

AI-Driven Teacher Performance Evaluation in Edo Secondary Schools: A Quantitative Assessment

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ABSTRACT

Since 2018, Edo State's basic and secondary education system has operated one of Nigeria's most technologically instrumented teacher-management infrastructures under the EdoBEST programme, including government-issued tablets used to record teacher attendance and support data-driven school management. This study surveyed 200 secondary school teachers across Edo State to assess readiness, perceptions, and anticipated challenges regarding AI-driven performance evaluation. Results indicate moderate overall readiness (grand mean = 3.21 on a 5-point scale). Perceived usefulness ($M = 3.48$) exceeded perceived ease of use ($M = 3.12$), while trust in AI-generated data relative to human observation remained low ($M = 2.67$). Teachers anticipated benefits of greater objectivity ($M = 3.55$) but expressed substantial concern about context-blindness ($M = 4.02$) and data privacy ($M = 3.89$). Principal anticipated challenges were lack of training (76%), inadequate ICT infrastructure (68%), concerns about punitive use of data (61%), and absence of clear institutional policy (54%). Chi-square analysis confirmed a significant association between perceived ease of use/usefulness and overall readiness ($\chi^2 = 24.31$, $p < .001$), supporting Technology Acceptance Model predictions. An independent-samples t-test showed significantly higher readiness among teachers with high prior EdoBEST tablet usage ($t = 3.87$, $p < .001$). The findings suggest that AI-driven evaluation is feasible only after addressing existing EdoBEST underutilisation, infrastructure gaps, and trust and policy safeguards.

Keywords: artificial intelligence; teacher performance evaluation; secondary schools; Edo State; technology acceptance; Nigeria

1. Introduction

Teacher performance evaluation has long served as a core human resource management practice in education, used both to hold teachers accountable and to support their professional development (Achaa et al., 2023). Globally, artificial intelligence is increasingly being explored as a tool to support this function: AI-based performance management systems can monitor and guide employee performance through continuous data collection, automated pattern recognition in classroom interaction data, and analytics-driven feedback, offering a potential alternative or complement to traditional, resource-intensive human observation-based appraisal (Achaa et al., 2023). A recent large-scale Nigerian study of teacher readiness for AI in classroom assessment, surveying 3,781 respondents, found that teachers' willingness to adopt AI tools was significantly shaped by perceived ease of use and perceived usefulness, themselves influenced by teachers' attitude toward technology, technological readiness, and pedagogical beliefs (Ofem et al., 2025).

Edo State offers a particularly relevant context for examining this emerging shift. Since 2018, the state's basic and secondary education system has operated under the Edo Basic Education Sector Transformation (EdoBEST) programme, a public-private partnership between the Edo State Basic Education Board, the World Bank, and Bridge International Academies, which has equipped teachers with government-issued tablets used to record classroom attendance via timestamp and to support broader data- and technology-driven school management (SUBEB, n.d.). Between 2018 and 2022 alone, the programme trained more than 16,000 primary and junior secondary teachers in technology-driven teaching methods (SUBEB, n.d.). However, a 2025 academic study examining EdoBEST 2.0's implementation in three Benin City secondary schools found that the programme's new-media components had not fully achieved their intended objectives, with many of the technology devices distributed to teachers and students underutilised in practice (Omoera & Nwaoboli, 2025). This existing, technologically instrumented, but contested, infrastructure raises a distinct question: how would Edo State's secondary school teachers perceive and respond to a further step, the use of artificial intelligence specifically for performance evaluation, as opposed to the attendance-tracking and content-delivery functions EdoBEST already performs? No prior study had addressed this question. This study does so through a structured survey of 200 Edo State secondary school teachers.

1.1 Statement of the Problem

Edo State's EdoBEST programme has established a technological foundation, government-issued teacher tablets, attendance timestamping, and data-driven school management, that could plausibly support a future transition toward AI-driven performance evaluation (SUBEB, n.d.). However, independent academic research examining EdoBEST 2.0's implementation in Benin City secondary schools found that the programme's technology components have been underutilised and have not fully achieved their intended educational objectives (Omoera & Nwaoboli, 2025), raising questions about whether teachers are, in practice, prepared for a more advanced, AI-driven evaluation layer built on this infrastructure. National Nigerian research indicates that teacher readiness for AI in education is shaped by attitude toward technology, technological readiness, and pedagogical beliefs (Ofem et al., 2025), but this research had not been conducted specifically among Edo State's secondary school teachers, nor had it addressed performance evaluation specifically. Without locally grounded evidence, policymakers lack a basis for determining whether, and how, such a system could be responsibly introduced.

1.2 Objectives of the Study

To determine the extent of Edo State secondary school teachers' readiness for AI-driven performance evaluation.

To examine teachers' perceptions of the potential benefits and risks of AI-driven performance evaluation.

To assess the relationship between teachers' prior EdoBEST technology experience and their readiness for AI-driven evaluation.

To identify the principal challenges teachers anticipate in the adoption of AI-driven performance evaluation.

1.3 Research Questions and Hypotheses

1. What is the extent of Edo State secondary school teachers' readiness for AI-driven performance evaluation?

2. What are teachers' perceptions of the potential benefits and risks of AI-driven performance evaluation?

3. What challenges do teachers anticipate in the adoption of AI-driven performance evaluation?

H0₁: There is no statistically significant relationship between perceived ease of use/usefulness of AI tools and teachers' overall readiness for AI-driven performance evaluation.

H0₂: There is no statistically significant difference in AI-driven evaluation readiness between teachers with high versus low prior EdoBEST technology (tablet) usage experience.

1.4 Significance of the Study

This study is of value to the Edo State Universal Basic Education Board, the Edo State Secondary Education Board, secondary school administrators, teacher unions, and researchers examining the intersection of artificial intelligence and teacher performance management in Nigerian secondary education.

2. Literature Review

2.1 Artificial Intelligence in Teacher Performance Management

Performance appraisal is a process of continuous evaluation intended to help teachers identify and improve their strengths and weaknesses while supporting institutional goals and student achievement (Achaa et al., 2023). Advances in artificial intelligence have introduced new possibilities for this process: AI-based performance management systems, already used in other sectors to monitor and guide employee performance through frequent measurement and analytics, are increasingly being explored in education, where they offer the potential to reduce the administrative burden of traditional observation-based appraisal while enabling more continuous, data-informed feedback (Achaa et al., 2023). Complementary research on automated teacher performance evaluation has explored the use of deep-learning models to assess instructional interaction patterns directly from classroom data, suggesting that automated modelling can meaningfully capture dimensions of teaching practice relevant to evaluation, though such approaches also raise concerns about data representativeness across differently resourced school contexts and the need for transparency in how such systems are trained and applied.

2.2 Teacher Readiness for AI Adoption in Nigeria

A large-scale Nigerian study surveying 3,781 teachers found that willingness to adopt AI tools in classroom assessment was significantly shaped by perceived ease of use and perceived usefulness, which in turn were influenced by teachers' attitude toward technology, technological readiness, and pedagogical beliefs (Ofem et al., 2025). The study found that perceived ease of use mediated the relationship between attitude toward technology and overall AI preparedness, while perceived usefulness mediated the relationship between technological readiness and preparedness, indicating that both attitudinal and practical-skills dimensions matter for AI adoption readiness among Nigerian teachers. This finding is directly relevant to the present study's focus on AI-driven performance evaluation specifically, a more consequential and potentially higher-stakes application of AI than general classroom assessment support.

2.3 Edo State's EdoBEST Technology Infrastructure

Edo State's basic and secondary education system has operated under the EdoBEST programme since 2018, a public-private partnership involving the Edo State Basic Education Board, the World Bank, and Bridge International Academies, which equips teachers with government-issued tablets used to record attendance via timestamp and to support wider data- and technology-driven school management (SUBEB, n.d.). Between 2018 and 2022, the programme trained more than 16,000

primary and junior secondary teachers in technology-driven teaching methods, and government reporting attributes measurable gains in instructional time and student outcomes to the programme. However, independent academic research presents a more mixed picture; a study examining EdoBEST 2.0 in three Benin City secondary schools found that the new-media devices distributed to teachers and students had, in practice, been underutilised, and that the programme had not fully achieved its intended educational enhancement objectives (Omoera & Nwaoboli, 2025). This gap between the programme’s technological ambition and its documented implementation challenges forms an important backdrop for assessing teacher readiness for a further, AI-driven evaluation layer.

2.4 Theoretical Framework

This study is grounded in the Technology Acceptance Model (TAM), which holds that an individual’s intention to adopt a new technology is shaped primarily by their perceived usefulness of the technology and their perceived ease of using it (Davis, 1989). TAM has been directly applied in recent Nigerian research on teacher AI readiness, where perceived ease of use and perceived usefulness were found to mediate the relationships between attitude toward technology, technological readiness, pedagogical beliefs, and overall AI preparedness (Ofem et al., 2025). This study adopts the same framework to examine whether Edo State secondary school teachers’ perceptions of AI-driven performance evaluation’s ease of use and usefulness predict their overall readiness for its adoption, and whether this readiness differs according to teachers’ prior experience with the state’s existing EdoBEST technology infrastructure.

3. Methodology

3.1 Research Design

This study adopted a quantitative, descriptive cross-sectional survey design, appropriate for systematically measuring teacher readiness and perceptions using a standardised instrument and for testing relationships between readiness and prior technology experience.

3.2 Population, Sample, and Sampling

The target population comprised teachers in public secondary schools across Edo State, operating under the EdoBEST secondary education framework, spanning urban Benin City schools and schools in other local government areas. A sample of 200 respondents was selected through stratified simple random sampling from a sampling frame of teachers across a representative set of Edo State public secondary schools, with proportional stratification across urban Benin City schools and schools in other local government areas.

3.3 Research Instrument and Data Collection

Data were collected using a structured, researcher-developed questionnaire divided into four sections: demographics (including prior EdoBEST tablet usage frequency); perceived ease of use and perceived usefulness of AI-driven evaluation tools (five-point Likert items adapted from TAM literature); overall readiness and perceived benefits/risks; and anticipated challenges (multiple-response items). Face and content validity were established through expert review. A pilot test yielded Cronbach’s alpha coefficients of 0.83 (ease of use/usefulness scale) and 0.79 (readiness/benefits-risks scale). Questionnaires were administered face-to-face at school locations between March and May 2026, with coordination through school administrators.

3.4 Method of Data Analysis

Data were analysed using SPSS version 26. Research questions were addressed with descriptive statistics (frequencies, percentages, means, and standard deviations). H_{01} was tested using the chi-square test of independence; H_{02} was tested using an independent-samples t-test comparing readiness scores between high and low EdoBEST usage groups. Significance was set at $p < .05$.

4. Results

4.1 Demographic Profile of Respondents

Table 1

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	92	46.0
	Female	108	54.0
Years of teaching experience	Less than 5 years	44	22.0
	5-10 years	82	41.0
	Above 10 years	74	37.0
School location	Benin City (urban)	116	58.0
	Other LGAs	84	42.0
EdoBEST tablet usage	Low/occasional	106	53.0
	High/regular	94	47.0
Total		200	100

Demographic Profile of Respondents (N = 200)
Note. Percentages may not sum exactly to 100 due to rounding.

4.2 Perceived Ease of Use, Usefulness, and Readiness

Table 2

Item	N	M	SD	Rank
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I believe AI-driven evaluation would be useful for my professional growth	200	3.48	1.02	1
I am confident I could learn to use an AI evaluation system	200	3.35	0.98	2
Overall, I feel ready for AI-driven performance evaluation	200	3.21	1.08	3
I find AI-driven evaluation tools easy to understand	200	3.12	1.05	4
I trust AI-generated performance data more than/as much as human observation	200	2.67	1.14	5
Grand Mean	200	3.17		

Descriptive Statistics on Perceived Ease of Use, Usefulness, and Readiness (N = 200)
Note. Items measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). M = Mean; SD = Standard Deviation.

4.3 Perceived Benefits and Risks

Table 3

Item	N	M	SD	Rank
I am concerned AI evaluation would miss important context	200	4.02	0.89	1
I am concerned about data privacy/misuse of AI evaluation data	200	3.89	0.97	2
AI evaluation would make appraisal fairer/more objective	200	3.55	1.04	3
AI evaluation would reduce my workload/administrative burden	200	3.18	1.11	4
Grand Mean	200	3.66		

Descriptive Statistics on Perceived Benefits and Risks (N = 200)
Note. Items measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Higher means on concern items indicate stronger concern.

4.4 Anticipated Challenges

Table 4

Anticipated Challenge	Frequency (n)	Percentage (%)
Lack of training on AI evaluation tools	152	76.0
Inadequate ICT infrastructure/internet access	136	68.0
Concerns about job security/punitive use of data	122	61.0
Distrust of AI accuracy/fairness	114	57.0
Lack of clear institutional policy on AI evaluation	108	54.0

Anticipated Challenges to AI-Driven Evaluation Adoption (N = 200)
Note. Respondents were permitted to select more than one challenge; percentages are calculated on the base of 200 respondents and therefore sum to more than 100%.

4.5 Hypothesis Testing

Table 5

Hypothesis	χ^2/t	df	p-value	Decision
H_{01} : Ease of use/usefulness $\times$ readiness	24.31	2	< .001	Reject H_{01}
H_{02} : EdoBEST usage level $\times$ readiness	3.87 (t)	198	< .001	Reject H_{02}

Hypothesis Testing Results
Note. Significance threshold set at $p < .05$. χ^2 used for H_{01} (chi-square test of independence); t used for H_{02} (independent-samples t-test).

5. Discussion

The results indicate that Edo State secondary school teachers hold a cautiously moderate stance toward AI-driven performance evaluation. Overall readiness (M = 3.21) and the grand mean across TAM-related items (3.17) fall short of strong acceptance. Perceived usefulness exceeds perceived ease of use, and trust in AI-generated data relative to human observation is distinctly low. These patterns are consistent with the national Nigerian findings of Ofem et al. (2025), in which perceived ease of use and usefulness shaped AI preparedness, while also reflecting the higher-stakes nature of performance evaluation compared with general classroom assessment tools.

Risk perceptions currently outweigh benefit perceptions on the highest-scoring items. Strong concern that AI evaluation would miss important pedagogical context (M = 4.02) and about data privacy or misuse (M = 3.89) indicate that teachers do not yet regard AI as a neutral or fully trustworthy substitute for human professional judgement. The ranking of anticipated challenges, training deficits, infrastructure gaps, punitive-use fears, distrust of accuracy, and policy absence, aligns closely with the documented underutilisation of EdoBEST’s existing technology components (Omoera & Nwaoboli, 2025). Layering a higher-stakes AI evaluation system onto an infrastructure that is already unevenly used would amplify rather than resolve these gaps.

The significant association between ease of use/usefulness and readiness (H_{01} rejected) confirms the applicability of the Technology Acceptance Model in this local context. The significant readiness advantage among high EdoBEST users (H_{02} rejected) further suggests that prior positive or intensive experience with the state’s existing technology platform is a meaningful predictor of openness to a more advanced AI layer. Conversely, the substantial proportion of low/occasional users (53%) represents a readiness deficit that would need to be addressed before any system-wide introduction.

Limitations include the cross-sectional design, self-reported rather than behavioural measures of readiness, and the concentration of the sample in schools accessible for face-to-face administration. Future research should incorporate longitudinal designs, qualitative exploration of trust and fairness concerns, and pilots that test AI evaluation tools under

controlled, transparent conditions with active teacher and union involvement.

6. Recommendations

Prioritise targeted AI literacy and evaluation-tool training for Edo State secondary school teachers before any AI-driven evaluation system is introduced, addressing the training gap cited by 76% of respondents.

Establish clear, teacher-facing policy safeguards on how AI-generated evaluation data will and will not be used, addressing privacy, punitive-use, and job-security concerns before system design proceeds.

Address underlying infrastructure and support gaps in the existing EdoBEST platform, documented as underutilised by Omoera and Nwaoboli (2025), before layering AI evaluation on top of it, given the readiness advantage observed among high prior users.

Pilot any AI-driven evaluation system in a small number of schools with active teacher and union consultation, transparent algorithms, and human oversight, rather than full-scale rollout.

Extend future research to qualitative interviews with teachers and school administrators, and to controlled pilots that measure both technical performance and teacher experience of fairness and utility.

7. Conclusion

This quantitative survey of 200 Edo State secondary school teachers provides the first local evidence on readiness for AI-driven performance evaluation. Overall readiness is moderate; perceived usefulness exceeds ease of use; trust in AI relative to human observation is low; and concerns about context-blindness and data privacy are pronounced. Training deficits, infrastructure gaps, and fears of punitive use rank as the leading anticipated challenges. Consistent with the Technology Acceptance Model and national Nigerian findings, perceived ease of use and usefulness strongly predict readiness, and prior high engagement with EdoBEST technology is associated with greater openness to AI evaluation. The results indicate that responsible introduction of AI-driven teacher evaluation in Edo State requires prior investment in training, infrastructure reliability, transparent policy safeguards, and small-scale, consultative pilots, rather than an assumption that the existing EdoBEST technology base is already sufficient to support a higher-stakes AI layer.

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