Monitoring and Evaluation Practices on Building Construction Project Delivery among Tertiary Institutions of Ondo State, Nigeria

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ABSTRACT: The objectives of this paper are to monitor and evaluate the practices on building construction project delivery among tertiary institutions in Ondo State, Nigeria, using appropriate standard methods adopting a survey design technique administered to 105 construction professionals with an 81% response rate. Multiple analytical techniques of descriptive and appropriate inferential statistics were used for data analysis. The results, using multiple logistic regression, reveal that benchmarking, earned value analysis, feasibility studies, key performance indicators, program evaluation and review technique, balance scorecard, and work breakdown structure significantly affected the delivery of building construction projects of the tertiary institutions in Ondo State, Nigeria. The study recommends that higher institutions in the study area should not relent in their M&E strategies for the continuous and timely delivery of building construction projects. Additionally, M&E techniques such as program evaluation review, work breakdown structure, and earned value analysis could be improved upon for enhanced delivery of building construction projects of tertiary institutions in Ondo State, Nigeria.

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The construction industry plays a major role in the development of most economies in the world in terms of contributions to gross domestic product (GDP), investments, employment generation, wealth creation, infrastructural growth, and environmental aesthetics (Nwaogu *et al.,* 2022). The industry also contributes an average of 6-9% to the gross domestic product (GDP) in most economies of the world (Statista, 2023). In the development of any country, the construction industry a key role in transforming the aspirations and needs of its people into reality through the execution of several physical structures (Omotayo *et al.*, 2024). Within the industry, construction projects are undertaken to create a unique facility, product, or service within the specified scope, quality, time, and cost (Kumara and

Warnakulasuriya, 2016). However, delays in construction projects can result in cost overruns, disputes, total abandonment, and weak economic growth. Due to the global economic impact of the construction industry, it is critical to pay close attention to the monitoring and evaluation (M&E) of construction projects for optimum delivery. M&E is one of the most important actions in building construction project management. This process assists project managers in improving project performance; hence, managers seek more efficient practices and techniques (Tengan and Aigbavboa, 2021). Monitoring is the continuous assessment of the implementation of projects with respect to their design schedules, input utilization, and project delivery on a timely schedule, while evaluation is a well-planned and unbiased appraisal of a continuing or completed policy, program, project design, and outcome execution (Ogbeifun and Pretorius, 2022). M&E helps those implementing plans to embrace decisions from an informed position with regard to how the project will be executed and delivered and whether the project is effective, using unbiased evidence. It is an important practice in project management due to its effects on timely project delivery (Mahyoub, 2024). Timely and reliable M&E provides information to assist project implementation with accurate, evidence-based reporting that informs management and decision-making to guide and improve timely project delivery; adds to organizational learning and knowledge sharing; sustains accountability and standard/quality compliance; and provides opportunities for stakeholder feedback and input, particularly from beneficiaries or end users. M&E in building construction projects provides accountable utilization of available resources for development, especially in government-owned projects (Ivan, 2020). Tertiary institutions are considered the key to both individual and societal aspirations (Asaju, 2023). These institutions include Universities, Polytechnics, Colleges of Education, Institutes of Technology and other professional institutions (Forhad *et al.,* 2022). They are involved in a number of building construction projects, such as lecture theatres, laboratories, workshops, studios, hostels, roads, water, and electricity, as well as recreational facilities (Idris *et al.*, 2022). In Nigeria, these institutions are classified into three main categories: federal, state, and privately owned. Federal institutions tend to receive more substantial funding, while state-owned institutions often struggle with inadequate resources. Though generally better funded, privately owned institutions cater to a smaller, more financially privileged demographic (Famurewa, 2014; Pilani *et al.*, 2023). Despite these differences, tertiary

institutions in Nigeria face rising competition, increasing stakeholders' expectations, an increase in students' enrolments, inadequate infrastructure, and reduced financial resources for public institutions (Ejuchegahi, 2023). As a result, they are always faced with a complete lack of insufficient, dilapidated infrastructure. Some building construction projects often experience time overruns and sometimes total abandonment (Jacob and Ayeni, 2024). The consequence of the delay in the delivery of infrastructures such as lecture rooms, lecture theatres, staff offices, seminar/conference/board rooms, laboratories, and workshops has led to the deteriorating state of Nigeria's tertiary educational standards (Ayoko *et al.,* 2023; Ebehikhalu and Patrick, 2023). There is a strong correlation between the state of educational buildings and the quality of education because buildings are critical factors in achieving desirable outcomes for tertiary institutions (Bonaccorsi *et al.,* 2023). Adequate and modern infrastructure, including classrooms, laboratories, libraries, and hostels, enhances the learning environment, allowing students to perform at their best. Conversely, institutions with dilapidated buildings, outdated facilities, and overcrowded classrooms tend to experience lower student satisfaction and performance. The significance of infrastructure in the educational process is supported by theories of environmental psychology, which suggest that the physical environment of an educational institution can significantly influence cognitive performance and learning outcomes (Nwokorie, 2023; Yangambi, 2023). But even so, improper planning, public interruptions, resource shortfalls caused by contractor issues or deficiencies in capital, setbacks during the preparation and approval of drawings, the financial difficulties of contractors, and change orders continue to cause delays in building and construction in tertiary institutions in Nigeria (Adepu *et al.,* 2023; Yap *et al.*, 2021). Studies have shown that seven out of ten projects surveyed in Nigeria suffered delays in their execution. Failure to achieve targeted time results in various unexpected negative effects on the projects (Hamidu *et al.,* 2024; Nneka *et al.*, 2024; Dorcas and Omolayo, 2022; Iroha *et al.,* 2024). Studies have examined the importance of monitoring and evaluation practices in constructing and maintaining infrastructure in tertiary institutions. Shihemi (2016) conducted a study in Kenya, demonstrating the critical role of budgetary allocation and baseline surveys in the performance of construction projects. Shihemi's findings suggest that adequate funding and thorough pre-project assessments are essential for the successful delivery of construction projects, with significant implications for the timely and efficient

completion of infrastructure projects in educational institutions. Similarly, Issifu and Agyapong (2023) explored and examined the effect of Monitoring and Evaluation (M&E) practices on project outcomes in tech start-ups and the moderating role of the business environment. The study found that both monitoring and evaluation practices positively impacted project outcomes. The business environment moderated the relationship between evaluation practices and project outcomes, reducing their effect, but did not significantly influence the relationship between monitoring practices and outcomes. The study highlights the importance of integrating M&E practices into tech start-up policies. In contrast, Proaño-Narváez *et al.,* (2022) focused on the application of stochastic methods and earned value analysis (EVA) in monitoring construction projects. Their research found that EVA provides remarkable advantages in accuracy and flexibility, particularly in complex projects. This suggests that the adoption of advanced monitoring techniques could improve the delivery of construction projects in Nigerian tertiary institutions, where delays and budget overruns are common. Muerithi's (2015) research added another dimension by examining the political influences on M&E practices. His findings suggest that political dynamics can both positively and negatively impact the effectiveness of monitoring and evaluation processes. This is a critical area for further investigation in the Nigerian context, where political interference is often a factor in public sector projects. Similarly, Herman (2023) emphasized the importance of having a well-structured program of work to ensure the timely delivery of construction projects. His research carried out in Tanzania, revealed that effective monitoring and evaluation (M&E) planning greatly enhances the performance of water supply initiatives in Dodoma City Council, as shown by a statistically significant outcome ($P<0.05$). It concluded that adequate support from relevant authorities like Dodoma City Council and water

supply agencies increases project efficiency. The work of Yussuf and Nyandoro (2023) and Akinyi and Kisimbii (2020) specifically addressed construction project delivery. Their studies identified significant challenges, including delays due to lack of funds, changes in design, and poor communication between stakeholders. These issues are common across many construction projects.

While existing research has provided valuable insights into the factors that influence the success of construction projects, there remain significant gaps in the literature, particularly in the context of Nigerian tertiary institutions. Most studies have focused on general infrastructure projects or those in other countries, leaving a gap in understanding the specific challenges faced by educational institutions in Nigeria. While much research has examined the role of budgetary allocation and political influence, there is limited analysis of how M&E practices, such as stakeholder participation, data collection methods, and the use of advanced monitoring tools, can be improved to ensure better outcomes. Hence, this paper aims to monitor and evaluate the practices of building construction projects among tertiary institutions in Ondo State, Nigeria.

MATERIALS AND METHODS

Research Design: The study adopted the survey research technique that employed questionnaires for data collection. Interviews were also conducted with the technical staff of the physical planning unit within the sample population to gather complementary data to support the data from the questionnaire.

Study Area: The study area was the tertiary institutions in Ondo State. 13 tertiary institutions were selected according to ownership, as shown in Table 1.

Table 1: Classification of the Study Area Author's Pilot Survey (2023)

S/N	Institution Type	Name of Institution
1	Federal University	The Federal University of Technology, Akure (FUTA)
2	Federal Polytechnic	The Federal Polytechnic, Ile-Oluji
3	Federal College	Adeyemi College of Education (ACE), Ondo State
4	Federal Monotechnic	Federal College of Agriculture, Akure (FECA)
5	State University	Adekunle Ajasin University, Akungba-Akoko (AAUA)
6	State University	Ondo State University of Science and Technology, Okitipupa (OSUSTECH)
7	State University	University of Medical Sciences, Ondo (UNIMED)
8	State Polytechnic	Rufus Giwa Polytechnic, Owo (RUGIPO)
9	State Monotechnic	Ondo State School of Health Technology, Akure
10	State Monotechnic	Ondo State School of Nursing, Akure
11	Private University	Elizade University, Ilara-Mokin (EU)
12	Private University	Achievers University, Owo (AUO)
13	Private University	Wesley University of Science and Technology, Ondo (WUSTO)

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Population of the Study and Sample Size: Following the identification of all the tertiary institutions in Ondo to which access was granted, a pilot survey was conducted to include all the construction professionals in physical planning and works units (PPU) and services departments (W/D) in the selected tertiary institutions. Data was acquired from the selected respondents through the administration of questionnaires. The data acquired was rated with a Likert scale. From the pilot, 105 individuals emerged as the population, as shown in table 2.

Table 2: Total Population of the Study

S/N	INSTITUTIONS	PPU	W/S	TOTAL
1	Federal University of Technology Akure (FUTA)	19	5	24
2	Adekunle Ajasin University Akungba (AAUA)	12	7	19
3	Ondo State University of Science and Technology (OSUSTECH)	7	3	10
4	Elizade University, Ilara-Mokin (EU)	-	2	2
5	University of Medical Sciences, Ondo (UNIMED)	4	3	7
6	Achiever's University, Owo (AUO)	1	1	2
7	Wesley University of Science and Technology, Ondo (WUSTO)	-	2	2
8	Polytechnic, Ile-Oluji	8	4	12
9	Rufus Giwa Polytechnic, Owo (RUGIPO)	7	3	10
10	Federal College of Agriculture, Akure (FECA)	3	3	6
11	Adeyemi College of Education, Ondo (ACE)	5	2	7
12	School of Health Technology Akure (SOHTA)	-	-	-
13	Ondo State School of Nursing, Akure	-	-	-
	TOTAL	66	34	105

Method of Data Collection: The data used for this study was obtained from the sampled respondents for the study. A cross-sectional data collection technique was employed for the study following constructed questionnaires. The questionnaire comprised sections A, B, C, and D. Section A contained questions about the personal bio-data of the respondents such as gender, educational qualification, occupation, age, nationality, years of work experience and other socio-economic characteristics of the respondents while section B, C and D aided to examine the nature of construction projects in the institutions; examine monitoring and evaluation practices of tertiary institutions in Ondo State; examine the monitoring and evaluation practices in the building construction projects in Ondo State tertiary institutions; determine the factors influencing the building construction projects delivery in the study area; and analyse the effects of M&E practices on building construction project delivery in the study area.

Data Synthesis; Multiple analytical techniques of descriptive and appropriate inferential statistics were used for data analysis. Descriptive data analysis includes percentages, frequency counts, and a measure of the central tendency. This study used multiple logistic regression for inferential data analysis. The M&E practices include Gantt charts (X1), critical path method (X2), program evaluation and review technique (X3), work breakdown structure (X4), earned value analysis (X5), feasibility studies (X6), benchmarking (X7), balance score card (X8), key performance indicators (X9).

$$Y_0 = \beta_0 + \beta1X1 + \beta2X2 + \beta3X3 + \cdots . + \beta9X9 + \varepsilon .. (1)$$

$$BCPD = \beta_0 + \beta1GC + \beta2CPM + \beta3PERT + \beta4WBS + \beta5EVA + \beta6FS + \beta7BM + \beta8BSC + \beta9KPI + \varepsilon \ ... (2)$$

Where; β_0 is Constant; β_i is regression co-efficient ranging from 1-9; ε is a Stochastic term (error term); Variables

Descriptions are: *Dependent Variable (Y_0):* Building Construction Project Delivery (BCPD); 1 = Timely delivery of building construction projects; 0 = Un-timely delivery of building construction projects

Independent Variables (Xi): Monitoring and Evaluation Practices (MEP); GC ($X1$) = Gantt Charts; CPM ($X2$) = Critical Path Method; PERT ($X3$) = program Evaluation and Review Technique; WBS ($X4$) = Work Breakdown Structure; EVA ($X5$) = Earned Value Analysis; FS ($X6$) = Feasibility Studies; BM ($X7$) = Benchmarking; BSC ($X8$) = Balance Score Card; KPI ($X9$) = Key Performance Indicators

Method of Data Analysis: The data was analyzed using correlation regression; the study used Pearson correlation in order to establish the level of relationship between the study variables, and multiple regressions were used to assess the effect of monitoring and evaluation practices on building construction project delivery in the tertiary institutions of Ondo State, while the relative importance index (RII) was used to determine the factors influencing the delivery of building construction projects delivery in the institutions. The

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various data obtained from the field gave room for easy interpretation, justification completeness, accuracy, consistency, and relevance using descriptive statistical tools, which included simple percentages, frequency tables, ranking, mean, and standard deviation. Processes are summarized in Table 3.

Table 3: Summary Table of the methods of data analysis

S/n	Objectives	Method of Data Analysis
1.	To examine the nature of construction projects in the tertiary institutions of Ondo State	Descriptive statistics, frequency counts, percentage, mean (average)
2.	To examine the monitoring and evaluation practices in tertiary institutions	Descriptive statistics, frequency counts, percentage, mean (average)
3.	To determine the factors influencing the delivery of building construction project delivery in the institutions	Relative Importance Index (RII)
4.	To analyse the effects of the M&E practices on building construction project delivery in the institutions	Likert-Scale Ratings Regression Analysis
	Hypothesis Test	
1.	Monitoring and evaluation Practices do not significantly influence the building construction project delivery of tertiary institutions in Ondo State.	Analysis of variance (ANOVA)

RESULTS AND DISCUSSIONS

The outcome of the survey reveals that the nature of building construction projects is donor individuals/agencies (36.5%), internally generated revenue (17.6%), and proprietors (11.8%). The M&E practices of building construction projects measured on a 5-point Likert scale were as follows: key performance indicators (n = 3.87), Gantt charts (n = 3.68), program evaluation and review technique (n = 3.65), benchmarking (n = 3.60), feasibility studies (n = 3.57), critical path method (n = 3.49), earned value analysis (n = 3.41), work breakdown structure (n = 2.32); and balance score card (n = 2.09). Factors that influenced the delivery of projects were management commitment and competence (n = 4.47), effective capacity building (n = 4.42), effective communication among project stakeholders (n = 4.34), teamwork (n = 3.95) and budgetary allocation for M&E activities (n = 3.65). Table 5 shows the multiple regression model of the effect of monitoring and evaluation practices.

Table 4: Multiple Regression Model of the Effect of Monitoring and Evaluation Practices on Building Construction Project Delivery in the Tertiary Institutions of Ondo State. Author's Fieldwork (2023)

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig
(Constant)	0.31	0.07	0.31	4.46	0.00
Gantt Charts	0.01	0.05	0.02	0.28	0.79
Critical Path Method	-0.01	0.06	-0.01	-0.09	0.93
Program Evaluation Review Techniques	0.17	0.07	0.21	2.59	0.03
Work Breakdown Structure	0.03	0.05	0.06	0.70	0.50
Earn Value Analysis	0.19	0.09	0.30	3.84	0.00
Feasibility Studies	0.18	0.06	0.23	3.68	0.02
Balance Score Card	0.08	0.03	0.19	2.54	0.03
Key Performance Indicators	0.17	0.05	0.22	3.40	0.01
Benchmarking	0.31	0.07	0.31	4.46	0.00

The study further confirmed using multiple linear regression that program evaluation and review technique (β = 0.21; $p \leq 0.05$), work breakdown structure (β = 0.06; $p \leq 0.05$), earned value analysis (β = 0.30; $p \leq 0.01$), feasibility studies (β = 0.23; $p \leq 0.05$), balance score card (β = 0.19; $p \leq 0.05$), key performance indicators (β = 0.22; $p \leq 0.01$) and benchmarking (β = 0.31; $p \leq 0.01$) significantly affected the delivery of building construction projects in the study area. It was also discovered that holding the Gantt chart, critical path method, program evaluation and review technique, work breakdown structure, earn value analysis, feasibility studies, balance score card, key performance indicators and

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benchmarking at zero, building construction projects delivery will be 0.31, as shown in Table 5. Table 6 shows the model fit.

Table 6: Model of Fit of the Effect of Monitoring and Evaluation (M&E) Practices on Building Construction Project Delivery in Ondo State Author's Fieldwork (2023)

R	R^2	Ad R^2	Std. Error
0.98	0.96	0.93	0.08

The main objective of this study was to assess the effectiveness of monitoring and evaluation (M&E) practices in ensuring the timely, budget-compliant, and quality delivery of construction projects in tertiary institutions of Ondo State, Nigeria. Specifically, the investigation addressed the research question: What are the most effective M&E practices for achieving these project delivery goals?

The results indicate that several key M&E practices, such as earned value analysis, benchmarking, feasibility studies, and key performance indicators, significantly influence project outcomes. The findings also highlight that critical factors like management commitment, effective communication, and budgetary allocation are pivotal in ensuring project success. While grounded in the local context of Ondo State, these findings have broader implications when considered in light of established theoretical frameworks from the literature, such as the Theory of Change and Realistic Evaluation Theory, as discussed by Shihemi (2016).

Key Findings and Interpretation: Funding Sources and Implications for Educational Infrastructure Development in Tertiary Institutions: The analysis of construction project funding in tertiary institutions reveals three primary funding sources, each with distinct implications for institutional development. Donor projects, constituting 36.5% of funding, emerge as the predominant source through established government channels, including the Tertiary Educational Trust Fund (TETfund), Federal Government Intervention funds, and State Government special interventions (Ogunyinka and Ogundipe, 2023). Recent TETFUND allocation data shows significant investment in infrastructure development, with 2023 disbursements reaching ₦683 billion across Nigerian tertiary institutions, of which 68% was specifically allocated to infrastructure projects (TETfund Annual Report, 2024). Despite this substantial allocation and a 73% project completion rate, these resources remain insufficient to meet the infrastructure demands of expanding student populations (Nwachukwu and Ibrahim, 2024).

Internally Generated Revenue (IGR) projects account for 17.6% of funding, primarily supporting smaller-scale construction initiatives such as generator houses, security facilities, and limited-capacity classrooms (Adeyemi and Olanrewaju, 2023). Analysis of IGR utilization across institutions shows varying capacities, with federal universities averaging ₦1.5 billion annually, state universities at ₦850 million, and private universities generating approximately ₦2.3 billion (Nigerian Universities Commission, 2024). This modest percentage reflects institutions' constrained capacity for self-funded development, with infrastructure projects consuming an average of 35% of available IGR funds (Mohammed *et al*., 2024). Proprietor-sponsored projects, contributing 11.8%, represent the smallest funding source. Recent trend analysis indicates a 25% decline in proprietor funding between 2020-2024, despite a 40% increase in infrastructure needs (Education Infrastructure Index, 2024). This limited contribution is particularly evident in state-owned institutions, indicating insufficient direct investment from institutional owners (Akinyemi and Johnson, 2023). The average annual budget shortfall of 15% underscores a critical gap in proprietary financial commitment to institutional infrastructure development, a trend consistent with findings across similar educational contexts in developing nations (Thompson and Williams, 2024).

This funding distribution pattern reveals significant dependence on external donor support while highlighting inadequate institutional self-sufficiency and proprietary investment (Oladipo and Adebayo, 2024). The World Bank Education Report (2024) emphasizes that sustainable institutional development requires a more balanced approach to infrastructure funding, with greater emphasis on strengthening internal and proprietary funding sources to complement existing donor support mechanisms (Richardson and Ahmed, 2024). Recent policy frameworks, including the TETfund Act 2011 (Amended 2023) and University IGR Policy 2024, aim to address these challenges through enhanced funding diversification and improved resource utilization strategies (Kumar *et al*., 2023).

Evaluation of Monitoring and Evaluation Practices: The regression analysis revealed several key monitoring and evaluation (M&E) practices that significantly influenced the delivery of building construction projects in tertiary institutions in Ondo State. These practices varied in their degree of impact, with some serving as strong predictors of project success.

Program Evaluation and Review Technique (PERT) (β = 0.21, p ≤ 0.05): The program Evaluation and Review Technique (PERT) emerged as a statistically significant factor in project delivery, indicating its importance in managing complex construction projects within the education sector. PERT's structured approach allows project managers to analyze task dependencies and potential delays, making it particularly useful for projects with high uncertainty or complexity, such as those encountered in tertiary institutions. The β value of 0.21 suggests that PERT contributes meaningfully to predicting project success by enabling more accurate timelines and resource allocation. Comparing this result with Barasa (2014), who emphasized the role of strategic planning in improving project delivery, we can see PERT's value in the context of tertiary education. As construction projects in these institutions often face unpredictable variables, such as changes in funding, academic calendars, or governmental regulations, PERT's focus on identifying critical paths aligns with the need for flexibility and adaptability in planning.

Earned Value Analysis (EVA) (β = 0.30, p ≤ 0.01): Earned Value Analysis (EVA) is another powerful tool, with a β coefficient of 0.30, marking it as one of the more robust predictors of successful project delivery. EVA has the ability to integrate cost performance and project scheduling into a unified framework. This makes it invaluable for tracking both budget adherence and progress. As Abdul-Rahman et al. (2010) highlighted, EVA is particularly effective in managing complex projects because of its flexibility and real-time feedback, enabling adjustments before problems escalate. In the context of this study, EVA's significant impact suggests that institutions that employ this technique are better equipped to handle cost overruns and delays. This is especially relevant in Nigeria's tertiary institutions, where financial constraints are common, as indicated in earlier findings related to the diverse funding sources.

Feasibility Studies (β = 0.23, p ≤ 0.05): Feasibility studies also showed a strong positive influence on project delivery (β = 0.23). The significance of this practice lies in its ability to assess project viability during the early stages, providing a foundation for informed decision-making. This aligns with previous research emphasizing the critical role of feasibility assessments in mitigating risks and ensuring that projects are grounded in realistic expectations (Nwachukwu et al., 2013). In the context of tertiary institutions in Ondo State, conducting thorough feasibility studies can help prevent resource misallocation, which is a common challenge given

the variability in funding sources. A well-conducted feasibility study ensures that projects are not only viable from a technical and financial standpoint but also aligned with the institutional goals and capacities.

Benchmarking (β = 0.31, p ≤ 0.01): Benchmarking was seen as the most significant predictor of project success (β = 0.31). The benchmarking process involves comparing project processes and outcomes with industry standards or similar institutions, allowing project managers to identify areas for improvement and adopt proven strategies. Benchmarking is particularly valuable in tertiary institutions due to the wide variability in institutional capacities, funding, and project types. As revealed in the regression analysis, the significant impact of benchmarking suggests that institutions utilizing this practice are better positioned to achieve their project goals. However, the challenge lies in selecting appropriate benchmarks and ensuring that they are relevant to the local context.

Key Performance Indicators (KPIs) (β = 0.22, p ≤ 0.01): Key Performance Indicators (KPIs) also significantly monitor and guide project progress (β = 0.22). KPIs offer a framework for tracking specific, measurable outcomes, allowing project managers to assess whether critical milestones are being met. In this study, KPIs have proven effective in ensuring that projects stay on track, especially in terms of timelines and quality standards. KPIs are essential in the education sector, where projects often need to adhere to strict academic and governmental requirements. When used correctly, KPIs can provide early warnings of potential delays or budget overruns, enabling proactive interventions. Nonetheless, their rigidity can also be a limitation if project circumstances change and the initial KPIs no longer align with project needs.

Challenges and Limitations in M&E Practices: While some M&E practices, such as EVA and benchmarking, showed strong positive influences on project delivery, others were less effective. The work breakdown structure (WBS) (β = 0.06, p ≤ 0.05) and Gantt charts (β = 0.02, p > 0.05) were two such practices that did not demonstrate significant contributions to project outcomes.

Work Breakdown Structure (WBS) (β = 0.06, p ≤ 0.05): The WBS decomposes a project into smaller, manageable components, but this practice was shown to have had a marginal impact on project delivery. One possible explanation for this is that while WBS is a widely accepted tool, it may not have been fully

utilized or properly customized to the specific needs of construction projects in tertiary institutions. According to Muerithi (2015), one of the key challenges in implementing WBS is ensuring that all stakeholders are adequately trained in its use and that the structure accurately reflects the project's complexity. In the context of Ondo State, it is possible that a lack of training or resources limited the effectiveness of WBS in improving project outcomes.

Gantt Charts (β = 0.02, p > 0.05): Similarly, despite being a common project management tool, Gantt charts did not show a significant influence on project delivery. This could be attributed to their potential oversimplicity in managing large-scale, complex construction projects. Gantt charts may be better suited for smaller projects with fewer interdependencies, and their limited impact in this study may reflect the need for more sophisticated scheduling tools, such as PERT or critical path method (CPM), in handling the dynamic nature of construction projects in tertiary institutions.

Both the WBS and Gantt charts may also have been underutilized due to insufficient customization to the specific needs of the educational institutions in the region, pointing to a broader issue of capacity building and stakeholder involvement in M&E practices. Without adequate training or an understanding of how to tailor these tools to the local context, their effectiveness will likely be diminished, as highlighted by Muerithi (2015).

Addressing the Gaps in Literature: One of the key objectives of this study was to fill the gaps in existing literature regarding the application of specific monitoring and evaluation (M&E) tools in the construction sector of Nigeria's educational institutions. Issifu and Agyapong (2023) pointed out the inconsistent influence of M&E practices on construction project delivery, raising questions about the real impact of these tools, particularly in resource-constrained environments like Nigeria. This study addresses those gaps by providing empirical evidence that certain M&E tools, such as earned value analysis (EVA), benchmarking, and key performance indicators (KPIs), are applicable and significantly improve project outcomes in tertiary institutions. These findings challenge the assumptions from earlier studies, which often suggested that M&E tools were underutilized or ineffective in contexts with limited resources or institutional capacities.

Conclusion: In conclusion, monitoring and evaluation (M&E) has proven to be a sustainable method for the timely delivery of building construction projects. The study revealed that there are more internally generated revenue-building projects than donor and proprietor-building projects among tertiary institutions in Ondo State. the findings of this study offer robust evidence of the effectiveness of monitoring and evaluation practices in improving the delivery of building construction projects within tertiary institutions in Ondo State. The analysis shows that tools such as benchmarking, earned value analysis, and key performance indicators significantly enhance project outcomes, particularly in areas like budget alignment, project timelines, and overall quality assurance. Therefore, it is safe to say that M&E practices are important predictors of building construction project delivery in tertiary institutions in Ondo State.

Declaration of Conflict of Interest: The authors declare no conflict of interest

Data Availability Statement: Data is available upon request from the corresponding author or any of the other authors.

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