control must be carefully anticipated and managed. Firms that build adaptive strategies and maintain strong regulatory awareness are better positioned to mitigate disruptions caused by these micro-level influences.

Table 2.3: External factors affecting construction project performance in Edo State

S/N	External factors affecting construction	Description	References
1	Union interference	Labour unions initiating strikes, enforcing use of specific labour, and demanding wage hikes that delay work.	Akanni et al. (2015)
2	Political interference	Politicians influencing contract awards, staffing, and permits for personal or partisan reasons.	Olanrewaju and Anavhe (2020)
3	Government policy and regulation	Delays in building permits, changing safety codes, and inconsistent enforcement of compliance standards.	Adebisi et al. (2018)
4	Microeconomics factors	Broad economic instability, including recession, unemployment, and uncertainty that affects labour availability and investment confidence.	Akanni et al. (2015)
5	Interest rate policy	High interest rates limiting contractors' access to credit or loans needed for capital-intensive projects.	Olanrewaju and Anavhe (2020)
6	Inflation	Rapid rise in the cost of construction inputs (e.g., steel, cement, diesel) affecting budget projections	Akanni et al. (2015)
7	Exchange rate instability	Fluctuations in currency value increasing costs for imported equipment and materials.	Akanni et al. (2015)

2.4 Project Performance

Project performance refers to a stage which a construction project meets its predefined objectives in terms of time, cost, quality, safety, and client satisfaction. It serves as a critical benchmark for evaluating the success or failure of any construction endeavour. In construction industry in Edo

State, project performance is often used to assess how effectively resources are, particularly labour.

Project performance has been measured using the "iron triangle" of time, cost, and quality. These three dimensions form the foundation for evaluating whether a project has been delivered within the scheduled timeframe, kept within the allocated budget, and built to acceptable standards of workmanship and functionality (Tunji-Olayeni et al., 2018). However, recent studies suggest that additional indicators such as health and safety records, environmental impact, and stakeholder satisfaction are equally important in capturing the full scope of project outcomes (Agyekum et al., 2020).

In Edo State, performance related challenges are exacerbated by external influences such as poor regulatory enforcement, fluctuating microeconomic conditions, and political interference, which indirectly affect how well labour inputs translate into project outputs. Additionally, client satisfaction an emerging measure of performance is influenced by both the tangible outcome of the project and the process through which it was delivered, including communication, transparency, and adherence to ethical labour practices (Akinsiku, et al.,2016).

For this study, cost was adopted at the sole measure of project performance. This is because other measures of project performance direct relationships to the cost of a project.

2.4.1 Severity of Labour-Related Factors Affecting Construction Project Performance in Edo State

Labour-related factors are among the most critical variables influencing construction project performance in Edo State, Nigeria. Their impact is particularly evident in issues related to cost

performance, including cost overruns, on-budget performance, and rare cases of cost underrun. Based on a combination of academic studies and field data, it is evident that labour factors such as delayed payments, unfair wages, inadequate training, low motivation, and communication issues play significant roles in the success or failure of construction projects. A study conducted in Auchi, Edo State, indicated that many commercial building projects experience cost performance of around 90.1%, with an average time overrun of 9.9% (Aghimien et al., 2024). When workers or subcontractors are not paid on time, it results in reduced morale, increased absenteeism, and, in some cases, work stoppages. This situation extends project timelines and causes cost escalations due to prolonged overheads and increased financing costs (Idowu & Aligamhe, 2023).

Unfair wages and lack of motivation are also highly ranked among the factors negatively impacting project performance. A national-level study found that low remuneration (Relative Importance Index, RII = 0.89) and inadequate motivation (RII = 0.79) are two of the top contributors to poor labour productivity on construction sites (Fagbenle et al., 2011). These issues are directly linked to reduced worker output, which slows project execution and contributes to both time and cost overruns.

Skill shortages and poor training are also significant contributors to inefficiencies in construction activities. A contractor workforce that lacks technical skills is more prone to errors and slower execution, leading to costly rework and schedule delays. In Edo State, the challenge is further compounded by the shortage of training programs and weak enforcement of competency requirements for construction personnel (Idowu & Aligamhe, 2023).

Communication problems between project managers, site supervisors, and labourers also contribute to inefficiencies and errors on site. Poorly communicated instructions or misunderstanding of plans can lead to mistakes that must be corrected, consuming additional time and resources. These missteps ultimately add to project costs, especially when they result in significant rework or revisions (Ameh & Osegbo, 2011).

The impact of labour-related issues on project cost performance can be observed across three cost outcomes: cost overrun, on-budget delivery, and cost underrun. Cost overrun is the most common result when labour issues are present. Productivity losses and delayed payments lead to slower progress, extended timelines, and increased overheads, all of which contribute to spending beyond the initial budget. On-budget delivery occurs less frequently and generally when labour conditions are stable, when workers are paid on time, adequately trained, fairly compensated, and well-managed. Under such circumstances, labour performance remains consistent, and costs are kept within planned limits. Cost underrun is relatively rare and, when it occurs, may not always reflect efficiency. In some instances, it results from cutting corners, underpaying labour, using substandard materials, or omitting aspects of the work scope. While a project might appear to come in under budget, the quality and sustainability of the work could be compromised (Akinsiku et al., 2016).

The severity of labour-related challenges in Edo State is consistently ranked as high to very high. Payment delays are among the most severe, often resulting in near-immediate disruptions to work schedules (Idowu & Aligamhe, 2023). Other severe factors include lack of training, low motivation, absenteeism, and unavailability of tools or materials. These challenges contribute not only to cost overruns but also to time overruns and project abandonment in some cases.

To improve project performance, it is necessary to implement payment schedules that ensure regular disbursements to workers and subcontractors. Fair wage structures and performance-based incentives should also be adopted to increase motivation. Training programs, including on-the-job and vocational training, must be prioritized to build worker competence. Moreover, establishing effective communication protocols and ensuring availability of tools and materials can significantly improve labour productivity and project outcomes (Fagbenle et al., 2011).

2.5 Severity of Labour-Related Factors on the Performance of Projects Executed in Construction Firms

In Nigeria, the construction industry is a major contributor to employment and economic development (Adada & Okorie 2016). Over 26.2 million micro, small, and medium construction firms make up about 85% of all businesses in the country and contribute not less than 70% of national employment, becoming a norm for clients to award projects to large construction firms, particularly those owned by foreign investors. This practice restricts the opportunities for micro, small, and medium construction firms to develop technical competence and global competitiveness (Adebisi et al., 2018).

One of the most pressing issues affecting project performance especially among micro, small, and medium construction firms is the severity of labour-related factors. Labour is a vital component of construction delivery, and deficiencies in this area can significantly affect a project's success. Issues such as shortages of skilled labour, high labour turnover, poor training systems, and low productivity are commonly cited as causes of cost overruns, schedule delays, and substandard work quality (Aghimien et al., 2024). These issues are often more severe typically have limited financial resources to invest in skilled manpower or training programs.

Workforce-related issues, such as lack of supervision, poor safety practices, and on-site disputes, are more frequent and impactful in micro and small construction firms compared to larger firms. This is due to weaker organizational structures and less access to modern management systems. In many cases, the lack of formal labour planning and poor human resource management systems make them more vulnerable to labour-related setbacks that compromise time, cost, and quality performance (Adada & Okorie, 2016). Further observed that labour-related factors such as absenteeism, fatigue, and lack of job commitment, tend to be more severe in small and medium construction firms due to a lack of structured work policies and insufficient worker motivation. These conditions often result in poor workmanship and frequent project revisions, which further delay delivery and increase costs (Aiyetan & Das, 2018).

Despite the prominence in the construction industry, there is a limited body of empirical research examining how the severity of labour-related factors affects their project performance compared to larger firms. This gap makes it difficult to ascertain whether performance criticisms such as cost overruns, delays, and quality defects should be more strongly associated with micro, small and medium construction firm or they are systemic across the entire construction sector. As such, this study seeks to examine how severe labour-related factors impact the cost, time, and quality performance of construction projects executed by micro, small, and medium construction firms in Edo State, Nigeria. The findings aim to provide a clearer understanding of the labour-related factors on construction firms in relation to micro, small and medium, deriving on it influence on construction project performance (Bekr, 2015).

2.5.1 Classification of Construction Firms

The Nigerian National Policy on Micro, Small and Medium Enterprises (NPMSMEs, 2007) classified firms based on various criteria such as size, sector, organizational structure, technology, location, employment level, turnover, assets, and paid-up capital. This classification aimed to better understand the nature, characteristics, performance, and challenges of business enterprises, thereby informing the development of a coherent national policy framework in Nigeria. Construction companies in Edo State are commonly classified into small, medium, and large firms based on criteria such as annual turnover, number of employees, and scope of past projects. Each category exhibits distinct characteristics and faces unique labour challenges (Tunji-Olayeni et al., 2018).

2.5.1.1 Micro Construction Firms

Micro firms typically employ fewer workers and handle projects with modest budgets, such as residential buildings. Their limited financial and human resources constrain formal training programmes, specialised supervision, and comprehensive welfare provisions (Ihedigbo et al., 2023). Consequently, these firms often rely on locally available, semi-skilled labour and struggle with high turnover, absenteeism, and inconsistent productivity. Informal management structures and minimal HR systems make small firms particularly vulnerable to disruptions caused by skilled labour shortages and industrial disputes.

2.5.1.2 Small Construction Firms

Small firms in Edo State generally maintain a workforce and undertake projects ranging from multi-unit residential complexes to mid-scale infrastructure works. They possess moderate capital reserves that allow for occasional skills training, performance incentives, and basic welfare facilities. These firms often implement some HR policies, such as periodic safety

workshops and attendance monitoring, to address absenteeism and productivity issues. However, competition from large contractors means they face ongoing challenges in attracting experienced tradespeople and offering competitive remuneration, leading to persistent skill gaps and labour turnover (NPMSME, 2007).

2.5.1.3 Medium Construction Firms

Large firms employ above 10 workers and execute major projects like highways, industrial facilities, and commercial high-rises. With substantial turnover and access to finance, they invest in structured apprenticeship schemes, in-house training centers, and advanced mechanisation. Formal HR departments oversee recruitment, performance appraisal, and industrial relations, thereby minimising absenteeism, disputes, and safety incidents. Large firms' scale enables them to deploy cross-functional teams and sophisticated planning tools, which buffer the impact of individual labour disruptions and maintain a stable workforce capable of sustaining high productivity levels. Understanding these classifications and their labour implications establishes a foundation for comparing how different firm sizes experience and manage labour-related factors in subsequent analyses (Agyekum et al., 2020).

2.6 Influence of Labour-Related Factors on Cost Performance of Construction Projects

Labour-related factors exert a profound and multifaceted impact on the cost performance of construction projects. Skill shortages and absenteeism compel contractors to engage additional or higher paid labour, often including costly overtime, to maintain progress thereby inflating direct wage bills (Tunji-Olayeni et al., 2018). Inadequately trained or supervised crews generate defects and rework, which not only add labour hours but also incur secondary expenses such as material waste and extended equipment rentals (Periods of idle time when work slows or stops still attract

equipment lease and supervisory costs, further driving up the effective unit cost of output (Akanni et al., 2015).

High turnover and inconsistent productivity necessitate increased managerial oversight, translating into elevated overheads for scheduling, quality control, and staff coordination (Akinsiku et al., 2016). Moreover, insufficient training and lax safety practices lead to a greater incidence of accidents, triggering investigation and insurance costs, regulatory fines, and unplanned work stoppages (Tunji-Olayeni et al., 2018). Labour induced delays may also incur contractual liquidated damages or extended interest payments on project financing, often eclipsing the original labour cost variances (Bekr, 2015).

Finally, poor labour welfare manifested in late payments, inadequate site facilities, and limited recognition undermines motivation, resulting in slower work rates and more frequent recruitment expenses. In contrast, projects supported by a stable, well-trained, and engaged workforce consistently demonstrate tighter adherence to budgetary targets and fewer hidden cost escalations (Olanrewaju et al., 2020).

2.6.1 Cost Performance

Cost performance is the extent which construction project is delivered within its approved or estimated budget. It is a critical component of project success and is often used as a benchmark to assess the financial efficiency of a project. Good cost performance implies that project activities are executed without exceeding the planned financial resources, while poor cost performance indicates budget overruns, often leading to financial losses or disputes between stakeholders (Aibinu & Jagboro, 2002). Cost performance is influenced by a variety of factors such as labour productivity, material prices, equipment efficiency, project delays, design modifications, and site conditions. Labour-related factors**,** significant contribute to cost

deviations, leading to rework, reduce efficiency, and ultimately inflate project costs (El-Sayegh & Osinubi, 2008). Maintaining sound cost performance requires effective cost estimation, ongoing cost monitoring, forecasting, and timely decision-making throughout the project lifecycle.

In construction projects, especially in labour-intensive environments like Nigeria, labour-related factors play a significant role in determining cost performance. These factors include the availability of skilled and unskilled labour, labour productivity, absenteeism, turnover, on-site disputes, poor supervision, inadequate training, and weak manpower planning (El-Sayegh & Osinubi, 2008). When these issues become severe, they directly affect the cost of delivering construction projects by increasing man hours, causing rework, delaying timelines, and leading to extended equipment and material usage all of which escalate the overall project cost.

For instance, low labour productivity caused by poor skills, fatigue, or lack of motivation results in longer execution periods, which in turn increases labour and overhead costs. Frequent labour turnover or absenteeism leads to the repeated hiring and onboarding of new workers, disrupting workflow and inflating operational costs (Aiyetan & Das, 2018). Inadequate supervision or training can also result in poor workmanship, requiring corrective work that further increases costs (Oseghale et al., 2015). In managing cost performance, tools like the Cost Performance Index (CPI) and Earned Value Management (EVM) are commonly used to track cost efficiency (PMI, 2017). However, in many cases, especially among firms with limited management capacity, these tools are underutilized or applied too late to prevent cost overruns caused by underlying labour-related problems.

In this study, cost performance is treated as a dependent variable influenced by the severity of labour-related factors. Understanding this relationship is essential, as it helps to pinpoint which

labour issues are most financially impactful and allows for more targeted interventions in labour management. By identifying and addressing these issues early, construction firms can significantly improve their cost performance and reduce the risk of budget overruns.

CHAPTER THREE

RESEARCH METHODS

3.1 Preamble

This chapter details the approach adopted to investigate labour-related factors affecting construction project performance in Edo State with the aim to investigate labour-related factors, by engaging professionals across diverse roles, ranging from architect to site supervisors, the study ensures that multiple perspectives on labour constraints and their operational impacts are captured. Building on insights from Chapters One and Two, it defines the research design, study area, population, and sampling strategies, and outlines the procedures for data collection and analysis. The methodology ensures that findings are reliable, and directly address the study objectives.

3.2 Study Area

The research was carried out in Edo State, Nigeria, a state characterised by activities construction activity in both urban and per-urban zones. Primary data were gathered in Benin City, selected for their mix of residential, commercial, and infrastructure projects. These locations provide a representative cross-section of labour practices and project types within the state.

3.3 Research Design

This study will adopt a descriptive survey research design. The descriptive survey design is appropriate as it allows for the systematic collection of quantitative data from respondents to describe the current state of labour-related factors and their influence on construction project performance in Edo State.

3.4 Target Population

The study population comprises professionals in contracting firms such as architects, builders, M&E engineers, quantity surveyors, civil and structural engineers. These professionals are often involved in the management of construction labourers, and are knowledgeable about labour-related issues affecting construction project performance.

A census approach was adopted in collecting information from every member of the entire population rather than from a selected sample. The research was completed from every set of units (individuals and organizations) that meet the study's inclusion criteria.

3.5 Data Needs and Sources

The population comprises professional working for construction firms operating in Edo State that execute building or civil engineering works and have at least one active project in the last 24 months. Units of inquiry are firm's responses provided by key informants (e.g., architects, M&E engineers, builders, quantity surveyors, civil and structural engineers) who are knowledgeable about the firm's labour issues and project performance.

Table 3.1: Professional in construction companies in Edo State

S/N	Professionals	Population	Percentage of population (%)
1	Architect	35	23
2	Civil and Structural Engineers	40	27
3	Quantity Surveyors	35	23
4	M&E Engineers	25	17
5	Builders	15	10
	TOTAL	**150**	**100**

3.6 Research Instruments

A structured questionnaire formed the main instrument for data collection featuring three sections as follows:

Section A: Demographic information

Section B: The respondents were asked to indicate the frequency of occurrence and severity of labour-related factors using the likert-scale:

Frequency: Never = 1, Rare = 2, Sometimes = 3, Very Often = 4, Always = 5

Severity: Not Severe = 1, Slightly Severe = 2, Moderately Severe = 3, Very Severe = 4, Extreme Severe = 5

Section C: The respondents were asked to indicate the cost performance of a recently completed project using the scale:

Cost Overrun = 1, Cost remained the Same = 2, Cost Under run = 3

3.7 Method of Data Collection

Questionnaires were distributed electronically and in person, with reminders sent to improve response rates. All participants provided informed consent, and confidentiality was assured. Data collection took place over a 3weeks period to allow adequate time for responses.

3.8 Methods of Data Analysis

The obtained quantitative data were analysed using SPSS and Microsoft Excel. Descriptive statistics (mean, standard deviation, frequency and severity) were used as well as Kruskal Wallis H test for significant differences across firm sizes and project cost performance.

a. Mean Item Scores and Impact Valve

Mean Item Score (MIS) is a statistical technique used to calculate the average score for each item (usually a statement or factor) on a Likert-type scale in a questionnaire (Udofia, 2011). It helped

determine the mean and standard deviation of labour-related factors based on respondents' opinions. The MIS of the frequency of occurrence and severity of labour-related factors were computed, using the formula.

$$\textbf{MIS} \quad \bar{\mathbf{x}} = \frac{\sum_1^n x_i}{\mathbf{n}}$$

$$\textbf{MIS} \quad \bar{\mathbf{x}} = \frac{\mathbf{x_1}+\mathbf{x_2}+\mathbf{x_3}+\ldots\ldots\mathbf{x_n}}{\mathbf{n}}$$

n = Total number of respondents

$\mathbf{x_i}$ = Data value

$\bar{\mathbf{x}}$ = The mean value of the set of data given

To compute impact values for the labour-related factors, the mean of the frequency of occurrence was multiplied by the mean of the severity. Thus,

$\mathbf{MIS_F}$ = Mean score of frequency

$\mathbf{MIS_S}$ = Mean score of severity

$$\mathbf{MIS_F \ X \ MIS_S = Impact \ Value}$$

For each factor, MIS_F and MIS_S were computed, while the mean score represents the central tendency of respondents' opinions, and the impact value measures the level of agreement. Impact values were computed by higher impact value means greater effect on project outcome. The factors were then ranked in descending order of their mean scores.

b. Kruskal Wallis H Test

The Kruskal Wallis H test is a non-parametric statistical test used to determine if there are significant differences between two or more groups when the data is not normally distributed or when dealing with ordinal data (Udofia, 2011). The formula for the analysis is given by the equation below

$$\boldsymbol{H = \frac{12 \quad k}{N(N+1)} = \sum_{K=1}^{g} n_k \quad R_K^{-2} - 3(N+1)}$$

g = 3 (number of groups)

$\mathbf{n_k}$ = Sample size in group k

$\bar{\mathbf{R}}$ = Mean rank of group k

N = Total observation

This non-parametric test was appropriate because the data were ordinal (Likert-Scale responses) and the assumption of normality was not required. The Kruskal Wallis H test was used, for hypotheses 1 and 2 of the study. Variables with p value $\leq$ 0.05 were regarded as being significally different among the groups, while those with p value $>$ 0.05 were regarded as not being significant. Kruskal Wallis test was used to determine whether differences exist in the respondents' perceptions of the frequency and severity of labour-related factors that affect project performance in the study area. Hence, it was used to ascertain whether sig differences exist in the labour-related factors under different cost performance sceneros (cost overrun, underrun and same).

Table 3.2: Shows the objectives of the study and the methods used to analyse the data for each objective

No	Research Objectives	Method of Analysis
1	Examine frequency labour-related factors affecting construction project performance in Edo State	Mean Item Score
2	To attain severity of labour-related factors affecting construction project performance in Edo State	Mean Item Score
3	Ascertain differences in the severity of labour-related factors on the performance of construction projects executed by micro, small and medium construction firms	Kruskal Wallis
4	Determine the influence of labour-related factors on project cost performance	Kruskal Wallis

CHAPTER FOUR

RESULTS AND DISCUSION OF FINDINGS

4.1 Preamble

This chapter presents the data analysis and discussion of results based on the research objectives outlined in Chapter Three. Descriptive statistics, specifically the Mean Item Score (MIS), were employed to address the first and second objectives, which focused on examining the frequency and severity of labour-related factors affecting construction project performance in Edo State. The third and fourth objective, which sought to determine whether ascertaining differences in the severity of labour-related factors on the performance of construction projects executed by micro, small and medium construction firms and influence of labour-related factors on project cost performance, was analysed using the Kruskal–Wallis H test.

Data were collected through the administration of a structured questionnaire, which was distributed electronically via WhatsApp across various construction professional platforms. A total of 62 valid responses were retrieved and analysed. This chapter therefore interprets the findings obtained from the analysis and links them to the research objectives.

4.2 Demographics of Respondents

This section presents the demographic characteristics of the study participants. A total of 62 valid responses were analysed from each of the factors. This indicates that data from all respondents were usable and there were no missing values for this section of the questionnaire.

Data were collected on highest educational qualification, professional role in the construction industry, years of work experience, type of construction firms, annual company turnover, and the most recent project type they worked on. Table 4.1 provides a detailed summary of the demographic distribution across six key categories.

Regarding Educational Qualifications, most respondents held a Bachelor's degree (BSc) with 55 respondents (87.1%), followed by those with a Master's degree (MSc) and Higher National Diploma (HND), both at 3 respondents each (4.8%). 2 respondents (3.3%) held an MBA, while none held a PhD. Considering Professional Roles, the majority were Quantity Surveyors, accounting for 18 respondents (29%). Other roles included Architects (19 respondents, 30.7%), M&E Engineers (7 respondents, 11.3%), Builders (9 respondents, 14.5%), Civil and Structural Engineers (9 respondents, 14.5%). For Work Experience, 50 respondents (80.6%) had between Less than or equal to 5years, 8 respondents (12.9%) had Greater than 5years but less than or equal to 10years, 3 respondents (4.8%) had Greater than 10 but less than or equal to 15years, and 1 respondent (1.6%) reported Greater than 15years. Regarding the type of construction firms, 36 respondents (58.1%) reported having less than equal to 10 employees in micro firms, 16 respondents (25.8%) had greater than 10 or less than equal to 30 in small, 10 respondents (16.1%) have greater than 30 in medium. For Annual Turnover, 46 respondents (74.2%) reported less than or equal to ₦500 million, 12 respondents (19.4%) reported between greater than ₦500 million but less than ₦1 billion, 3 respondents (4.8%) reported greater than ₦1 billion, while 1 respondent (1.6%) reported a turnover less than or equal to ₦500 million.

Finally, regarding the Type of Project of Reference, 28 respondents (45.2%) worked on residential projects, 15 respondents (24.2%) worked on civil engineering projects, 10 respondents (16.1%) worked on industrial projects, 9 respondents (14.5%) worked on institutional projects, and none reported working on religious projects.

Table 4.1: General information of respondents

Category	Description	Frequency	Percentage (%)
Educational Qualifications	BSc	54	87.1
	HND	3	4.8
	MSc	3	4.8
	MBA	2	3.3
	Total	**62**	**100**
Professional Roles	Quantity Surveyors	18	29.0
	Architect	19	30.7
	M&E Engineers	7	11.3
	Builder	9	14.5
	Civil and Structural Engineers	9	14.5
	Total	**62**	**100**
Years of Construction Industry Work Experience	Less than or equal to 5years	50	80.6
	Greater than 5years but less than or equal to 10years	8	12.9
	Greater than 10 but less than or equal to 15years	3	4.8
	Greater than 15years	1	1.6
	Total	**62**	**100**
Type of Construction Firms	Less than equal to 10 (Micro Construction Firm)	36	58.1
	Greater than 10 less than equal to 30 (Small Construction Firm)	16	25.8
	Greater than 30 (Medium Construction Firm)	10	16.1
	Total	**62**	**100**
Annual Turnover	Less than or equal to 500million	46	74.2
	Greater than 500million but less than 1billion	12	19.4
	Greater than 1billion	3	4.8
	Less than 100 or equal to 500million	1	1.6
	Total	**62**	**100**
Type of Project of Reference	Residential Project	28	45.2
	Civil Engineering Project	15	24.2
	Industrial Project	10	16.1
	Institutional Project	9	14.5
	Total	**62**	**100**

4.3 Frequency and Severity of Labour-Related Factors Affecting Construction Project Performance in Edo State

The labour-related factors were grouped into **personal attributes** also known as worker's characteristics **(P)**, and **work environmental factors,** referring to **external work environmental factors (E) and internal work environmental factors (M)** conditions which can be caused by government and construction firms. Each factor was assigned an **impact value**, indicating the level of influence on project performance, and **ranked**, in orders of factors from the most to least significant. Table 4.2 presents the analysed results of the factors influencing construction project performance in Edo State.

4.3.1 Frequency of Labour-Related Factors

Frequency of labour-related factors simply means the rate of occurrence of labour-related factors, affecting construction project performance. Previous studies has showed that payment delays, political interference, language barrier, insecurity and discrimination and racism are predominant (Akanni & Akpomiemie, 2015) thereby, leading to a major frequent factor affecting construction performance, resulting to low productivity and completion of project, but this case study of the above analysis done, the result shows that these factors are least predominant, which are caused by work environmental factors, therefore are not major factors resulting to construction performance.

Furthermore, the findings indicate that time management consistently ranked as the most significant factor (Mean = 3.6), leading to a predominant factor on project performance. This study shows the frequency of how time management can lead to poor or low productivity in project performance and should be looked into. While sense of observance of regulation (Mean = 3.39), leadership (Mean = 3.31), worker's integrity (Mean = 3.27), work value (Mean = 3.27),

experience (Mean = 3.19) ranked the top 5. These factors are caused by personal attributes also known as workers' characteristic, simply meaning that personal attribute plays a vital role, poorly skilled and experienced labourer will lead to delay and reduction of construction project.

4.3.2 Severity of Labour-Related Factors

Severity means the state of how severe these factors are relating to project performance. The findings indicate that time management consistently ranked as the most severe factor (Mean = 3.61), leading to a predominant factor on project performance. While sense of observance of regulation (Mean = 3.29), leadership (Mean = 3.34), worker's integrity (Mean = 3.29), work value (Mean = 3.40), experience (Mean = 3.34) ranked the top 5.

4.3.3 Impact Value

The impact value was derived from multiplying the frequency by the severity. The impact value is a value of impact of these factors on project performance, leading to both frequency and severity of project performance. Time management, with an impact value of 13.00 ranked the highest and predominant leading to a high impact on project performance in Edo State. While sense of observance of regulation (11.15), leadership (11.06), worker's integrity (10.76), work value (11.08), experience (10.65) ranked the top 5.

Table 4.2: Descriptive statistics and test of difference in the frequency and severity of labour-related factors affecting construction project performance in Edo State

		Frequency		Severity		Impact Value	
Code	LRF	X	Rank	X	Rank	IV	Rank
P13	**Time Management**	**3.6**	**1**	**3.61**	**1**	**13.00**	**1**
P2	Sense of observance of regulation	3.39	2	3.29	4	11.15	2
P3	Leadership	3.31	3	3.34	3	11.06	4
P4	Worker's integrity	3.27	4	3.29	4	10.76	5
P6	Work value	3.26	5	3.40	2	11.08	3
P16	Experience	3.19	6	3.34	3	10.65	6
P10	Organization	3.19	6	3.05	11	9.73	10
EI5	High labour turnover	3.19	6	3.14	7	10.05	9
P7	Workstyle	3.15	7	3.27	5	10.30	7
P25	Physical agile	3.15	7	3.23	6	10.17	8
P5	Habits	3.15	7	3.08	9	9.70	11
E20	Inflation	3.15	7	3.06	10	9.64	12
P19	Health	3.13	8	3.05	11	9.55	13
P12	Diversity	3.13	8	3.03	12	9.48	14
P22	Religion	3.13	8	3.03	12	9.48	14
P1	Skills	3.13	8	3.10	8	9.70	11
E19	Exchange rate instability	3.08	9	2.97	14	9.15	17
P21	Training	3.02	10	3.05	11	9.21	15
M11	Site motivation	3.02	10	3.02	13	8.67	24
E14	Training facility constraints	3.00	11	3.06	10	9.18	16
E13	Inadequate incentives structures	2.98	12	3.02	13	9.00	20
P23	Marital status	2.98	12	2.92	15	8.70	23
E18	Inadequate manpower planning	2.97	13	2.92	15	8.67	24
P24	Physical stamina	2.97	13	3.06	10	9.09	19
P15	Occupational education level	2.94	14	2.97	14	8.73	22
P14	Abilities	2.94	14	3.10	8	9.11	18
P18	Gender	2.94	14	3.05	11	8.97	21
EI1	Skilled labour shortage	2.92	15	2.85	18	8.32	25
P11	Manual dexterity	2.92	15	2.85	18	8.32	25
P8	Personal issues	2.85	18	2.79	20	7.95	31
E15	Corruption and mismanagement	2.85	18	2.84	19	8.09	28
P9	Addiction	2.81	19	2.84	19	7.98	30
M13	Poor workmanship	2.81	19	2.77	21	7.78	32

Table 4.2: (Cont'd) Descriptive statistics and test of difference in the frequency and severity of labour-related factors affecting construction project performance in Edo State

		Frequency		Severity		Impact Value	
Code	LRF	X	Rank	X	Rank	IV	Rank
E18	Government policy and regulations	2.79	20	2.85	18	7.95	31
E22	Microeconomics factors	2.79	20	2.66	27	7.43	39
E16	Ergonomic and physical fatigue issues	2.79	20	2.77	21	7.73	33
E3	Unfavorable working conditions	2.79	20	2.76	22	7.70	35
M12	Onsite conflict	2.79	20	2.69	26	7.51	38
M4	Weak apprenticeship system	2.79	20	2.69	26	7.51	38
P17	Age	2.79	20	2.90	16	8.03	29
E2	Inadequate remuneration	2.77	21	2.76	22	7.65	36
M6	Low labour productivity	2.77	21	2.71	25	7.51	38
M3	Inadequate training and certification	2.77	21	2.66	27	7.34	44
M18	Theft	2.76	22	2.76	22	7.56	37
M14	Loss of man hours	2.74	23	2.69	26	7.37	42
E11	Poor industrial relationship	2.74	23	2.68	27	7.34	43
M7	Poor work ethics and discipline	2.74	23	2.71	25	7.40	41
E8	Inefficient performance evaluation	2.73	24	2.74	24	7.48	40
M2	Unskilled labour availability	2.73	24	2.65	28	7.23	46
E6	Religious differences	2.73	24	2.73	23	7.34	44
E10	Union interference	2.69	25	2.69	26	7.24	45
M9	Mismatch between labour supply and demand	2.69	25	2.63	29	6.97	48
E5	Ethnic and cultural tensions	2.63	26	2.65	28	6.97	48
P20	Nationality	2.89	16	2.76	22	7.98	30
E12	Lack of technology adoption	2.89	16	2.87	17	8.29	26
E4	Health and safety concerns	2.87	17	2.84	19	8.15	27
E21	Interest rate policy	2.85	18	2.71	25	7.72	34
M15	Poor client contractor relationship	2.61	27	2.66	27	6.94	49
M20	Unsafe practice	2.60	28	2.63	29	6.84	51
M16	Contract dispute	2.58	29	2.65	28	6.84	51
E7	Lack of career progression opportunities	2.63	26	2.63	29	6.92	50
E1	Payment delays	2.63	26	2.66	27	7.00	47
E17	Political interference	2.60	28	2.60	30	6.76	52
M10	Language barrier	2.56	30	2.48	31	6.35	53
M17	Insecurity	2.47	31	2.48	31	6.13	54
M19	Discrimination and racism	2.21	32	2.23	32	4.93	55

4.4 Differences in the severity of labour-related factors on the performance of construction projects executed by micro, small and medium construction firms

The Kruskal-Wallis H test was conducted to determine whether there were statistically significant differences in the effect of each labour-related factor on project cost overrun across the three categories of construction firms (micro, small and medium). It was observed that a significant difference exists in the severity of occupational education level (P15) and experience (P16) on the performance of construction projects executed by the three categories of firms.

However, there is no significant difference in the severity of most of the labour-related factors on the performance of projects executed by micro, small and medium sized construction firms, since they have P values of > 0.05.

Hence, for these variables (labour-related factors) Ho is accepted with the conclusion that a significant difference does not exist in the severity of these labour-related factors on the cost performance of projects executed by the three categories of firms.

However, sig value of occupational education level = 0.03 and experience = 0.012 recorded a statistically significant result. This means the frequency of this factor varied significantly across the three groups of construction firm, which is less than 0.05, leading to rejection of the null hypothesis. This indicates that there is a statistically significant difference among the three groups of construction firms regarding the effect of training and experience.

For all other variables (except occupational education level and experience), the null hypothesis was retained ($p > 0.05$), meaning that the effect of these labour-related factors on project cost overrun is similar across all three categories of construction firms. The significant result for training implies that this factor's impact on cost overrun varies depending on firm size as shown in Table 4.3.

Table 4.3: Severity of labour-related factors across micro, small and medium construction firms relating to cost performance in Edo State

		Micro		Small		Medium		
Code	LRF	Severity	Rank	Severity	Rank	Severity	Rank	Sig
M1	Skilled labour shortage	3.5	59	25.16	3	19.7	57	0.14
M2	Unskilled labour availability	16.5	33	23.56	35	24	30	0.86
M3	Inadequate training and certification	28	25	23.51	35	23	38	0.936
M4	Weak apprenticeship systems	37.5	18	23.43	35	22.35	43	0.536
M5	High labour turnover	43.5	13	22.53	51	24.9	25	0.24
M6	Low labour productivity	4	49	24.74	6	21.1	46	0.234
M7	Poor work ethics and discipline	4.5	48	24.34	14	22.45	40	0.311
M8	Inadequate manpower planning	3.5	53	24.03	18	23.65	31	0.301
M9	Mismatch between labour supply and demand	3.5	53	24.47	11	22.1	41	0.257
M10	Language barrier	4	48	22.57	45	28.7	7	0.121
M11	Ergonomic and physical fatigue issues	2	56	24.76	5	21.25	41	0.155
M12	On-site conflict	4	48	24.37	11	22.4	38	0.289
M13	Poor workmanship	5	47	23.97	17	23.7	29	0.355
M14	Loss of man hours	5.5	46	24.71	6	21.05	39	0.275
M15	Poor client contractor relationship	43	13	24.1	13	19.45	45	0.195
M16	Contract dispute	37.5	16	23.39	26	22.5	36	0.545
M17	Insecurity	28.5	20	25.41	1	16.3	50	0.138
M18	Theft	13.5	28	23.64	22	24	28	0.736
M19	Unsafe practice	6	41	24.99	2	20.05	40	0.229
M20	Discrimination and racism	20.5	26	24.63	4	19.85	40	0.574
E1	Payment delays	4	40	23.64	20	24.95	23	0.305
E2	Inadequate remuneration	11.5	31	22.79	31	27.2	12	0.404
E3	Unfavorable working conditions	27	22	23.77	16	22.2	33	0.91
E4	Health and safety concerns	37	16	23.31	20	22.8	31	0.576
E5	Ethnic and cultural tensions	44.5	3	22.86	27	23.65	26	0.249
E6	Religious difference	44	3	22.99	22	23.25	27	0.261
E7	Lack of career progression opportunities	44	3	23.8	14	20.4	32	0.219
E8	Inefficient performance evaluation	45	2	24.31	8	18.5	34	0.114
E9	Insufficient on-site motivation	44	2	24.59	4	17.65	37	0.089

Table 4.3: (Cont'd) Severity of labour-related factors across micro, small and medium construction firms relating to cost performance in Edo State

		Micro		Small		Medium		
Code	LRF	Severity	Rank	Severity	Rank	Severity	Rank	Sig
E10	Union interference	44	2	23.77	13	20.5	31	0.223
E11	Poor industrial relation	44	2	24.73	3	17.15	36	0.077
E12	Lack of technology adoption	45.5	1	24.53	3	17.7	35	0.079
E13	Inadequate incentives structure	44	1	24.34	4	18.5	33	0.127
E14	Training facility constraints	44	1	24.03	5	19.6	32	0.173
E15	Corruption and mismanagement	44	1	23.81	7	20.35	31	0.218
E16	Ergonomic and physical fatigue issues	37	5	25.37	1	15.6	32	0.064
E17	Political interference	26.5	9	24.89	1	18.35	31	0.366
E18	Government policy and regulations	10	20	24.41	1	21.65	30	0.474
E19	Exchange rate instability	4	23	23.7	6	24.75	22	0.291
E20	Inflation	10	20	22.89	11	27	13	0.391
E21	Interest rate policy	26.5	9	22.9	10	25.3	20	0.847
E22	Macroeconomics factors	40.5	4	22.3	17	26	16	0.3
P1	Skills	3	22	24.31	1	22.7	25	0.27
P2	Sense of observance of regulation	1.5	24	23.87	2	24.4	20	0.231
P3	Leadership	3	22	23.76	3	24.65	19	0.276
P4	Worker's integrity	2.5	22	22.67	10	28.5	8	0.124
P5	Habits	3.5	21	24.03	1	23.65	19	0.301
P6	Work value	42	3	22.19	13	26.25	14	0.243
P7	Work style	32	4	22.54	9	26	14	0.594
P8	Personal issues	27.5	5	22.7	8	25.9	14	0.751
P9	Addiction	11	14	22.14	11	29.5	5	0.177
P10	Organization	4	16	22.94	5	27.4	8	0.205
P11	Manual dexterity	12	10	23.16	4	25.85	12	0.561
P12	Diversity	23.5	5	23.63	2	23.05	14	0.992
P13	Time management	28	4	23.17	2	24.2	12	0.917
P14	Abilities	43	2	21.56	10	28.35	7	0.115
P15	**Occupational education level**	**11.5**	**7**	**21.19**	**10**	**32.8**	**2**	**0.03**
P16	**Experience**	**9**	**10**	**20.96**	**10**	**33.85**	**1**	**0.012**
P17	Age	12.5	6	21.84	7	30.4	2	0.131
P18	Gender	10	8	22.43	4	28.6	3	0.243
P19	Health	11.5	6	22.87	2	26.9	5	0.446
P20	Nationality	15.5	3	23.8	1	23.25	6	0.821

Table 4.3: (Cont'd) Severity of labour-related factors across micro, small and medium construction firms relating to cost performance in Edo State

		Micro		Small		Medium		
Code	LRF	Severity	Rank	Severity	Rank	Severity	Rank	Sig
P21	Training	13.5	3	21.64	5	31	1	.821
P22	Religion	11.5	4	22.83	1	27.05	3	0.104
P23	Marital status	13	3	22.24	2	28.95	1	0.428
P24	Physical stamina	44	1	21.81	2	27.35	1	0.246
P25	Physical agile	33.5	1	22.34	1	26.55	1	0.142

4.5 Influence of Labour-Related Factors on Project Cost Performance

This study was to determine the influence of labour-related factors on project cost performance of completed construction projects in Edo State. The cost performance of the referent projects was measured categorically as: 1 = Cost Overrun (actual cost exceeded planned cost), 2 = Cost Same (actual cost matched planned cost) and 3 = Cost Underrun (actual cost was lower than planned cost).

The Kruskal-Wallis H test was employed to examine whether the mean scores for each labour-related factor were statistically different across these three cost performance categories. It was observed that significant difference exists in the severity of training (P21) on cost performance across all categories.

However, there is no significant difference in the severity of cost performance in relation to cost overrun, cost remain the same and cost underrun. The sig value recorded training = 0.032 statically significant result. This means the influence of this factor varied significantly across the three groups, which is less than 0.05 as shown in Table 4.5.

Table 4.4: Influence of labour-related factors across cost performance categories

		Cost Overrun		Same		Cost Underrun		
Code	LRF	Severity	Rank	Severity	Rank	Severity	Rank	Sig
M1	Skilled labour shortage	32.44	36	29.94	58	33.25	45	0.85
M2	Unskilled labour availability	31.88	30	30.81	50	33	45	0.967
M3	Inadequate training and certification	31.1	29	30.67	50	48.75	8	0.367
M4	Weak apprenticeship systems	29.69	27	33.81	22	36.25	40	0.619
M5	High labour turnover	29.93	26	33.31	25	38	31	0.651
M6	Low labour productivity	31.11	25	31.46	45	39	29	0.823
M7	Poor work ethics and discipline	30.44	24	32.92	32	33.5	40	0.855
M8	Inadequate manpower planning	29.44	23	34.1	16	37.25	34	0.538
M9	Mismatch between labour supply and demand	30.83	22	31.79	39	40	27	0.763
M10	Language barrier	31.13	21	32.77	31	23	51	0.726
M11	Ergonomic and physical fatigue issues	29.72	20	34.17	13	31.5	40	0.605
M12	On-site conflict	29.36	19	34.02	19	39.75	27	0.475
M13	Poor workmanship	31.68	18	32.31	35	18.5	50	0.56
M14	Loss of man hours	31.03	17	33.29	23	18.5	50	0.497
M15	Poor client contractor relationship	32.18	16	32.56	31	6.5	53	0.121
M16	Contract dispute	29.94	15	35.27	5	14.25	50	0.189
M17	Insecurity	31.32	14	32.35	31	24.5	47	0.827
M18	Theft	32.47	13	31.71	31	11.5	49	0.255
M19	Unsafe practice	34.4	12	29.06	44	8.5	49	0.087
M20	Discrimination and racism	30.11	11	34.5	9	20.5	48	0.416
E1	Payment delays	29.88	10	34.1	13	29.5	42	0.647
E2	Inadequate remuneration	32.21	9	30.15	37	35	35	0.866
E3	Unfavorable working conditions	32.38	8	29.9	38	35	35	0.83
E4	Health and safety concerns	29.5	7	33.5	18	43.5	18	0.419
E5	Ethnic and cultural tensions	30.4	6	31.54	29	50.75	3	0.27
E6	Religious difference	29.82	5	34.1	13	30.5	37	0.626
E7	Lack of career progression opportunities	32.85	4	29	37	37.25	30	0.633

Table 4.4: (Cont'd) Influence of labour-related factors across cost performance categories

		Cost Overrun		Same		Cost Underrun		
Code	LRF	Severity	Rank	Severity	Rank	Severity	Rank	Sig
E8	Inefficient performance evaluation	30.92	3	32.58	25	29	36	0.917
E9	Insufficient on-site motivation	29.71	2	34.13	11	32.25	33	0.627
E10	Union interference	31.88	1	31.63	25	23.25	38	0.794
E11	Poor industrial relation	30.19	18	33.04	21	36.5	31	0.76
E12	Lack of technology adoption	32.29	7	30.6	26	28	35	0.897
E13	Inadequate incentives structure	30.75	14	32.63	22	31.5	32	0.921
E14	Training facility constraints	30.4	15	33.19	19	31	32	0.83
E15	Corruption and mismanagement	32.5	6	30.31	26	27.75	33	0.854
E16	Ergonomic and physical fatigue issues	29.82	17	34.29	10	28.25	32	0.603
E17	Political interference	32.67	5	29.25	26	37.5	27	0.673
E18	Government policy and regulations	31.58	7	28.46	28	40.5	24	0.599
E19	Exchange rate instability	33.03	3	30.08	25	38	25	0.448
E20	Inflation	32.08	4	28	27	45.75	13	0.789
E21	Interest rate policy	33.04	2	30.46	24	46	12	0.27
E22	Macroeconomics factors	31.39	4	29.13	24	51	2	0.48
P1	Skills	32	3	31.1	22	49	4	0.232
P2	Sense of observance of regulation	30.79	5	34.13	10	47.75	7	0.355
P3	Leadership	28.85	15	32.75	18	41.5	15	0.214
P4	Worker's integrity	30.11	6	35.31	4	37	21	0.608
P5	Habits	28.65	16	34.06	9	48	6	0.316
P6	Work value	28.88	13	33.29	13	43	12	0.212
P7	Work style	29.67	8	28.58	18	43.5	11	0.455
P8	Personal issues	32.78	2	26.92	18	32.75	18	0.405
P9	Addiction	34.49	1	30.6	17	45	9	0.256
P10	Organization	31.35	1	33.06	14	41.5	11	0.537
P11	Manual dexterity	29.9	4	33.31	12	52.75	1	0.556
P12	Diversity	29.11	5	33.25	12	37.5	13	0.142
P13	Time management	30	3	32.5	12	37.5	13	0.686
P14	Abilities	30.5	2	34.06	9	49	3	0.809
P15	Occupational education level	28.82	5	33.71	10	48.75	3	0.186
P16	Experience	29.07	3	31.17	10	47	3	0.223
P17	Age	30.86	1	33.75	9	39	9	0.448
P18	Gender	29.58	1	34.58	7	45.5	4	0.552

Table 4.4: (Cont'd) Influence of labour-related factors across cost performance categories

		Cost Overrun		Same		Cost Underrun		
Code	LRF	Severity	Rank	Severity	Rank	Severity	Rank	Sig
P19	Health	28.67	2	35.81	3	42.5	5	0.23
P20	Nationality	28.01	3	36.83	2	50.25	2	0.163
P21	**Training**	**26.9**	**5**	**36.96**	**1**	**44.5**	**3**	**0.032**
P22	Religion	27.14	4	34.4	4	41	3	0.059
P23	Marital status	29.04	1	35.04	2	41	3	0.376
P24	Physical stamina	28.31	1	35.04	2	46.5	2	0.165
P25	Physical agile	28.01	1	35.15	1	50.5	1	0.091

4.6 Discussion of Findings

4.6.1 Frequency and Severity Labour-Related Factors Affecting Construction Project Performance in Edo State

According to Salihu et at. (2020) personal attributes affecting construction project performance the most is skill, meaning the workers' ability to be skilled and knowledgeable in carrying out construction project, while this study shows that the most critical determinants of project success are those that are personal and behavioral in nature. Factors such as time management, observance of regulations, work values, leadership, and integrity emerged, as the most influential leading as top 5 as shown in Table 4.2. This implies that the efficiency and commitment of individual workers, as well as the quality of leadership and supervision within construction teams, are key to achieving timely, cost-effective, and high-quality project delivery. In essence, when workers possess a strong sense of discipline, responsibility, and professional ethics, the likelihood of achieving project objectives increases significantly. While work environmental factors, encompasses conditions such as inflation, working conditions, and government regulations, these external factors also influence project performance, the effect is generally less direct compared. This is because most of these conditions lie outside the immediate control of

contractors. Nonetheless, they can either facilitate or hinder productivity depending on how well the organization adapts to them. This finding underscores the need for construction firms and contractor to focus more on personal attribute when carrying out construction project to ensure quality, time and cost control.

4.6.2 Differences in the severity of labour-related factors on the performance of construction projects executed by micro, small and medium construction firms

The findings showed that, for the majority of the labour-related factors investigated, there were no statistically significant differences across micro, small, and medium-sized construction firms ($p > 0.05$). This implies that the challenges arising from human resource constraints, organizational culture, and work environment are commonly experienced across firms, irrespective of size. Factors such as time management, leadership, worker integrity, organizational structure, labour turnover, and motivation exerted a similar influence on cost performance across all categories.

This outcome aligns with studies by Ameh and Osegbo (2011), which found that inefficiencies related to worker discipline, lack of supervision, and weak organizational culture are pervasive in Nigerian construction firms and are not necessarily determined by firm size. In other words, both small and large firms are susceptible to similar forms of labour inefficiency due to systemic issues in the industry, such as informal labour recruitment, low professionalization, and weak enforcement of labour standards.

However, occupational educational level (0.03) and experience (0.012) showed statistically significant differences among firm categories, indicating that these factors are firm-size sensitive. The implication is that medium firms tend to have more structured training programs, formal apprenticeship systems, and a more stable workforce with accumulated experience. In contrast,

micro and small firms often rely on short-term or casual labour, which limits opportunities for continuous learning and skills retention.

This finding is supported by Oladokun et al. (2020), who emphasized that medium construction firms in Nigeria invest more in formal training and professional development due to their access to resources and institutionalized HR systems, ultimately reducing wastage and delays.

Therefore, the significant difference observed in experience underscores the strategic importance of capacity development in construction labour management. It highlights the need for small firms to adopt structured training mechanisms and mentorship programs to enhance workforce capability, improve project performance, and reduce the frequency of cost overruns associated with low skill levels. The findings from the analysis reveal that a wide range of labour-related factors affecting the performance of construction projects in Edo State, but their levels of impact differ significantly.

4.6.3 Influence of Labour-Related Factors on Project Cost Performance

Across the majority of the labour-related factors, the p-values (Sig) exceed 0.05. This means that for most variables, there is no statistically significant difference in how they affect projects that incur cost overruns, those that maintain their cost, and those that achieve cost underruns. This pattern suggests that labour-related issues tend to influence projects consistently regardless of their final cost outcome.

However, the distribution of ranks across categories still provides insights into how project groups perceive the severity of each factor. he findings from the Kruskal Wallis H test provides important insights into how labour-related factors influence the cost performance of construction projects in Edo State. The analysis shows a general pattern in which most labour issues do not significantly differentiate projects that experience cost overruns from those that maintain or

underrun their budgets. This indicates that labour-related challenges are widespread across construction projects regardless of their final cost outcome. Such uniformity suggests that many labour issues such as poor work quality, supervision challenges, low productivity, and skill shortages, are systemic in nature and have become entrenched problems within the local construction industry.

A key finding is that training is the only labour-related factor with a statistically significant influence on cost performance. The difference in severity of inadequate training across project groups implies that projects with better-trained workers are more likely to achieve cost stability or cost underruns, while those lacking proper training tend to face higher risks of cost escalation. This aligns with earlier research emphasizing that skilled workers are more productive, perform tasks correctly at first attempt, and require less rework an, important contributor to cost efficiency. In the Edo State context, however, the significance of training stands out even more strongly, suggesting that investments in continuous worker capacity-building may be a decisive factor in preventing cost overruns.

Although other labour-related factors were not statistically significant, the ranking patterns still provide meaningful insights. Projects with cost overruns consistently showed higher mean severity rankings on factors such as poor workmanship, insecurity, theft, addiction, and inadequate performance evaluation. This implies that while these factors may not statistically differentiate cost categories, their practical effects remain more pronounced on projects struggling with cost control. Their non-significance may be attributed to the fact that these problems occur across nearly all projects, reducing variability across cost groups.

Some factors such as discrimination, religious differences, habits, and physical agility, showed near-significant p-values. These findings mirror observations from previous studies where

interpersonal conflicts, worker demographics, and behavioural traits occasionally influenced labour productivity. Their marginal influence in this study suggests that while these issues exist on Edo construction sites, their impact on cost performance may become clearer with larger sample sizes or more targeted investigations. Contrary to some literature emphasizing economic factors such as inflation and union interference as major cost drivers, this study found these factors to be uniformly distributed among all cost categories. This indicates that Edo State construction projects experience these issues similarly, and they may no longer serve as distinguishing predictors of cost overruns as documented in earlier works. Overall, the discussion reveals that training stands out as the most critical differentiator of cost performance, while most labour-related factors exert a general, non-differentiated influence across projects. This suggests that improving cost performance may rely more on strengthening worker skills and technical capacity than merely addressing general labour challenges. The uniform distribution of most labour issues also reflects systemic weaknesses in the Edo State construction labour environment, reinforcing the need for sector-wide reforms rather than project-specific interventions.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Preamble

This chapter presents the summary of major findings from the study, conclusions drawn from the results, and recommendations for improving construction project performance in Edo State. The chapter is structured according to four specific objectives of the study, thereby providing a clear link between the problem investigated, the methods applied, the results obtained, and the implications for practice

5.2 Summary of Findings

The study was conducted to investigate the influence of labour-related factors on construction project performance in Edo State. Data were collected from professionals across micro, small, and medium sized construction firms, and analysed using descriptive statistics (Mean Item Score), non-parametric Kruskal-wallis H test, to determine difference in the opinions of professional, regarding the frequency and severity of labour-related factors. Similarly, Kruskal-wallis H test was used to determine how labour-related factors influence the cost performance of project.

This finding implies that construction firms regularly face workforce-related issues that have a cumulative effect on cost performance.

5.2.1 Mean Item Score (MIS) Results

The MIS analysis was used to rank labour-related factors grouped under P, W and L based on their degree of influence on project cost performance.

Findings revealed that the most critical factors influencing construction project cost performance in Edo State include:

- Time Management (MIS = 13.00)

- Sense of Observance of Regulation (MIS = 11.15)
- Work Value (MIS = 11.08)
- Leadership (MIS = 11.06)
- Worker's Integrity (MIS = 10.76)

These top-ranked factors indicate that management discipline, adherence to standards, ethical behavior, and leadership quality play decisive roles in determining project success. They directly affect efficiency, supervision, and cost control on site.

Other notable high-ranking factors include Experience (MIS = 10.65), Organization (MIS = 9.73), and Training (MIS = 9.21), suggesting that capacity building and organizational structure also contribute significantly to performance.

In contrast, lower-ranked factors such as union interference, payment delays, lack of career progression, and ethnic/cultural tensions had lower MIS values (ranging between 6.76 and 7.23). These were perceived as less severe influences on cost performance, implying that while they exist, they are not as dominant as management and skill-related challenges.

Overall, the MIS ranking revealed that personal attributes (P) exert the strongest overall influence on project cost performance, and work environmental factors (E&M) factors. This emphasizes that human behavior, ethical commitment, and personal discipline remain central to achieving successful project outcomes.

5.2.2 Kruskal–Wallis H Test Results (Across Firm Categories)

The Kruskal–Wallis H test was used to determine whether statistically significant differences existed in the perception of these labour-related factors among micro, small, and medium construction firms.

The results showed that for the majority of the factors, the Asymptotic Significance (p-values) exceeded 0.05, indicating no significant difference in perception among the three firm categories. This suggests that the challenges caused by labour-related issues, such as poor motivation, inadequate manpower planning, and low productivity, are common across all construction firm sizes.

However, two factors were found to differ significantly:

- Occupational education level ($p = 0.03$)
- Experience ($p = 0.012$)

This means that the importance or influence of these two factors varies significantly across firm types. Medium firms tend to have more structured training systems and employ more experienced staff, while micro firms rely more on untrained or less-experienced workers. Consequently, training and experience become differentiating factors in performance efficiency and cost control.

Although most labour challenges are shared across all firms, occupational education level and experience stand out as the variables that create the most disparity between micro, small, and medium firms.

5.2.3 Kruskal–Wallis H Test Results (Across Cost Performance Categories)

The study further tested whether labour-related factors significantly influence different categories of project cost performance, cost overrun, cost remained the same, and cost underrun.

Results indicated that most factors again had p-values greater than 0.05, suggesting no significant difference in their effect across the cost performance groups. This implies that factors such as leadership, motivation, and work value influence projects similarly regardless of whether costs exceeded, met, or fell below the budget.

However, one variable showed statistically significant influence:

- Training ($p = 0.032$)

This finding indicate that all construction firms should carry out adequate training process, more likely to complete projects within budget.

5.3 Conclusions

Based on the collective findings, the study concludes that labour-related factors exert a profound influence on construction project performance in Edo State. The evidence shows that while all firms face similar human and environmental challenges, the depth of impact is determined by workforce competence and ethical behavior.

The study further establishes that training, experience, and occupational education level are the most critical levers for improving performance and reducing cost overruns. On the other hand, political interference and weak ethical culture remain persistent threats to project success.

In essence, construction project underperformance in Edo State is primarily a human and institutional problem, not merely a technical one. Addressing these challenges requires deliberate policy, industry, and educational interventions focused on:

- Strengthening workforce competence through continuous training and certification,
- Promoting ethical leadership and professional discipline, and
- Ensuring strict compliance with regulations while minimizing political interference.

Therefore, the study concludes that sustained improvements in the quality, discipline, and regulation of human resources supported by effective institutional frameworks are vital for enhancing the performance, cost efficiency, and sustainability of construction projects in Edo State.

5.3.1. Frequency of Labour-Related Factors Affecting Construction Project Performance in Edo State

The study concludes that a wide range of labour-related factors frequently affect the performance of construction projects in Edo State. The most recurring issues identified include poor time management, weak leadership and supervision, low work values, poor observance of work regulations, and declining worker integrity.

These factors were primarily associated with personal attributes also known as worker's characteristics, indicating that the majority of performance deficiencies stem from human behavior and management related issues rather than purely technical constraints. The high frequency of these issues suggests systemic deficiencies in workforce discipline, ethical conduct, and managerial oversight.

Thus, the conclusion drawn is that the frequency of labour-related challenges is largely driven by personal and behavioral shortcomings among workers and supervisors, which repeatedly disrupt productivity, lead to delays, and lower the overall quality of project delivery in the state's construction industry.

5.3.2. Severity of Labour-Related Factors Affecting Construction Project Performance in Edo State

The analysis using Mean Item Scores revealed that the severity of labour-related factors varies across three categories personal attributes and work environment, with personal factors being the most severe. The most critical factors in this category include time management, leadership quality, observance of regulation, and worker integrity.

The study concludes that ineffective time management is the single most severe factor affecting project performance, as it directly causes schedule delays, rework, and cost escalation. In

addition, weak leadership and poor regulatory observance were found to exacerbate inefficiencies by creating environments where poor supervision, lax work ethics, and corruption can thrive.

Therefore, the severity of these factors indicates the need for targeted interventions in leadership development, professional ethics, and skill enhancement within the construction sector.

5.3.3. Differences in the Severity of Labour-Related Factors on the Performance of Construction Projects Executed among Micro, Small, and Medium Construction Firms

This implies that the challenges posed by labour-related factors such as poor motivation, low productivity, and weak supervision are common across all firm categories, suggesting a widespread, industry-wide problem.

However, two factors occupational education level and experience, recorded statistically significant differences across the three firm sizes. This means that the level of worker training and cumulative industry experience varies meaningfully among firms, influencing their ability to manage labour and control project costs effectively.

The study therefore concludes that firm size indirectly affects project performance through differences in the quality of human resources. Medium-sized firms, which tend to have more structured training programs and employ more experienced professionals, generally manage labour more efficiently than micro and small firms. This finding underscores the importance of investing in continuous training, knowledge transfer, and experience-based management practices to enhance overall performance across firm categories.

5.3.4. Determine the Influence of Labour-Related Factors on Project Cost Performance in Edo State

The conclusion drawn is that training is a decisive determinants project cost performance. This underscores a critical role that all construction firms should play, training of staffs should be mandatory across all firm, which leads to high productivity, experiences and professionalism, in relation to standard to compete with international firms, maintaining cost efficiency and achieving value for money in construction projects. It also reinforces the view that effective governance, transparency, and adherence to technical standards are essential components of successful project delivery.

5.4 Recommendations

Based on the study findings and conclusions, the following recommendations are made:

1.Industry Practitioners: The study helps industry practitioners identify the key labour-related factors affecting project performance, enabling them to improve workforce planning, supervision, and productivity. By addressing these issues, firms can enhance cost efficiency, project quality, and timely delivery.

2. Academia/Researchers: For academia, the study adds to existing knowledge on construction project performance and provides data for further research. It supports teaching, learning, and future comparative studies on labour-related factors in construction, especially within developing contexts.

3: Policy Makers/Government: The study guides policy makers in formulating targeted labour and training policies to improve workforce skills, enforce labour standards, and enhance productivity. Its insights support evidence-based decisions to strengthen the construction sector and promote sustainable development.

5.5 Areas of Further Studies

Although this study has provided valuable insights into the influence of labour-related factors on construction project performance in Edo State, there are still areas where future research could expand on the findings:

1.Similar studies should be carried out in other states or geopolitical zones of Nigeria to compare results and establish whether labour-related challenges are context-specific or nationally consistent.

2.Focus on how digital tools (such as Building Information Modelling BIM, robotics, and AI-assisted planning) could mitigate the severity of labour-related factors and improve productivity.

3.While this study used a quantitative approach, future research could include qualitative methods (e.g., interviews and focus groups) to gain deeper insights into the underlying causes of workforce-related problems and to capture the perspectives of both management and site workers.

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APPENDIX

APPENDIX A-1: QUESTIONNAIRES FOR CONSTRUCTION PROFESSIONAL

UNIVERSITY OF BENIN

Department of Quantity Surveying,
Faculty of Environmental Sciences,
University of Benin,
P.M.B 1154, Ugbowo,
Benin City, Edo state.

Dear Sir/Ma,

LABOUR-RELATED FACTORS AFFECTING CONSTRUCTION PROJECT PERFORMANCE IN EDO STATE

I am a student of the Department of Quantity Surveying, Faculty of Environmental Sciences, University of Benin.

I am currently undertaking a B.Sc. research project, titled **"Labour-Related Factors Affecting Construction Project Performance in Edo State".** I respectfully wish to request your assistance in completing the attached questionnaire with respect to a completed project.

Kindly be assured that your responses will be treated with utmost confidentiality and used solely for the purposes of the research.

Thank you.

Yours sincerely,

……..

Chiamaka Annastacia Achinaulo.
+234 812 803 1031

QUESTIONNAIRE

Labour-Related Factors Affecting Construction Project Performance in Edo State

Kindly fill this questionnaire with respect to a recently completed project.

Please click the appropriate option

Section A: Demographic Information

Please tick [✓] the appropriate option.

1.Highest Educational Qualification [ ] HND [ ] MSc [ ] PhD [ ] BSc [ ] MBA

2.Role in the Construction Industry [ ] M&E Engineers [ ] Quantity Surveyor [ ] Architect [ ] Builder [ ] Civil and Structural Engineers

3.Years of Construction Industry Work Experience [ ] Less than or equal to 5years [ ] Greater than 5years but less than or equal to 10years [ ] Greater than 10 but less than or equal to 15years [ ] Greater than 15years

4.Number of Permanent Employees in your company [ ] Less than or equal to 10 [ ] Greater than 10 but less than or equal to 30 [ ] Greater than 30

5.Annual Turnover of your company [ ]Less than or equal to 500million [ ]Greater than 500million but less than 1 billion [ ] Greater than 1 billion

6. Type of Project of reference [ ] Industrial Project [ ] Civil Engineering Project [ ] Residential Project [ ] Administrative Project [ ] Religious Project [ ] Institutional Project

Section B: Labour-Related Factors Affecting Project Performance in Edo State

Kindly respond to this section of the questionnaire based on you last completed major construction projects.

Please rate the frequency of occurrence and severity of following labour-related factors in the referent project.

Key:

Frequency: Never = 1, Rare = 2, Sometimes = 3, Very Often = 4, Always = 5

Severity: Not Severe = 1, Slightly Severe = 2, Moderately Severe = 3, Very Severe = 4, Extreme Severe = 5

S/N	Internal Work Environmental Factors	Frequency					Severity				
		1	2	3	4	5	1	2	3	4	5
1	Skilled labour shortage										
2	Unskilled labour availability										
3	Inadequate training and certification										
4	Weak apprenticeship systems										
5	High labour turnover										
6	Low labour productivity										
7	Poor work ethics and discipline										
8	Inadequate manpower planning										

9	Mismatch between labour supply and demand										
10	Language barriers										
11	Ergonomic and physical fatigue issues										
12	Onsite conflict										
13	Poor workmanship										
14	Loss of man hours										
15	Poor client contractor relationship										
16	Contract dispute										
17	Insecurity										
18	Theft										
19	Discrimination and racism										
20	Unsafe Practice										
S/N	**External Work Environment Factors**	**Frequency**					**Severity**				
		1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
1	Payment delays										
2	Inadequate remuneration										
3	Unfavorable working conditions										
4	Health and safety concerns										
5	Ethnic and cultural tensions										
6	Religious differences										

7	Lack of career progression opportunities										
8	Inefficient performance evaluation										
9	Insufficient onsite motivation										
10	Union interference										
11	Poor industrial relations										
12	Lack of technology adoption										
13	Inadequate incentive structures										
14	Training facility constraints										
15	Corruption and mismanagement										
16	Ergonomic and physical fatigue issues										
17	Political interference										
18	Government policy and regulation										
19	Exchange Rate Instability										
20	Inflation										
21	Interest Rate Policy										
22	Microeconomics factors										
S/N	**Personal Attribute Factors**	**Frequency**					**Severity**				
		1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
1	Skills										
2	Sense of observance of regulations										

3	Leadership										
4	Worker's integrity										
5	Habits										
6	Work value										
7	Work style										
8	Personal issues										
9	Addiction										
10	Organization										
11	Manual dexterity										
12	Diversity										
13	Time management										
14	Abilities										
15	Occupational education level										
16	Experience										
17	Age										
18	Gender										
19	Health										
20	Nationality										
21	Training										
22	Religion										
23	Marital status										
24	Physical stamina										
25	Physical agile										

Section C: Labour-Related Factor's Influence on Cost Performance

Please indicate the cost performance outcome of the referent project

Cost Performance of the Referent Project	**Overrun**	**Same**	**Underrun**