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Conceptual Development of Artificial Intelligence Acceptance Among Employees of Open and Distance Learning Higher Education Institutions in Malaysia

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ABSTRACT: Institutional employees are at the heart of organisational transformation through the integration of artificial intelligence (AI) in higher education systems. Malaysia's digitalisation transformation is driven by national imperatives, yet the workforce in Open and Distance Learning (ODL) higher education institutions, particularly administrative, technical and support staff, remains insufficiently explored in AI acceptance research. This conceptual paper addresses this gap by proposing an integrated framework grounded in the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT). The model conceptualises Perceived Usefulness, Perceived Ease of Use, Attitude Toward AI and Organisational Support as antecedents of Intention to Accept AI, which in turn influences AI Acceptance. Theoretical propositions are developed to guide a quantitative empirical agenda. The paper contributes a contextually grounded model specific to the Malaysian ODL environment and identifies key research gaps and implications for theory, future research, and institutional practice.

KEYWORDS: acceptance of artificial intelligence, Technology Acceptance Model, open and distance learning, Malaysia, organisational support

1. INTRODUCTION

Artificial intelligence has been progressively embedded in higher education systems over the past decade, moving from experimental innovation to operational expectation through adaptive learning platforms, intelligent tutoring systems, AI-powered administrative operations, and automated student support services. Yet a stubborn contradiction persists: the pace at which institutions invest in AI often outstrips the organisational readiness of the human workforce that must operationalise these technologies (Crompton & Burke, 2023; Jöhnk et al., 2021). This contradiction is particularly salient in Open and Distance Learning (ODL) higher education institutions, where digital infrastructure is constitutive to the delivery and management of education. ODL institutions depend on asynchronous learning resources, digital platforms, and learner-centred pedagogies that presuppose high levels of technological integration, making AI use in these settings functionally imperative rather than optional (Al-Huwail et al., 2025; Güneyli et al., 2024).

In Malaysia, this challenge is complicated by an ambitious national agenda. Adopting AI is a strategic priority for workforce readiness and economic competitiveness, as outlined in the Malaysia Digital Economy Blueprint (2021), with institutional uptake further signalled by initiatives such as the National Artificial Intelligence Framework. However, macro-level policy intention does not automatically translate to local-level adoption; the terrain between strategic vision and the daily realities of academic and administrative staff remains complex and only partially mapped by existing research. Malaysian higher education institutions, including ODL providers, serve geographically dispersed and multilingual learner populations. The unique educational landscape in Malaysia, characterized by varying levels of digital literacy and regional disparities in technological access, shapes technology acceptance patterns differently from conventional Western contexts (Lakulu et al., 2025; Mat Yusoff et al., 2025).

This conceptual inquiry is motivated by three interrelated problems. First, the existing literature on AI acceptance has been overwhelmingly biased towards students and teaching faculty, rendering administrative, technical, and support staff, the group most directly affected by AI-driven workflow automation and largely invisible in empirical research (Nikolic et al., 2024) despite these staff being central to the digital systems through which AI tools are deployed. Second, dominant frameworks such as TAM (Davis, 1989) and UTAUT (Venkatesh et al., 2003) have been used predominantly in Western and student-centred contexts, raising questions about their contextual validity in Southeast Asian, ODL-specific, and

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multi-role professional settings; emerging Malaysian evidence suggests user satisfaction may be a stronger predictor of AI adoption than perceived usefulness, contrary to Western findings (Mat Yusoff et al., 2025), indicating a need for contextual recalibration. Third, the mechanisms through which institutional support structures enable successful implementation in resource-constrained ODL higher education environments remain inadequately examined. Although Uren and Edwards (2023) and Cortellazzo et al. (2019) have highlighted the significance of organisational support for technology adoption generally, this has not been systematically extended to ODL higher education contexts, where employees often operate with limited physical oversight and variable technical infrastructure.

LITERATURE REVIEW

Underpinning Theory

The Technology Acceptance Model (TAM; Davis, 1989) remains the most widely applied framework for understanding technology acceptance behaviour. TAM posits that users' attitudes are shaped by two core cognitive perceptions: Perceived Usefulness (PU), the degree to which a person believes a system will enhance job performance, and Perceived Ease of Use (PEU), the extent to which a system is perceived as effortless. Together, these perceptions influence behavioural intention and actual use, with PU consistently emerging as the strongest determinant (Davis, 1989). While TAM's popularity reflects its empirical tractability and parsimony, its original design does not account for the broader organisational and environmental factors critical to AI contexts. For instance, Islam et al. (2023) demonstrated that organisational factors outside TAM's original scope, such as top management support and technology competency, significantly influence AI adoption alongside perceived usefulness. Furthermore, Uren and Edwards (2023) highlighted that emotional resistance to AI, rooted in user fears regarding unemployment and shifting professional roles, necessitates a broader socio-technical readiness approach that purely cognitive models fail to capture. The Unified Theory of Acceptance and Use of Technology (UTAUT; Venkatesh et al., 2003) synthesises eight earlier theories into four core constructs: Performance Expectancy (corresponding to PU), Effort Expectancy (corresponding to PEU), Social Influence, and Facilitating Conditions, moderated by age, gender, experience, and voluntariness of use. UTAUT's contribution to the present framework is threefold: first, it explicitly foregrounds organisational support as a structural enabler of technology adoption, which is operationalised in this study as a core construct equivalent to Facilitating Conditions; second, it recognises social influence as a distinct determinant of behavioural intention, capturing peer and leadership dynamics that TAM omits; and third, it provides a comprehensive synthesis of prior acceptance research that grounds the present theoretical integration of cognitive, social, and institutional factors.

Relationship between Perceived Usefulness, Intention & Acceptance

Perceived usefulness which is the degree to which employees believe a technology will enhance their job performance and work efficiency, is widely regarded as one of the strongest single drivers of behavioral intention, which in turn carries through into actual acceptance and sustained use of workplace technologies (Hasim, 2026). Alotaibi (2026) reinforces this pathway through a meta-analytic review, finding that perceived usefulness outpredicts even perceived ease of use when it comes to employees' acceptance of generative AI tools in the workplace. Intention is the pivotal point between perception and behaviour; employees who observe concrete performance benefits, for example, a lighter workload, fewer mistakes, or quicker output, are more inclined to develop stronger intentions to use a system, and those intentions are more apt to convert into continued, habitual use (Al-Adwan et al., 2025). This pattern is also seen outside the usual AI applications where Abouelenein et al. (2026) found perceived usefulness to influence both attitudes and behavioral intentions towards blockchain adoption among academic and administrative staff, and Slijepčević et al. (2026) demonstrated it through both direct and intention-mediated pathways in higher education AI adoption. Taken together, this body of work positions perceived usefulness less as a background factor and more as the trigger point of the acceptance process: once employees recognise a clear benefit to their role, their outcomes, or their institution, they tend to move relatively quickly from favourable intention to actual use. *Therefore, the following hypotheses were proposed for this study:*

H1: There is a relationship between perceived usefulness and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H2: There is a relationship between perceived usefulness and intention towards acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H3: There is a mediating effect of intention on the relationship between perceived usefulness and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

Relationship between Perceived Ease of Use, Intention & Acceptance

Perceived ease of use which is the degree to which employees believe a technology is straightforward and effortless to operate, shapes behavioral intention in much the same way, and through it, the eventual acceptance and continued use of workplace technologies (Chen et al., 2025). Tan et al. (2024) verified this pathway among university personnel and reported that user-friendliness significantly mediated the relationship between service quality and positive perceptions of hybrid learning settings, such that staff who perceived systems to be intuitive had greater intentions to use them. Once again, intention plays an intermediary role as seen in Abouelenein et al. (2026) where both academic and administrative staff who perceived a system to be easy to use were more likely to translate that ease of use into a regular pattern of use. Karan and Chakma (2026) bring in a new dimension by demonstrating that usability affects both perceptions and behavioral intentions of higher education personnel towards AI acceptance. This is further advanced by AlAjmi et al. (2024) who determine that usability, along with trust and perceived personal impact, collectively predict AI adoption intentions among faculty and students. When considered collectively, these findings indicate that perceived ease of use seldom functions independently, as it typically influences intention, reducing the psychological burden of adoption to a degree that employees are inclined to embrace a new system in their routine academic and administrative tasks. *Thus, the following hypotheses were proposed for this study:*

H4:There is a relationship between perceived ease of use and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

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H5: There is a relationship between perceived ease of use and intention towards acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H6: There is a mediating effect of intention on the relationship between perceived ease of use and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

Relationship between Attitude, Intention & Acceptance

Attitude which refers to an employee's overall positive or negative evaluation of a given technology, tends to precede and shape intention, which in turn carries through into actual adoption and sustained use of workplace innovations (Xu, 2025). Karan and Chakma (2026) found that attitude mediates the relationship between perceived behavioral factors and AI acceptance among university personnel, and that more positive attitudes result in a significantly higher intention to adopt. A similar pattern is observed in Almogren et al.'s (2024) study, whereby individuals with positive emotional and cognitive assessments of a technology were more likely to form intentions to use it, leading to habitual adoption. Linus and Aladesusi (2025) view attitude as a direct determinant of behavioral intention concerning online learning tools among higher education personnel, while Tasel-Jurkovic and Altinbasak-Farina (2024) regard attitude as an independent mediating factor in the intention-formation process. What these studies converge on is that attitude functions as more than a passive backdrop to acceptance decisions because it actively shapes how willing staff are to commit to a technology, particularly when they see it as compatible with their professional responsibilities and institutional role. *Hence, the following hypotheses were proposed for this study:*

H7: There is a relationship between attitude and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H8: There is a relationship between attitude and intention towards acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H9: There is a mediating effect of intention on the relationship between attitude and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

Relationship between Organisational Support, Intention & Acceptance

The relationship between organizational support, intention, and acceptance is fundamental to understanding technology adoption among employees in higher education, as extensively documented across multiple empirical studies. Organizational support, defined as the degree to which employees perceive that their institution values their contributions, provides adequate resources, and offers the necessary training and technical assistance for technology implementation, serves as a critical precursor to behavioral intention, which subsequently drives actual acceptance and sustained usage of workplace innovations (Yussof et al., 2025). This causal pathway has been consistently validated across various higher education contexts, with Sungkawaningtyas et al. (2025) confirming that perceived organizational support significantly enhances employee acceptance of change by fostering positive intentions and psychological engagement, demonstrating that staff members who feel supported by their institutions are substantially more likely to embrace new technological initiatives.

The intention once more plays a significant role in mediation here. Scholarly and administrative personnel who obtain tangible institutional support, including leadership encouragement, specialized training, and adaptive technical assistance, are likely to develop more robust usage intentions that translate into habitual adoption (Gathmyr et al., 2025). Wut & al. (2025) identify a corresponding mechanism among educators, wherein institutional backing diminished perceived danger and fostered confidence in utilizing AI techniques, whereas Naseer et al. (2025) discovered that organizational support served as a safeguard against opposition and intentions to leave. Across this literature, organisational support looks less like a background condition and more like an active lever: when staff feel genuinely backed by adequate resources, training, and leadership commitment, they are markedly more willing to carry new technologies into their day-to-day pedagogical, administrative, and operational work. *Therefore, the following hypotheses were proposed for this study:*

H10: There is a relationship between organisational support and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H11: There is a relationship between organisational support and intention towards acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H12:There is a relationship between intention and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

H13:There is a mediating effect of intention on the relationship between organisational support and acceptance of artificial intelligence among employees in Open and Distance Learning (ODL) higher education institutions.

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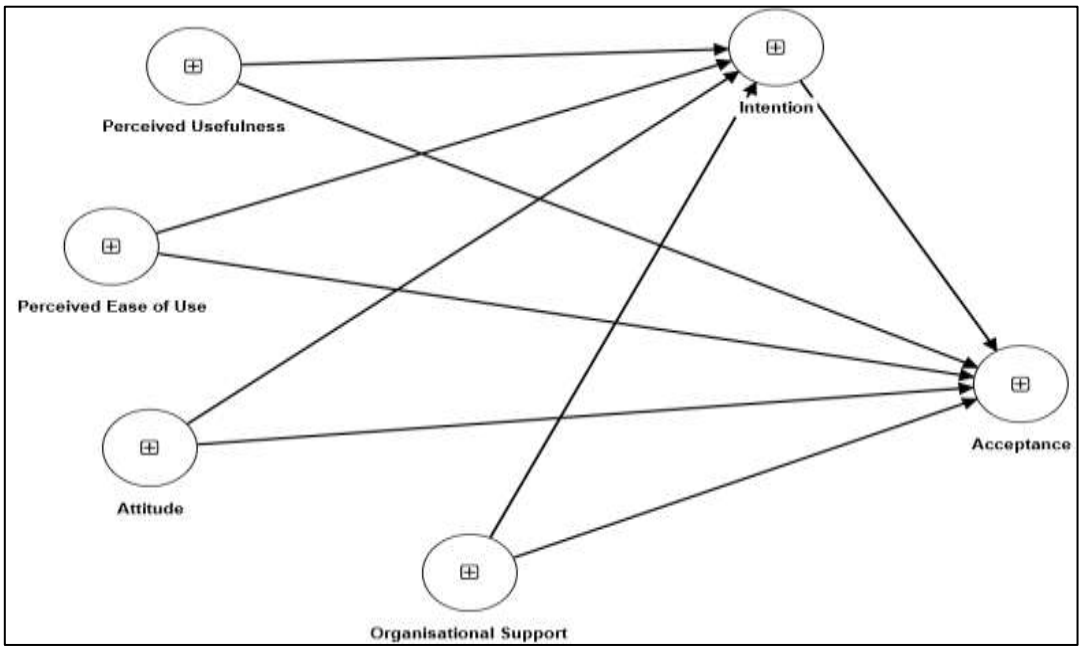


Figure 1: Research Framework

METHODOLOGY

The methodology adopts a cross-sectional, quantitative research approach to investigate the causal-effect relationships between the determinants and consequences of artificial intelligence (AI) adoption within Malaysian Open and Distance Learning (ODL) higher education institutions, utilizing primary data collected through a structured survey questionnaire. The target population comprises academic staff, administrative officers, technical personnel, and middle-to-senior management at three selected ODL universities, namely Open University Malaysia (OUM), Asia e University (AeU), and Wawasan Open University (WOU), who are deliberately chosen for their professional roles that inherently intersect with digital innovation and AI tools. To ensure the selection of information-rich cases capable of providing deep insights into the phenomenon, a purposive sampling technique is employed, prioritizing participants with direct exposure to AI systems or decision-making authority over technology integration, thereby favoring theoretical generalizability over statistical representativeness. The survey instrument will be designed based on validated scales drawn from existing literature to measure the relevant constructs, and prior to full deployment, a pilot test will be conducted to assess clarity, reliability, and validity. Following data collection, the analysis will be executed using a two-step approach with Structural Equation Modelling (SEM) as the primary analytical technique, facilitated through SPSS for preliminary descriptive statistics and data screening, and SmartPLS 4 for the assessment of the measurement model, which involves evaluating factor loadings, composite reliability, and convergent and discriminant validity, as well as the structural model, which involves testing hypothesized path coefficients, effect sizes, and predictive relevance via bootstrapping procedures. This comprehensive methodological framework ensures a rigorous, systematic, and empirically sound investigation capable of yielding robust and generalizable findings for the ODL context in Malaysia.

DECLARATION

This conceptual manuscript presents a proposed methodology for future empirical validation and contains no primary human-participant data; therefore, ethics approval, informed consent, and data availability are not applicable. The authors declare no competing interests or external funding and confirm the manuscript's originality and approval by all authors.

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