ISSN 1799-2591 (print); ISSN 2053-0692 (online)
Theory and Practice in Language Studies, Vol. 16, No. 1, pp. 292-303, January 2026
DOI: https://doi.org/10.17507/tpls.1601.32

Requirements for Employing Artificial Intelligence Applications in English Language Education at Universities: Perspectives of Faculty Members

Tahani F. Abu Jraiban*
Faculty of Arts, Department of Basic Sciences (Humanities and Scientific), Al-Zaytoonah University of Jordan, Jordan

Yousef M. Sawalha
Journalist and Editorial Translator, United Arab Emirates

Ruba Ahmad Al-Shahwan
Faculty of Arts, Department of Basic Sciences (Humanities and Scientific), Al-Zaytoonah University of Jordan, Jordan

Rawan A. Alkhabayba
Faculty of Arts, Department of Basic Sciences, Al-Zaytoonah University of Jordan, Jordan

***Abstract*—This study investigates the essential conditions for the successful integration of artificial intelligence (AI) applications into English language education at the university level, as perceived by academic staff. Employing a descriptive survey design, a structured questionnaire comprising 24 items was developed and categorized into three core dimensions: organizational, human, and technical requirements. The instrument was distributed to a purposively selected cohort of 255 faculty members from Al-Zaytoonah University of Jordan. Results indicated that faculty members consistently rated all three categories of AI integration requirements as highly important. Moreover, statistical analysis revealed no significant differences in perceptions based on gender or academic discipline (humanities versus sciences). In light of these findings, the study advocates for proactive engagement by senior officials within the Ministry of Higher Education and Scientific Research to advance the institutionalization of AI-based innovations across university settings.**

***Index Terms*—AI integration requirements, educational technology, English language instruction, higher education, faculty perspectives**

I. Introduction

In simple terms, AI systems can be defined as those which enhance and further advanced means of computation with self and autonomous learning, organization, and adaptability. Systems like these, therefore, correspond to a certain model which, in the broadest sense, has transformed technology into the key driver of change in this century (Al-Atoum, 2023).

The integration of various machine learning algorithms alongside different neural network models has significantly improved systems in pattern recognition, prediction, and in performing advanced operations on massive datasets.

Such abilities are now being employed to disrupt the foundations of society, with education being the primary sector to serve as a representative of such disruptions.

The education sector is considered liable to implement AI technologies to maintain its pedagogical relevance and institutional legitimacy in a knowledge-based economy amidst the present information revolution.

Ammar and Matoussi (2022) argue that AI innovation transforms higher education by providing tailored, data-based recommendations to align with institutional objectives and accelerate pedagogical transformation.

Similarly, Al-Mahdi (2021) emphasizes that meaningful curricular reform particularly in adapting academic programs to meet evolving labor market requirements requires integrating advanced technologies such as AI.

This necessitates a critical examination of AI's conceptual dimensions, functional applications, and implementation pathways to ensure coherence with educational development agendas.

Recent empirical work delineates five major domains of AI utility in education: institutional management, teacher support and enhancement, dynamic and adaptive assessment, skill cultivation for professional readiness, and facilitation of lifelong learning (Darwish & Al-Laithi, 2022). In parallel, global policy organizations such as UNESCO advocate for

* Corresponding Author. Email: 3249@zuj.edu.jo

the ethical incorporation of AI into education as a means of promoting human rights and sustainable development (Al-Yagzi, 2019). Expanding this discourse, Al-Atal (2021) argues that AI systems offer cognitive capabilities that exceed conventional instruction, particularly in diagnosing learner difficulties and refining educational interventions.

However, despite its promise, AI's integration in educational systems remains limited.

Structural and cultural resistance to shifting from face-to-face instruction and standardized assessments continues to inhibit widespread adoption (Mukhtar, 2022). Compounding this is the scarcity of professionals equipped with the technical expertise necessary to design, maintain, and scale intelligent educational systems. Nonetheless, universities increasingly explore AI-supported instruction and assessment models (Al-Atoum, 2023). Yet, as Holmes (2023) cautions, redefining instructional roles where teachers assume administrative functions and students engage in AI-guided autonomous learning requires strategic planning and institutional support. Definitional clarity remains central to AI's educational implementation. In this study, AI is defined as an autonomous computational system capable of mimicking and, in some cases, surpassing human cognitive functions, including reasoning, learning, and decision-making (Al-Atoum, 2023; Abu Zaqa, 2018; Al-Dahshan, 2019).

The core functional properties of artificial intelligence (AI) encompass three main dimensions. First, inference refers to logic-based decision-making that integrates multimodal inputs with structured knowledge repositories. Second, machine learning captures the data-driven processes through which AI systems perform classification, pattern recognition, and predictive modeling. Third, knowledge representation involves structuring meaning by linking contexts with outcomes and generating outputs that are both interpretable and actionable (Wang, 2020; Fryer, 2020).

For an AI-based solution to be effective in higher education institutions, multiple requirements would have to be fulfilled. To begin with, an AI solution operating in an educational institution would have to meet specific privileged protocols and ethical standards, thus requiring an adequate organizational and legal framework. Secondly, the teaching staff and other stakeholders would have to be sufficiently trained in the use of AI tools. Thirdly, appropriate technical infrastructure along with supporting staff would be required for integration and ongoing support, and lastly, dependable funding would be required for the development, implementation, and continuous improvement of AI solutions (Chan, 2023).

In other words, AI's pedagogical implications within higher education are manifold. Learners can actively participate in their study, since AIs personalize learning by controlling content delivery according to individual learner profiles, and introduce other interactive readings of information.

Key instructional applications of artificial intelligence (AI) in education can be identified across several domains. Intelligent Tutoring Systems (ITS) generate adaptive learning pathways by leveraging diagnostic feedback and learner analytics. Adaptive Learning Environments dynamically adjust instructional content in real time through algorithmic analysis of learner responses. Educational Robots enhance engagement by simulating natural language interactions and supporting conversational learning experiences. Finally, Expert Systems emulate human expertise by drawing on structured knowledge bases and decision rules, thereby facilitating problem-solving and decision-making within educational contexts.

AI-enabled tools can be applied in multiple contexts, such as tutoring services, conducting client interactions in Filipino or English, or employing hybrid approaches like one-to-one sessions. AI-enabled tools, like conversational robots, allow students to practice dialogues in real time with simulated human partners (Al-Atoum, 2023).

Platforms of this nature remove some of the traditional barriers to education, including an instructor's availability, expenditure, and learner's anxiety. At the same time, they offer flexible, pressure-free, and highly engaging learning environments. With the spread of mobile technologies, such programs are changing the language learning framework, as they provide constant access to excellent language models.

II. Literature Review

The use of Artificial Intelligence (Al) in English language courses at tertiary education levels has changed the scope of learning. Students now have new modalities of associating with the course material, instructors, and other students. A notable advancement within this scope is the Al-powered, real-time, speech-based systems, which enable the learner to converse, also replicating the nuances of human conversation (cf. Al-Atoum, 2023). The systems gain additional importance with the now widespread mobile technologies, which facilitate anywhere and anytime access to Al-powered conversation and language practice systems.

They allow message sending based on the subject, feeding real time feedback in immersion language environments that adapt to the user's proficiency level. Such technologies go beyond the norms of learning geography which involve personally fixed-time classes or expensive one-on-one tutoring, some of which may pose as a hurdle to a large number or intimidating to users with very little self-confidence or language experience.

Alarming for the purposes of foreign language instruction, these technologies separate to a great extent from the existing models of language learning, such as predefined schedule one-on-one or group shoddy classroom coaching. Such models might be not reachable to many or frightening to users with little self-esteem or interaction with the language.

The technologies mentioned previously have been further developed to enable learners to practice the language with contextual feedback and immerse themselves in language environments fine-tuned to their proficiency levels. Yin (2021)

and Holmes (2023) further note that AI-driven English language learning solutions for tertiary institutions have been advanced to address a wider range of learner and teaching needs. These also comprise mobile apps, smart learning platforms, and chatbots that make use of natural language processing and speech recognition, and more.

To understand the benefits of new AI-driven language learning, it is best to look at a few examples. They all cast a slightly different light on the use of adaptive technologies in education. Chat Bot not only tests the English proficiency of the users but also modifies the flow of the conversation to provide gradual and sustained learning. Duolingo has modules for vocabulary, grammar, and even pronunciation, and like other self-taught systems, it has its unique gamified approach. Moreover, it has an advanced algorithm that analyses performance for targeted lesson planning and skill reinforcement on a daily basis. In the same vein, Andy serves as a conversational tutor, offering systematic grammar instruction, tests, and even immediate corrections to improve grammar learning during interactive speaking sessions.

With its reliance on AI, the Mondly app stands out, as it offers AI-driven pronunciation modeling and error correction, enabling learners to engage in spoken English practice with digital chat partners. The Improve English app, on the other hand, is designed for second language users who are preparing for international exams such as TOEFL or GRE. With its use of AI analytics, the app is able to determine strengths and weaknesses and generate custom practice tasks. Lastly, English Sentence Master uses a puzzle-based system that requires users to put mixed-up words into proper sentences within a set time limit, thus deepening their grasp of grammar and syntax. Taken together, these apps demonstrate the new direction in education which is personalized learning; here AI customizes teaching materials, monitors the student's activity and continually updates suggestions. The increasing use of such tools highlights the evolving perception of AI in education from a gimmick to an essential feature of modern teaching.

A. Thematic Insights From Prior Research

The global momentum around AI in education has led to a wide array of research on its use, benefits, and challenges. Because the research is done in many different countries and types of institutions, it provides a broad evidence base that is useful to the inquiry at hand.

In the case of Jordanian universities, Abu Muqaddam (2024) analyzed the relationship between AI tools and self-directed study in a graduate student cohort of 452. Utilizing a descriptive correlational methodology, the research displayed a statistically significant positive correlation, supporting the idea that AI fosters autonomy and learner engagement.

Abdulghani et al. (2024) conducted research at Umm Al-Qura University to gather faculty perceptions on requirements for the integration of AI. Regardless of the college type or the participants' academic ranks, their data analysis surfaced unanimous agreement on the effective organizational, technical, and human resource requirements for the implementation of AI. Similarly, Al-Atoum (2023) conducted a study using surveys and document analysis to investigate the necessary process and infrastructural frameworks for the implementation of AI in tertiary education. The study highlighted the hardware readiness, secure data networks, and institutional support to nurture the AI-innovation culture as the often-addressed requirements.

In the wide frame, Al-Maliki (2023) synthesized 20 articles on the strategic dimensions of AI. In these articles, the benefits included improved instructional delivery, enhanced tracking of student's performance, and research innovation. The challenges seen were institutional inertia and digital illiteracy. Complementing these findings, Ofosu-Ampong (2024) studies the acceptability and perceptions faculty have on AI and university teaching. Compared to his other findings, this study shows the opposite, whereby the lecturers understand the use of AI, but institutional support, professional development, and governance policies are crucial for the successful integration of AI.

As for the U.S., Kim et al. (2025) offered the latest insight with their survey of 76 faculty members and 982 students at a large public university, focusing on perceptions of generative AI. Their findings indicated no notable attitudinal differences between students and faculty, highlighting the universal academic consensus on the need for technical infrastructure and professional development.

A number of studies conducted in Arab and Southeast Asian settings shed light on the specific policies related to the use of AI in institutions of higher learning. For instance, Al-Masri and Al-Tarawneh (2021) investigated the impact of AI on the Jordanian institutions' productivity, measured in terms of teaching, research, community service, and administration. Their study revealed moderate levels of adoption and, where progress existed, it was not balanced across the different sectors. Likewise, Al-Muqayti (2022) used a correlational survey design to examine the impact of AI use on the perception of university performance. Although human and technical resources were somewhat adequate, marked imbalances were observed among the different faculties, with the hard sciences showing greater preparedness than the soft sciences.

In Saudi Arabia, Al-Bashir (2021) developed a two-dimensional framework by employing an expert-based method that included structured interviews and questionnaires. The first dimension captured enabling factors, which were organizational, technical, and human, while the second dimension captured expected barriers such as change resistance and policy constraints. The study found that there was strong agreement about the foundational requirements that were necessary for successful AI integration. Broadening the focus within the region, Asirit and Hua (2023) conducted an empirical survey of tertiary students in the Philippines. Their study confirmed that there is a strong recognition of the importance of AI integration, with institutional support, infrastructure development, and capacity-building initiatives being key factors shaping readiness and utilization.

B. Methodological Convergence and Gaps in Literature

When looking at these studies, the first thing that stands out is the focus on descriptive and correlational survey designs, which further highlights the exploratory stage of this field (e.g., Abu Muqaddam, 2024; Al-Atoum, 2023). Although this enriches our understanding of the topic for a specific point in time, it also points to the absence of experimental or longitudinal studies, which are vital for establishing cause-and-effect relationships and determining whether findings can be applied on a larger scale.

In addition, whereas a number of studies investigate institutional preparedness or the general implementation of AI in higher education, there's a striking lack of research focusing on the use of AI in specific subjects, and more so in the area of English language teaching. This limited scope is even more glaring when there's little to no focus on the detailed dynamics of how AI influences different aspects of language learning, learner anxiety, or even socio-cultural challenges in the context of EFL/ESL environments.

The present study responds to this gap by focusing on faculty perceptions of the structural, technical, and human requirements for integrating AI into university-level English instruction. It distinguishes itself by blending theoretical insights with empirical data to create a discipline-specific framework that has both local relevance and global implications.

C. Theoretical Underpinnings and Conceptual Direction

While the majority of studies analyzed rely upon empirical methodologies, there is growing recognition that AI education research needs an equally strong theoretical base to be given credence. The greater ones among the theoretical frameworks would be the Technology Acceptance Model (TAM), which relates to user engagement with perceived usefulness and ease of use, and the TPACK framework, which addresses the interplay between technological, pedagogical, and content knowledge. Integrating such theories would help future research transcend descriptive accounts and contribute to predictive modeling and intervention design.

D. Synthesis and Scholarly Contribution

In summary, the reviewed literature confirms that while the higher education sector acknowledges the value of AI, full-scale adoption remains constrained by infrastructural, pedagogical, and administrative challenges. Notably, the specific context of English language instruction has not received adequate scholarly attention, especially from the perspective of university faculty who are tasked with implementation.

By concentrating on this intersection AI applications and English language teaching this study contributes an original, context-sensitive perspective to the discourse on AI in education. Its findings are expected to inform institutional policies, professional development programs, and AI tool design tailored to the linguistic and cognitive demands of English language learners.

E. Research Problem

Rapid advances in digital technologies have redefined how knowledge is produced, delivered, and consumed, compelling educational institutions particularly those in developing regions to reconsider their instructional and evaluative practices. In Jordan, this digital transformation has catalyzed increasing investment in artificial intelligence (AI) as a mechanism for enhancing educational delivery and institutional responsiveness (Abu Muqaddam, 2024).

Multiple empirical investigations have emphasized the pivotal role of AI in reshaping higher education. For Yin (2021), AI had the long-term potential of augmenting teaching practices through the automation and enhancement of teaching tools. Fryer (2020) also pointed out that assessment with AI-assisted systems not only fosters differentiated learning, but also enhances academic performance through real-time feedback and personalized scaffolding.

Given these developments, Shabaan (2021) advocated for the universities to reassess and realign their curricular programs as part of a wider strategy of digital transformation. Abd Al-Salam (2021) argues that successful integration of AI needs to align with the preparedness of institutions with respect to three main dimensions: infrastructure, policy, and human capital. Despite increasing scholarly consensus on AI's relevance to education, significant knowledge gaps persist particularly in subject-specific domains such as English language instruction. Drawing on the researcher's own professional experience in language education, and observations of both students' linguistic struggles and faculty members' challenges in delivering effective instruction, this study emerges as a timely response.

Its primary aim is to determine what organizational, technical, and human requirements must be met to facilitate meaningful AI integration into English language education at the university level.

F. Research Questions

This study seeks to address the following research questions:

1. What are the perceived requirements for integrating artificial intelligence applications into English language instruction at universities, according to faculty members?
2. Are there statistically significant differences in these perceptions based on gender and college type (i.e., humanities vs. sciences)?

G. Significance of the Study

(a). Theoretical Significance

This study theoretically contributes to an extended discussion on AI adoption in educational contexts through the provision of evidence, framed in the context of a developing nation. It fits with national strategies, e.g. Jordan's Vision 2025, which states that the integration of advanced technologies in the different sectors of society shall include education.

This research contributes theoretically to a broader debate on the adoption of artificial intelligence in educational contexts by generating evidence in the context of a developing country. It fits with the national strategies like that of Jordan's Vision 2025, which mandates the inclusion of high-tech innovations across sectors of society, particularly education.

Moreover, it may serve as a foundational reference for future research on the pedagogical, infrastructural, and policy implications of AI in higher education.

(b). Practical Significance

From a practical perspective, the study responds to pressing institutional needs for empirical evidence to guide the formulation of AI implementation strategies. The findings are expected to assist university administrators in making informed decisions regarding resource allocation, infrastructure development, and professional training initiatives. They also provide valuable insights for curriculum designers and instructional technologists, enabling them to embed AI components more effectively into educational programs. In addition, the results support faculty developers in creating AI literacy programs specifically tailored to the needs of language educators, thereby fostering more sustainable and context-relevant integration of AI into higher education.

H. Definition of Terms

To ensure conceptual clarity, several key terms are defined both in light of existing literature and in relation to their operational application within this study.

Employment is conceptually defined as “an individual’s awareness and interaction with their environment, encompassing both tangible experiences and psychological constructs such as thoughts and emotions” (Mishal & Al-Eid, 2023, p. 16). Operationally, it refers to the degree to which faculty members at Al-Zaytoonah University of Jordan utilize AI-related resources and strategies in their instructional practices, as measured by their responses to the study’s validated questionnaire.

Artificial Intelligence (AI) is conceptually described as “the emulation of human cognitive processes including reasoning, decision-making, and learning by machines and systems operating in dynamic contexts” (Al-Ahmadi & Al-Qahtani, 2023, p. 18). For the purposes of this study, AI refers specifically to educational technologies and software designed to simulate human cognition in language instruction, particularly in tasks such as feedback delivery, adaptive testing, and conversational modeling.

AI Requirements are conceptually defined as “the set of human, technical, financial, and organizational preconditions necessary for deploying AI systems in educational environments” (Al-Bashir, 2021, p. 36). Operationally, this term denotes the organizational, technical, and human competencies that faculty perceive as necessary for successful AI adoption in English language teaching at Al-Zaytoonah University.

I. Delimitations of the Study

To establish a focused scope, this study is subject to several delimitations. With respect to subject delimitation, the investigation concentrates exclusively on the perceived requirements for AI integration in university-level English language instruction, thereby excluding other subject areas. Geographically, the study is confined to Al-Zaytoonah University of Jordan, and its findings may not be directly generalizable to other institutions without further comparative research. In terms of temporal scope, data were collected during the second semester of the 2023–2024 academic year, and any subsequent technological or institutional developments are not reflected in the analysis. Regarding human delimitations, the study includes only current faculty members at Al-Zaytoonah University, excluding the perspectives of students, administrators, or technical staff. Finally, instrument-based limitations apply, as the data collection relied on a questionnaire that, while validated for reliability and content accuracy, remains subject to the inherent constraints of self-reported data and Likert-scale-based measures.

III. Methodology

A. Research Design

This study employed a descriptive survey design, selected for its suitability in gathering and analyzing quantitative data reflecting the views of a defined population (Creswell, 2014). Given the study’s aim to explore the requirements for implementing artificial intelligence (AI) in English language education from the perspective of university faculty this design was appropriate for capturing prevailing perceptions across multiple institutional dimensions.

B. Population and Sampling

The studious population consists of all faculty members who were hired by Al-Zaytoonah University of Jordan, that is entirely within the academic year of 2023-2024, which according to official records from the university, adds up to a total of 741 individuals.

Statistical calculation methods in accordance with the guidelines of the American Educational Research Association were therefore used to determine a proper sample size.

For a population of 741, the recommended minimum sample size is approximately 253 respondents to achieve a confidence level of 95% with a ±5% margin of error for sample surveys. According to strong sample representation, thus, 269 questionnaires were sent out, of which 259 were collected, 4 of them were incomplete, leaving a total number of 255 responses for analysis.

TABLE 1
THE DEMOGRAPHIC DISTRIBUTION OF PARTICIPANTS BY GENDER AND ACADEMIC DISCIPLINE

Variable	Category	Frequency	Percentage
Gender	Male	169	66%
	Female	86	34%
College Type	Humanities	124	49%
	Sciences	131	51%

C. Instrumentation

A structured questionnaire was developed to collect data on faculty perceptions of the requirements for AI implementation in English language instruction. The instrument was informed by a comprehensive review of relevant literature and adapted from previously validated tools in studies such as those by Abu Muqaddam (2024) and Al-Bashir (2021). To ensure contextual relevance and content validity, the draft version was refined through consultation with experts in educational technology and measurement. The initial version contained 36 items; however, following expert review and pilot testing, the questionnaire was streamlined to 24 items. These were organized into three domains: Human Requirements (8 items), Organizational Requirements (8 items), and Technical Requirements (8 items).

D. Scale and Scoring

Each item was rated using a five-point Likert scale designed to measure the degree of agreement among participants, where 5 indicated “Strongly Agree,” 4 represented “Agree,” 3 denoted “Neutral,” 2 corresponded to “Disagree,” and 1 reflected “Strongly Disagree.” For interpretive purposes, the overall scale range (5–1 = 4) was divided into three levels of perception using class intervals of approximately 1.33. Responses were thus categorized as Low Level (1.00–2.33), Moderate Level (2.34–3.67), and High Level (3.68–5.00). These interpretive categories were applied consistently across all three domains of the questionnaire to assess faculty perceptions regarding the human, organizational, and technical requirements for AI integration in English language teaching.

E. Validity Procedures

To ensure content and face validity, the questionnaire was subjected to expert review by a panel of specialists in educational measurement, evaluation, and instructional technology from Jordanian universities.

Experts assessed the relevance, clarity, linguistic accuracy, and alignment of each item with the intended constructs. Based on their feedback, several items were reworded for clarity, and redundant or ambiguous items were removed, yielding the final 24-item version.

F. Reliability Testing

To ensure the reliability and internal consistency of the questionnaire, both test–retest and Cronbach’s alpha methods were employed. For test–retest reliability, the instrument was administered twice to a pilot group of 20 faculty members, with a two-week interval between administrations. The Pearson correlation coefficient between the two sets of responses was 0.90, indicating high stability over time. Internal consistency was assessed using Cronbach’s alpha, which yielded a value of 0.89 for the full instrument, confirming a high degree of internal reliability across all items.

G. Study Variables

The study included both independent and dependent variables. The independent variables were gender (male, female) and college type (humanities, sciences). The dependent variable was faculty perceptions of the organizational, technical, and human requirements for the integration of artificial intelligence in English language instruction.

H. Data Collection Procedures

Data collection was conducted during the second semester of the 2023–2024 academic year, following a systematic sequence of steps. First, a review of existing literature and validated instruments was undertaken to guide the construction of the questionnaire. Second, the draft instrument was submitted to expert reviewers to ensure content validity. Third, a pilot test was conducted with a small group of faculty members outside the study population. Fourth, the final version of the questionnaire was distributed to faculty at Al-Zaytoonah University through both printed copies and electronic forms hosted on Google Drive. Fifth, the returned responses were collected, coded, and cleaned to ensure

completeness and accuracy. Finally, the data were analyzed using appropriate statistical methods to address the study objectives.

I. Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 26. To address the first research question, which aimed to identify perceived requirements for AI integration, descriptive statistics were employed. Means and standard deviations were calculated to determine both the overall level and the domain-specific levels of perceived requirements. To address the second research question, which examined differences in perceptions based on gender and college type, independent-samples *t*-tests were conducted. Statistical significance was established at the $p < 0.05$ level.

IV. Results and Discussion

This section presents and interprets the study's findings based on the order of the research questions.

A. Results and Discussion of the First Research Question

What are the perceived requirements for employing artificial intelligence (AI) applications in English language education at universities, as viewed by faculty members?

To address this question, means, standard deviations, and estimation levels were computed for the overall set of AI integration requirements as well as for each specific domain. The data are summarized in Table 2.

Table 2
Means, Standard Deviations, and Ranking of AI Employment Requirements from Faculty Perspectives

No.	Domains	Mean	Standard Deviation	Rank	Estimation Level
3	Human Requirements	4.31	1.01	1	High
1	Organizational Requirements	4.30	1.08	2	High
2	Technical Requirements	4.25	1.02	3	High
	Overall Average	4.28	1.03		High

The data set suggests that the score on average across all domains is 4.28. This means that faculty members strongly agree with the need to include AI in their daily activities. The faculty members agree most on the human requirements with an average score of 4.31, followed by organizational requirements with 4.30 and lastly the technical requirements with 4.25. The faculty members strongly agree with the need for pedagogical tasks to be more differentiated and that AI enables advanced engagement for learners because that is the student model that is sought to be adopted. The faculty members assume that the balance of the requirements, especially the technical one that is ranked last, has to do with the fact that they are strongly and materially backed by the institutions assuming that the faculty members are trained and have appropriate experience to incorporate AI for pedagogical reasons.

This complements the findings of Abdulghani et al. (2024), who said that faculty members perceived AI-related instructional needs as high. Results also concur with Kim et al. (2025), who surveyed faculty and students in the United States and reported strong consensus on the importance of technical infrastructure and professional development as prerequisites for AI integration. The results also tally with Ofosu-Ampong (2024), who found that university lecturers largely accepted the use of AI in teaching and identified institutional support, professional development, and organizational policies as significant predictors of AI integration readiness.

However, the results contradict Al-Muqayti (2022) who reported that the faculty members of universities in Jordan rated the needs for AI at a medium level. This could be attributed to the differences in the level of preparation of the institutions concerned, traditions of the discipline, or exposure to AI teaching approaches.

This next section thus disaggregates the data for the Organizational Requirements domain for greater clarity.

(a). Organizational Requirements

Table 3
Means, Standard Deviations, and Rank Order of Organizational AI Requirements

No.	Item	Mean	Std. Dev.	Rank	Estimation Level
7	Establishing regulations and guidelines for data protection	4.36	1.01	1	High
8	Promoting AI culture among faculty and students	4.35	1.08	2	High
4	Mandating AI use in English instruction	4.33	1.02	3	High
5	Developing a new institutional vision for AI	4.32	1.10	4	High
1	Introducing AI as an academic major	4.31	0.87	5	High
2	Establishing postgraduate AI programs	4.30	1.05	6	High
3	Embedding AI in higher education strategic plans	4.29	1.02	7	High
6	Implementing cybersecurity policies for AI use	4.27	1.05	8	High
	Overall Domain Mean	4.30	1.08		High

All items in the Organizational Requirements domain were rated at a high level, with mean scores ranging from 4.27 to 4.36. The highest-rated item was the establishment of data protection regulations (M = 4.36), while the lowest was the implementation of cybersecurity policies (M = 4.27).

The ratings capture an issue faculty face; academic institutions tend to face difficulties shaping regulatory frameworks and cultural readiness for AI adoption. They also indicate some dissatisfaction with data security and institutionalization, which in turn highlights concerns regarding ethical standards and governance in AI. These results align with those of Abdulghani et al. (2024), which centered on organizational readiness as the pivot of AI integration. At the same time, Chan (2023) focused on the requirement of governance structures as well as operational supports not only AI integration, but safe, ethical, and sustainable AI integration. Modeling a different from the rest, Al-Muqayti (2022) noted only a lukewarm approach towards organizational preparedness in Jordanian institutions, which could point to a difference in institutions or a difference int AI literacy of the survey takers.

(b). Technical Requirements

TABLE 4
MEANS, STANDARD DEVIATIONS, AND RANKINGS OF TECHNICAL REQUIREMENTS FOR AI INTEGRATION

No.	Statement	Mean	SD	Rank	Estimation Level
5	Providing necessary infrastructure (labs, facilities) for AI in English teaching	4.45	0.99	1	High
6	Developing emergency protocols for data loss or technical failure	4.40	0.88	2	High
7	Creating a comprehensive database for English content, students, and faculty	4.38	1.01	3	High
8	Designing AI software and applications specific to university needs	4.35	1.10	4	High
4	Updating databases and information systems regularly	4.33	0.87	5	High
3	Establishing effective digital communication systems between faculty and students	4.20	1.06	6	High
1	Implementing robust data protection systems	4.15	0.94	7	High
2	Promoting online AI training programs in higher education	4.14	1.07	8	High
	Overall Average	4.25	1.02		High

According to the data provided in Table 4, academic staff rated all the technical prerequisites for AI adoption in English language teaching on a high scale, ranging from 4.14 to 4.45. The highest-rated factor was, therefore, provision of infrastructure such as laboratories and technical facilities (M = 4.45), while the least was promotion of online training sessions on AI integration in higher education (M = 4.14). This pattern suggests that faculty place significant emphasis on tangible infrastructural elements both digital and physical as prerequisites for effective AI deployment in pedagogy. Their lesser emphasis on training programs may reflect an assumption of existing faculty competence or a perceived gap in institutional support for professional development.

(c). Human Requirements

TABLE 5
MEANS, STANDARD DEVIATIONS, AND RANKINGS OF HUMAN RESOURCE REQUIREMENTS

No.	Statement	Mean	SD	Rank	Estimation Level
7	Providing professional trainers for faculty and student capacity building	4.41	0.88	1	High
8	Hiring experts to install and maintain AI systems	4.40	0.93	2	High
5	Employing technical experts to design AI applications for university use	4.36	1.00	3	High
2	Training faculty and students on AI integration into instruction	4.34	1.05	4	High
4	Conducting training specific to AI-supported English instruction	4.33	1.03	5	High
3	Raising awareness of AI's value in English language learning	4.32	1.06	6	High
1	Promoting public understanding of AI's educational significance	4.31	0.95	7	High
6	Recruiting AI-specialized English language educators	4.30	0.87	8	High
	Overall Average	4.31	1.01		High

Faculty members rated all items within the human domain as highly important, with mean values between 4.30 and 4.41. The top-ranked item was "Providing professional trainers for faculty and student instruction in AI use" (M = 4.41), emphasizing the central role of targeted training. The lowest-ranked item was "Recruiting AI specialists in English" (M = 4.30), possibly due to the limited availability of such roles or perceived institutional priorities.

These results highlight faculty recognition of human capital as a critical driver of AI integration success. The emphasis on trainers and technical experts suggests that knowledge dissemination and system usability are pivotal concerns. This finding resonates with Ofosu-Ampong (2024), who emphasized the centrality of faculty preparedness,

institutional support, and technical training in fostering AI adoption. However, it contrasts with Al-Muqayti (2022), who reported only moderate concern for human resource readiness.

B. Results and Discussion of the Second Research Question

Are there statistically significant differences in faculty members' perceptions of the requirements for employing AI applications in English language instruction at universities, based on gender or college type?

(a). Gender Variable

To address the gender-based aspect of this question, means, standard deviations, and independent samples t-tests were computed for each domain and for the overall AI requirement score. Table 6 summarizes the findings.

TABLE 6
INDEPENDENT SAMPLES T-TEST RESULTS FOR AI REQUIREMENT PERCEPTIONS BY GENDER

Domain	Gender	N	Mean	SD	t-value	df	Sig. (p)
Organizational	Male	169	4.40	0.182	0.131	410	0.896
	Female	86	4.40	0.155			
Human	Male	169	4.02	0.199	0.858	410	0.391
	Female	86	4.01	0.160			
Technical	Male	169	4.24	0.248	-1.376	410	0.170
	Female	86	4.27	0.182			

As shown in Table 6, the p-values for all three domains exceed 0.05, indicating no statistically significant differences between male and female faculty members in their perceptions of AI employment requirements.

This suggests that faculty, irrespective of gender, share similar levels of awareness and concern regarding the organizational, technical, and human prerequisites for integrating AI into English instruction. Such consensus may stem from institutional policies or shared professional development experiences that emphasize the cross-cutting nature of AI in education. Faculty members across genders may also perceive the adoption of AI tools as a vital response to global educational innovation trends.

These findings are consistent with prior research on AI integration in higher education. Kalniņa (2024) reported no significant gender-based differences in AI readiness, a result that aligns closely with the present study. Al-Bashir (2021) noted a lack of gender gaps in faculty views within Saudi university settings, aligning with such tendencies elsewhere. In the same vein, Al-Muqayti (2022) established that there were no marked differences by gender in the views of faculty regarding AI integration in Jordanian institutions. This is yet again an indication of the fact that opinions regarding AI adoption do not vary by demographic factors.

(b). College Type Variable

To explore whether faculty perceptions varied by college type (Humanities vs. Sciences), means, standard deviations, and independent samples t-tests were again employed. The results are presented in Table 7.

TABLE 7
INDEPENDENT SAMPLES T-TEST RESULTS FOR AI REQUIREMENT PERCEPTIONS BY COLLEGE TYPE

Domain	College Type	N	Mean	SD	t-value	df	Sig. (p)
Organizational	Humanities	124	4.39	0.191	-2.210	410	0.214
	Sciences	131	4.43	0.108			
Human	Humanities	124	4.01	0.198	-1.266	410	0.206
	Sciences	131	4.03	0.141			
Technical	Humanities	124	4.24	0.235	-1.726	410	0.185
	Sciences	131	4.29	0.188			

No statistically significant differences were detected between faculty from Humanities and Sciences in any of the three domains, as indicated by p-values greater than 0.05.

Faculty from all disciplines agree on the importance of AI in improving English language teaching, and the lack of differences indicates an emerging alignment among disciplines in the appreciation of AI's educational value, which might be the result of organizational programs or interdisciplinary interaction with digital tools. This study's findings are consistent with prior research that shows faculty share the same view on adopting AI, as Abdulghani et al. (2024) reported no differences in views by college type, and Al-Bashir (2021) similarly noted consistent views regarding the use of AI across different disciplines.

Whereas, Al-Muqayti (2022) has emphasized the role of science faculties, our research for example noted no such differences. The said study, Al-Muqayti (2022), accentuated the probable science faculty readiness attributed to measurable behavioral change among such faculties as a consequence to technology-driven content. The present study reflects an absence of such behaviors which is likely indicative of Al-Zaytoonah University's balanced integration encompassing all faculties for AI professional development programs and the equilibrium of technology innovation across various departments.

V. Conclusion

This research is focused on examining the use of AI in English language instruction in universities in the Jordanian context, especially the use at Al-Zaytoonah University, and the challenges faced by human, technical, and organizational resources. The study, which adopted a descriptive survey methodology and utilized a rigorously validated survey instrument, confirms that there is a strong need in all three dimensions. The findings specify that the actual integration of AI tools relies, to a lesser extent, on the institution's infrastructure, and, to a greater extent, on strategic institutional policies and proper human and specialist skills development.

Analyzing the data, it's clear that human-centered changes had the greatest impact, such as integrating expert-led instruction, recruiting AI professionals, and creating tailored English language teaching modules. Incorporating these changes reflects the faculty's insight that the implementation of edtech is a matter of having the appropriate expertise and readiness rather than merely possessing access. The other technical requirements, particularly those related to infrastructure and system security, were given simultaneous attention, implying that the faculty consider robust digital infrastructures as a foundation for teaching propelled by AI. An increased focus was given to other institutional functions such as policy formulation, strategic planning, and the development of AI programs, reflecting that the institutions consider readiness an enabler for digital transformation.

Significantly, no evident variations were detected based on the type of college or gender. The consistency in views across different demographics and fields points to a shared institutional culture and agreement on the issue of AI integration. In addition, the implementation of AI appears to be an issue affecting every discipline in higher education and not just the STEM disciplines.

The study has practical implications as well as strategic ones. Institutions that desire to implement AI in language instruction must allocate funds and collaborate across disciplines. The national education authorities, especially the Higher Education and Scientific Research Ministry, should enact clear policies and continue supporting the integration of AI tools, particularly in humanities such as English language education, where such tools are rarely used.

Subsequent studies might benefit from examining student perceptions, engaging in cross-institutional comparisons, and tracking the long-term effects of AI on pedagogy. The continued development of AI technologies calls for a thoughtful approach from higher education institutions. Such institutions should ensure that AI serves to enrich, rather than diminish, the human aspect of teaching and learning.

Reflecting on the steady concern of the 13 faculty members regarding the implementation of artificial intelligence (AI) in English language teaching, particularly with regard to the organizational, technical, and human resources required, the following recommendations are proposed to address policy formulation and organizational implementation.

Policy-Level Initiatives. The senior management of the Ministry of Higher Education and Scientific Research must take initiative and lead the development and implementation of a set of policies that will enable the swift adoption of AI across all higher education institutions. Such policies must be strategic in intent, provide for targeted financing along with securing the necessary funding, as well as contain thoughtful ethical guidelines for the use of AI in education.

Developing Institutional Infrastructure for Digital AI Education. The digital infrastructure for advanced multilingual teaching, particularly AI institutions, must be adequately financed. The financing must also extend to providing AI-compatible teaching spaces, fully provisioned labs, and English teaching-focused secure and reliable communication systems. The institution and student data must also be protected using appropriately established advanced cybersecurity measures.

Capacity Building and Professional Training. Universities might need to organize sessions for educators that train them in the use of AI tools in their teaching. Training might, for instance, include the use of adaptive learning software, intelligent tutoring systems, and the basic principles of AI integration in both physical and remote teaching.

Research Expansion and Comparative Studies. Empirical research needs to be carried out in order to understand the Jordanian universities and the academic fields of AI implementation requirements. That kind of research is necessary to give a comparative view and emphasize the AI integration master aids and challenges in various educational settings.

Acknowledgements

The authors would like to thank their respective universities for providing academic support and resources that facilitated the completion of this work.

References

[1] Abd Al-Salam, W. (2021). Applications of artificial intelligence in education: Areas, requirements, and ethical risks. *Journal of the Faculty of Education, Menoufia University*, *51*(7), 201–246. Retrieved January 13, 2025, from https://search.shamaa.org/FullRecord?ID=336620

[2] Abdulghani, R., Alharbi, K., Alshammari, N., & Alruhaili, N. (2024). Requirements of the application of artificial intelligence in university education from the perspective of faculty members at Umm Al-Qura University. *The Educational Journal of the Faculty of Education, Sohag*, *118*, 193–235. https://doi.org/10.21608/edusohag.2023.246482.1365

[3] Abu Muqaddam, R. (2024). *The degree of use of artificial intelligence applications in self-learning among postgraduate students in Jordanian universities* [Unpublished master's thesis]. Middle East University, Jordan.

[4] Abu Zaqa, K. (2018). Expert systems in artificial intelligence and their application in education and pedagogy. *Journal of Faculties of Education*, *12*(4), 111–149. Retrieved January 13, 2025, from https://dspace.zu.edu.ly/handle/1/315?locale-attribute=ar

[5] Al-Ahmadi, T., & Al-Qahtani, K. (2023). Requirements for AI application from the perspective of teachers in Madinah in accordance with cybersecurity standards. *International Journal of Educational and Psychological Sciences*, *71*(3), 529–577. https://doi.org/10.12816//ijeps.2022.304917

[6] Al-Atal, M. (2021). The role of artificial intelligence (AI) in education from the point of view of students at the Faculty of Basic Education in the state of Kuwait. *Journal of Educational Studies and Research*, *1*(1), 6–31. Retrieved January 13, 2025, from https://search.shamaa.org/FullRecord?ID=275510

[7] Al-Atoum, N. (2023). Requirements for employing artificial intelligence applications in higher education and its challenges. *Jerash University Journal for Research and Studies*, *24*(1), 325–341. https://doi.org/10.36091/0550-024-001-014

[8] Al-Bashir, M. (2021). Requirements for the employment of artificial intelligence applications in teaching of male and female students of Saudi universities from experts' point of view. *Journal of the Faculty of Education*, *20*(2), 61–92. Retrieved January 13, 2025, from https://search.mandumah.com/Record/1066149

[9] Al-Dahshan, J. (2019). The need for an ethical charter for AI applications. *Journal of Educational Innovations*, *2*(4), 91–124. Retrieved January 13, 2025, from https://eij.journals.ekb.eg/article_54156.html

[10] Al-Mahdi, M. (2021). Education and future challenges in light of AI philosophy. *Journal of Educational Technology and Digital Learning*, *2*(5), 97–140. https://doi.org/10.21608/jetdl.2021.113089.1018

[11] Al-Maliki, W. (2023). The role of AI applications in enhancing educational strategies in higher education. *Journal of Educational and Psychological Sciences*, *7*(5), 93–124. https://doi.org/10.26389/AJSRP.K190922

[12] Al-Masri, I., & Al-Tarawneh, A. (2021). The reality of AI application supporting the transformation of Jordanian public universities into productive universities from the perspective of academic leadership. *Journal of Educational and Psychological Research*, *37*(11), 121–145. Retrieved January 13, 2025, https://mfes.journals.ekb.eg/article_206426.html?lang=en

[13] Al-Muqayti, S. (2022). *The reality of AI employment and its relationship to the quality of Jordanian universities' performance from the perspective of faculty members* [Unpublished master's thesis]. Middle East University, Jordan.

[14] Al-Yagzi, F. (2019). Using AI applications to support higher education in Saudi Arabia. *Arab Studies in Education and Psychology*, *113*(1), 257–282. https://doi.org/10.21608/saep.2019.54126

[15] Ammar, H., & Matoussi, H. (2022). The role of AI in improving learning outcomes quality: A model of digital platforms. *Journal of the Faculty of Education, Benha University*, *6*(4), 101–147. Retrieved January 13, 2025, from https://drasah.com/Archiving/website/2658202409100071.pdf

[16] Asirit, L. B. L., & Hua, J. H. (2023). Converging perspectives: Assessing AI readiness and utilization in Philippine higher education. *Polaris Global Journal of Scholarly Research and Trends*, *2*(3), 1–50. https://doi.org/10.58429/pgjsrt.v2n3a152

[17] Chan, C. K. Y. (2023). A comprehensive AI policy education framework for higher education: AI ecological education policy framework addressing pedagogical, governance, and operational dimensions. *Journal of Educational Technology in Higher Education*, *20*(1), Article 3. https://doi.org/10.1186/s41239-023-00408-3

[18] Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications. Retrieved January 13, 2025, from https://www.ucg.ac.me/skladiste/blog_609332/objava_105202/fajlovi/Creswell.pdf

[19] Darwish, A., & Al-Laithi, A. (2022). Effect of using the platforms of artificial intelligence to development habits of mind and academic self-concept for underachievers students in the preparatory stage. *Journal of the Faculty of Education, Ain Shams University*, *4*(2), 61–131. Retrieved January 13, 2025, from https://search.shamaa.org/FullRecord?ID=300843

[20] Fryer, L. (2020). Chatbot learning partners: Connecting learning experiences, interests, and competence. *Computers in Human Behavior*, *93*, 279–289. https://doi.org/10.1016/j.chb.2018.12.023

[21] Holmes, W. (2023). *Artificial intelligence in education*. Globethics Publications. Retrieved January 13, 2025, from http://hdl.handle.net/20.500.12424/4276068

[22] Kalniņa, D. (2024). Artificial intelligence for higher education: Benefits and challenges among pre-service teachers, with no significant differences by age or gender. *Frontiers in Education*, *9*, Article 1501819. https://doi.org/10.3389/feduc.2024.1501819

[23] Kim, J., Klopfer, M., Grohs, J. R., Eldardiry, H., Weichert, J., Cox, L. A. II, & Pike, D. (2025). Examining faculty and student perceptions of generative AI in university courses. *Innovative Higher Education*, *50*(6), 1281–1313. https://doi.org/10.1007/s10755-024-09774-w

[24] Mishal, M. T. M., & Al-Eid, N. M. (2023). The reality of employing artificial intelligence applications in early childhood from the perspective of female teachers in Shaqra Governorate, Kingdom of Saudi Arabia. *Al-Azhar Journal of Education: A Refereed Scientific Journal for Educational, Psychological, and Social Research*, *42*(198), 433–478. https://doi.org/10.21608/jsrep.2023.304540

[25] Mukhtar, B. (2022). Challenges of AI and its applications in education. *Forum Journal for Economic Research and Studies*, *6*(1), 286–305. Retrieved January 13, 2025, from https://digitalcommons.aaru.edu.jo/cgi/viewcontent.cgi?article=1570&context=jpu

[26] Ofosu-Ampong, K. (2024). Beyond the hype: Exploring faculty perceptions and acceptability of AI in teaching practices. *Discover Education*, *3*, Article 38. https://doi.org/10.1007/s44217-024-00128-4

[27] Shabaan, A. (2021). Employ the applications of artificial intelligence in higher education. *Sohag University Educational Journal*, *84*(84), 1–23. https://doi.org/10.21608/edusohag.2021.148034

[28] Wang, L. (2020). Artificial intelligence and career development of college teachers: Challenge and countermeasures. *Journal of Physics: Conference Series*, *1550*(2), 022030. https://doi.org/10.1088/1742-6596/1550/2/022030

[29] Yin, Wenjing. (2021). Modeling method and application of college comprehensive teaching mode based on artificial intelligence. *Converter Magazine*, *(2)*, 566–573. Retrieved January 13, 2025, from https://converter-magazine.info/index.php/converter/article/view/231/226

Tahani Fawaz Abu Jraiban is an Assistant Professor of Curriculum and Teaching Methods at Al-Zaytoonah University of Jordan, where she also served as Assistant Dean of the Faculty of Arts (2023–2024). With over 15 years of experience in education, she has worked as an English teacher, trainer, and lecturer at leading Jordanian universities, including the University of Jordan and Al-Zaytoonah. Her research interests focus on curriculum development and innovative teaching methods that foster holistic student growth. Passionate about preparing future educators, she views teaching as both a science and an art that shapes generations.

Yousef Sawalha is an Assistant Professor of Translation with seven years of continuous university teaching and training experience. His research interests include discourse analysis and literary translation. He also works as a journalist and editorial translator in the UAE.

Ruba A. Alshahwan is a lecturer in the Department of Basic Sciences at Al-Zaytoonah University of Jordan. Ruba A. Alshahwan was awarded a Master's degree in English Translation from Petra University in 2016. Ruba's academic and research interests focus on translation, with particular attention to developing core language skills, including writing, speaking, listening, and dialogue.

Rawan Alkhabayba is a lecturer in the Department of Basic Sciences at Al-Zaytoonah University of Jordan. Rawan Alkhabayba was awarded a Master's degree in Measurement and Evaluation from Alyarmouk University in 2012. Rawan 's academic and research interests focus on education, with particular attention to developing students' skills, through experiencing many variables and measuring their effect on students' level.