

Measuring Adoption or Measuring Attitudes? Artificial Intelligence and Digital Tools in Professional Practice and Education Across Resource-Constrained Settings

Review Article | Volume 1 | Issue 4 | 2026 | Article Number: 077

Accepted: 07 September 2026 | Published: 10 September 2026 | ISSN: 2979-8582 (Online)



Crossref : <https://doi.org/10.67693/BJCR-HH4IHWUL>



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Abstract

Artificial intelligence and allied digital technologies are entering professional and educational practice in low- and middle-income settings faster than the evidence base describing that entry has matured. This review synthesises thirteen studies published in the Journal of Contemporary Academic Research and Methodologies (JCARM), spanning accounting education, public procurement auditing, organisational leadership, language pedagogy, primary classroom instruction, robotics control, urban infrastructure management, computer vision, electoral systems, and time series forecasting, alongside relevant international literature. Studies are grouped under three themes: adoption within professional and organisational practice, adoption within teaching and learning, and the structural conditions conditioning both. A consistent pattern emerges across otherwise unrelated domains. Where research evaluates a technical artefact in isolation, it reports objective performance metrics; where research evaluates the same class of technology embedded in human institutions, it overwhelmingly measures perception, attitude, and self-reported readiness rather than realised outcomes. This asymmetry is argued to be a structural property of an early-stage field rather than a defect of individual studies. A second cross-domain finding is that the constraints reported, unreliable electricity, weak connectivity, absent local hardware supply, and inadequate professional preparation, recur with striking uniformity irrespective of discipline, suggesting that infrastructure operates as an unmeasured moderator across the entire corpus. The review proposes a staged research agenda moving from perception measurement toward outcome evaluation, and argues that the field's most useful near-term contribution is to treat infrastructural capacity as a variable rather than a limitation.

Keywords: Artificial Intelligence, Technology Adoption, Educational Technology, Research Methodology, Resource-Constrained Settings, Digital Infrastructure

1. INTRODUCTION

The question animating research on artificial intelligence (AI) in applied settings has shifted within a few years from whether such technologies will arrive to what happens once they do. That shift is visible across disciplines that rarely read one another. Accounting scholarship frames adoption in terms of professional competence and audit assurance; educational research frames it in terms of engagement and attainment; engineering research frames it in terms of system reliability; urban planning frames it in terms of asset management. These framings are compatible but seldom juxtaposed, and the consequence is that patterns recurring across all of them go unremarked.

This fragmentation carries particular weight for low- and middle-income settings. Adoption there is mediated by conditions, electricity supply, bandwidth, hardware availability, institutional capacity, staff preparation, that studies conducted in high-resource environments hold implicitly constant and therefore rarely theorise. A finding about AI-assisted instruction obtained where reliable power and connectivity are assumed does not transfer straightforwardly to a setting where neither can be. Multidisciplinary venues, which publish across these domains within a single window, are unusually well positioned to expose the shared conditions that single-discipline journals systematically factor out.

This review takes advantage of that position. It examines thirteen studies published in the *Journal of Contemporary Academic Research and Methodologies (JCARM)*, together with relevant international literature, and asks three questions. First, in what domains is AI and digital tool adoption currently being studied? Second, what is the methodological composition of that evidence, specifically, what is being measured? Third, what conditions recur across domains, and what follows for how the field should proceed?

The review's central claim is diagnostic rather than summative. The corpus is dominated by studies measuring perceptions of technology rather than effects of technology, and this dominance is not incidental. It reflects a field still establishing baseline conditions rather than testing consequences. Recognising that is the precondition for moving beyond it.

2. REVIEW METHODOLOGY

A thematic review design was adopted rather than a systematic review in the PRISMA sense. The corpus is deliberately heterogeneous in discipline, design, and outcome construct; effect aggregation is therefore neither feasible nor appropriate. The design instead follows narrative synthesis conventions for methodologically diverse evidence, grouping studies analytically and interrogating them for cross-cutting patterns.

The focal corpus comprises studies published in the *Journal of Contemporary Academic Research and Methodologies (JCARM)* addressing AI, digital tools, or computational methods in applied professional or educational settings. This corpus was selected for a property unusual in review work: it contains adoption studies across many disciplines that share a publication window, a review process, and substantial overlap in national and institutional context. That shared context permits cross-domain comparison which a corpus assembled across venues and decades would confound. International peer-reviewed literature was drawn on to situate the focal studies theoretically and to supply comparative baselines.

Each study was coded on four dimensions: application domain; design type (conceptual, systematic review, perception survey, correlational, quasi-experimental, technical demonstration); the construct actually measured as the dependent variable; and reported constraints on adoption. Codes were then examined for convergence across domains.

Two scope conditions require declaration. The focal corpus is concentrated in Nigeria, with additional

material from Bangladesh; findings are not claimed to generalise to high-resource settings, and this concentration is treated as a boundary condition rather than a defect. Drawing the focal corpus from a single venue also constrains the diversity of review standards represented, and international literature is engaged specifically to offset this.

3. ADOPTION IN PROFESSIONAL AND ORGANISATIONAL PRACTICE

Six studies address AI and digital systems within professional workflows, and they divide sharply on a methodological line that the disciplinary labels obscure.

Onuku et al. (2026) examine AI in accounting education and its implications for graduate employability in Nigeria. The paper is explicitly conceptual, drawing on the Technology Acceptance Model, Human Capital Theory, and UTAUT2 to construct a linkage between AI-integrated curricula and labour-market readiness. Its contribution is architectural: it specifies what would need to be true for AI integration to improve employability, and recommends curriculum reform, digital infrastructure investment, and closer academia-industry collaboration. It does not, and does not claim to, test whether integration produces employment outcomes.

Oboh et al. (2026) offer the corpus's most quantitatively developed treatment of professional adoption, surveying 286 procurement officers, internal auditors, ICT personnel, and compliance staff in Nigerian public institutions, and analysing responses through correlation and multiple regression. The authors report that AI-driven anomaly detection, predictive analytics, machine-learning risk scoring, and real-time monitoring significantly enhance fraud detection effectiveness, and conclude that AI strengthens procurement transparency while reducing fraud exposure.

That conclusion warrants careful reading, and the care required illustrates the review's central argument. The independent variables and the dependent variable are both elicited from the same respondents through the same structured instrument. What the regression establishes is that officials who perceive AI audit tools as present and capable also perceive fraud detection as effective. This is a coherent and useful finding about professional belief, and it is well executed on its own terms. It is not, however, evidence that fraud detection rates changed, which would require procurement outcome data rather than practitioner perception. The study itself is transparent about its instrument; the risk lies in downstream citation, where "AI significantly strengthens procurement transparency" can detach from the design that produced it.

Abba et al. (2026) investigate AI-driven leadership models and organisational performance across religious and secular institutions. Their substantive finding is genuinely interesting and, notably, not technology-centred: secular institutions adopt more rapidly owing to performance-driven structures, while religious institutions display greater sensitivity to ethical questions and human-centred leadership traditions. The determinant of adoption is institutional value orientation rather than technical capacity. The authors conclude that AI-driven leadership functions best when balanced against human oversight and institutional context. The paper reasons from current scholarly discussion rather than from primary organisational performance data, and its conclusions are correspondingly framed as propositions.

Three studies evaluate artefacts rather than attitudes, and the contrast in what they report is instructive. Akintunde et al. (2026) implement a community-based missing-person identification system using FaceNet and OpenCV, combining face detection, 128-dimensional embedding extraction, database matching, and automated alerting. They report 94.2% average recognition accuracy with low false-positive rates and near real-time processing, and address privacy and controlled access as design requirements rather than afterthoughts. Adikwu et al. (2026) design and implement a blockchain-based voting system, reporting improved security through cryptographic authentication and vote immutability while identifying

scalability, integration cost, and voter education as unresolved obstacles. Suleiman et al. (2026) develop a Modified Prophet Method extending the standard decomposition framework with an explicit cyclical component, and benchmark it against Prophet, ARIMA, and exponential smoothing, reporting the lowest errors across RMSE (0.5259), MAE (0.4221), and residual variance (0.2789).

Ifeachor et al. (2026) sit between these groups and, in doing so, produce what may be the corpus's single most diagnostic finding. Reviewing control methods for robotics and autonomous systems in Nigeria and surveying 30 domain experts, they report that over 70% of Nigerian researchers are familiar with PID and MPC control, while practical application remains below 10%, attributing the gap to hardware limitations, unreliable power supply, absent local sensor production, weak university-industry linkage, and missing national standards. Here knowledge and deployment are measured separately, and they diverge by a factor of seven.

The pattern across these six studies is clear. Where the object of study is a technical artefact, researchers report performance against defined metrics. Where the object of study is technology inside an institution, researchers overwhelmingly report what practitioners believe about it. Only Ifeachor et al. measure both and expose the distance between them.

4. ADOPTION IN TEACHING, LEARNING, AND ASSESSMENT

Three studies address instructional technology, and they span the full methodological range visible in the corpus.

Mulekanle (2026) surveys 120 English language teachers in Lagos State secondary schools, reporting that teachers believe digital tools enhance student motivation, engagement, comprehension, and collaboration, and identifying multimedia presentations, educational software, online platforms, and digital assessment tools as most useful. The study simultaneously reports obstacles: inadequate infrastructure, insufficient teacher training, and unreliable internet connectivity. The finding is about teacher belief, and the paper is appropriately titled to say so.

Fahad (2026a) provides the corpus's methodological outlier and deserves proportionate attention. Investigating animation-based instruction in Bangladeshi primary EFL classrooms, the study employs a sequential explanatory mixed-methods design combining a cross-sectional multilevel survey with a quasi-experimental pretest-posttest component across 270 teachers, approximately 5,400 Grade III-V students, and 90 government primary schools, analysed through three-level multilevel structural equation modelling, latent profile analysis, and multilevel confirmatory factor analysis, supplemented by 30 semi-structured interviews.

The results repay attention. Latent profile analysis identified three teacher dispositions, Convergent Positive Adopters (38.3%), Cognitively Elevated Ambivalents (29.9%), and Convergent Reluctant Non-Adopters (31.8%), with markedly different integration frequencies. All tripartite attitude components predicted adoption intention ($R^2 = .583$), and pedagogical self-efficacy both moderated and mediated the attitude-adoption relationship. Critically, cross-level mediation indicated that 61% of the effect of teacher attitudinal profile on student achievement gain was transmitted through classroom integration intensity, with student effects of $|d| = 0.81$ to 1.23.

The qualitative component then does something the quantitative component alone could not: it reframes a substantial share of apparent non-adopters as efficacy-constrained rather than attitudinally resistant. Teachers coded as reluctant were frequently teachers who lacked the conditions to act. This is the single most consequential finding in the corpus, because it inverts the causal story that perception-based adoption research tends to imply. Where a survey would record negative disposition and recommend attitude

change, a design capable of distinguishing disposition from constraint finds structure.

Fahad (2026b) examines English language assessment policy against classroom practice in Dhaka secondary schools, reporting substantial divergence between policy requiring assessment across reading, writing, listening, and speaking, and practice concentrating almost entirely on reading and writing. The divergence is attributed to large class sizes, insufficient teacher training in communicative assessment, and limited multimedia resource availability. Though not an AI study, it belongs in this review because it demonstrates the same mechanism in a lower-technology register: stated intention and realised practice diverge, and the divergence is explained by capacity rather than by will.

Read together, these three studies describe a progression. Mulekanle establishes what teachers think. Fahad (2026a) establishes what teachers do, what students gain, and why the two come apart. Fahad (2026b) demonstrates that the gap between declared policy and enacted practice predates AI and will not be closed by it. The progression is a useful template for the field: perception research is a legitimate first stage, not a terminal one.

5. STRUCTURAL AND INFRASTRUCTURAL CONDITIONS

Two studies address conditions directly, and both point toward the same conclusion the domain studies reach incidentally.

Obasuyi (2026) advances the Digital Capability Transition Theory, conceptualising digital skills and financial literacy as both direct predictors of economic prosperity and mediating mechanisms through which socioeconomic status exerts influence, conditioned further by educational attainment and gender-based structural inequality. The framework is offered as testable via structural equation modelling. Its value to this review is theoretical: it names the mechanism by which structural resources convert into capability, and thereby supplies vocabulary for what the domain studies observe without theorising. When Ifeakor et al. (2026) find 70% familiarity and under 10% application, they are describing a failed capability transition. When Fahad (2026a) finds non-adopters who are efficacy-constrained rather than resistant, the same.

Kamkamba et al. (2026) synthesise global, African, and Nigerian evidence on big data analytics for predictive maintenance of urban infrastructure, finding that predictive maintenance is well established in developed economies while Nigeria relies predominantly on reactive maintenance, and identifying weak digital infrastructure, limited technical capacity, and fragmented data systems as the principal barriers. They propose a smart-city predictive maintenance framework.

What makes these barriers analytically significant is their repetition. Across the corpus, the constraints named are nearly interchangeable: inadequate infrastructure, insufficient training, unreliable connectivity (Mulekanle, 2026); hardware limitation, unreliable power, absent local production, weak university-industry linkage (Ifeakor et al., 2026); inadequate digital infrastructure, resistance to change, limited AI competency (Obboh et al., 2026); weak digital infrastructure, limited technical capacity, fragmented data (Kamkamba et al., 2026); insufficient training, limited multimedia resources (Fahad, 2026b); limited digital infrastructure (Onuku et al., 2026).

Six studies, six disciplines, one list. This uniformity is the review's second principal finding. When constraints converge this tightly across unrelated domains, they are unlikely to be domain-specific implementation problems. They are more plausibly a single structural condition manifesting through whichever technology is being examined. The methodological implication is direct: infrastructural capacity is functioning as an unmeasured moderator throughout this literature. It is reported qualitatively in discussion sections and excluded from the models.

6. SYNTHESIS AND RESEARCH AGENDA

Three findings emerge from reading these studies together rather than separately.

- **The Measurement Asymmetry.** Of the thirteen studies, three evaluate artefacts and report objective performance; two are conceptual; two are literature syntheses; five measure perception, attitude, or self-reported readiness; one measures both disposition and realised student outcome. The field can characterise technical capability and can characterise practitioner belief. It is thinnest precisely where policy demands most: whether deployment changes outcomes. This is not a criticism of the individual studies, most of which are candid about what they measure. It is an observation about aggregate composition, and about the citation risk that composition creates when perception findings are restated as effect findings by later authors.
- **The Disposition-constraint Confounds.** Perception instruments cannot distinguish an unwilling practitioner from a practitioner who lacks the conditions to act. Fahad (2026a) demonstrates this empirically: the qualitative stratum reclassified a substantial portion of apparent non-adopters as efficacy-constrained. Any adoption study relying on attitude measurement alone risks recommending attitude interventions where infrastructure investment is indicated. Given that the corpus is dominated by such studies, this confound is likely widespread and systematically directional, it will tend to locate the problem in people rather than in provision.
- **Infrastructure as Unmeasured Moderator.** The convergence of reported constraints across six unrelated domains indicates a common underlying condition. Treating it as background rather than variable means the corpus cannot estimate how much of the observed variance in adoption is attributable to it.

These findings support a staged agenda.

- **Stage one: instrument discipline.** Adoption studies should state explicitly whether the dependent variable is perceived or realised, and titles and abstracts should reflect that distinction. Mulekanle (2026) models this well by naming perceptions in the title. Where independent and dependent variables derive from a single instrument administered to a single respondent group, common-method variance should be acknowledged and, where possible, tested.
- **Stage two: measure the gap.** Ifeachor et al. (2026) offer a replicable template, measure knowledge and deployment separately, and report the distance. This is inexpensive relative to its diagnostic value and applicable across every domain in this corpus.
- **Stage three: model infrastructure explicitly.** Power reliability, connectivity, device availability, and training exposure should enter models as measured covariates. The Digital Capability Transition Theory (Obasuyi, 2026) supplies a framework for specifying these relationships; it awaits empirical testing.
- **Stage four: outcome evaluation.** The corpus contains one design linking technology integration to measured learning gain. Extending such designs to professional domains, linking audit analytics deployment to procurement outcome data, for instance, rather than to auditor perception, is the field's most valuable next contribution.

7. CONCLUSION

The studies reviewed here document a technological transition in progress across accounting, auditing, leadership, pedagogy, engineering, urban management, and public administration. They establish that practitioners across these fields anticipate substantial benefit, that technical artefacts perform well under evaluation, and that a consistent set of structural constraints separates the former from the latter.

What they do not yet establish, with one instructive exception, is whether adoption changes outcomes. Recognising this is not a criticism of an emerging literature but a description of its stage. Fields characterise conditions before they test effects, and the corpus is doing exactly that. The value of reading it across disciplines is that the transition point becomes visible: enough is now known about what practitioners believe and what artefacts can do to begin asking what deployment achieves. The most consequential finding in the corpus, that apparent resistance frequently turns out to be constraint, suggests where that inquiry should start, and cautions against a research programme that would otherwise diagnose reluctance where it should diagnose scarcity.

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