

Introduction

The quick progress of artificial intelligence (AI) is changing higher education systems worldwide, impacting teaching, research, administration, and professional development ([Miao et al., 2021](#); [Williamson & Piattoeva, 2019](#)). More and more institutions are using AI-driven technologies for data analytics, recruitment, research evaluation, and educational innovation. These advancements present novel opportunities for efficiency and international cooperation, but they also bring up important issues about equity, inclusion, and access – especially for women in academia ([World Economic Forum, 2023](#); [West et al., 2019](#)).

Although women's involvement in higher education has increased significantly worldwide in recent decades, representation in research leadership, senior academic roles, and technology-intensive fields is still disproportionately low ([OECD, 2018](#); [UNESCO, 2020](#)). Women's career progress is still hindered by structural inequities that are ingrained in institutional cultures, promotion systems, and disciplinary hierarchies ([Morley, 2013](#)). Digital literacy, computational abilities, and engagement with technological innovation are becoming more and more important in determining career paths in the developing AI-driven academic environment, which is adding new dimensions to longstanding gender disparities ([Holmes et al., 2023](#)).

There are both opportunities and hazards associated with integrating AI into higher education. AI tools, on the other hand, have the potential to assist flexible working arrangements, automate administrative duties, improve research productivity, and facilitate cross-border academic collaboration, which may be advantageous for women who juggle many professional and domestic obligations ([Castañeda & Selwyn, 2018](#)). However, if not intentionally addressed, algorithmic bias, unequal access to technological training, and gendered patterns of participation in STEM fields may worsen existing inequalities ([Buolamwini & Gebru, 2018](#); [Noble, 2018](#)). As a result, in the age of AI, institutions must reevaluate their professional development frameworks via an equity-oriented perspective.

Higher education professional development includes institutional recognition, research funding access, mentorship, leadership opportunities, and

involvement in governance structures, in addition to skill acquisition ([Acker, 2012](#)). Data-driven assessment methods and digital infrastructures have a greater influence on these components in AI-mediated contexts. It is critical to ensure that women are fairly represented in strategic leadership positions, technology governance bodies, and AI research projects in order to foster inclusive institutional cultures ([UN Women, 2024](#)).

In this setting, the research takes a hard look at how women are advancing their careers in higher education during the era of artificial intelligence. It analyzes the structural, cultural, and technological forces that influence women's professional pathways and examines how institutions may support inclusive pathways that encourage equality, leadership, and active engagement in the digital revolution of higher education.

Problem Statement

Despite international pledges to gender equality in education and employment, women continue to be underrepresented in institutional leadership roles, STEM fields, and higher academic grades ([European Commission, 2021](#); [UNESCO, 2020](#)). These inequalities are exacerbated by the movement toward higher education that integrates AI, since professional success is becoming more and more contingent on digital literacy, research analytics, and technological advancement ([World Economic Forum, 2023](#)).

The algorithmic systems employed in recruiting, performance review, and research evaluation may unintentionally replicate historical biases ingrained in institutional practices and training data ([Raji et al., 2020](#); [West et al., 2019](#)). According to research, if fairness, transparency, and accountability are not integrated into the design of AI technologies, they may result in gendered outcomes ([Buolamwini & Gebru, 2018](#)). As a result, in data-driven institutional settings, female academics may experience subtle but nonetheless important disadvantages in the hiring, advancement, and recognition processes.

Furthermore, gendered expectations surrounding caregiving and household chores continue to have an impact on research output and professional advancement, especially in academic environments that prioritize continuous career routes ([Fox & Paine, 2019](#)). Although the digital revolution in

higher education offers flexibility, it may also exacerbate productivity pressures and monitoring practices that disproportionately impact women ([Williamson & Piattoeva, 2019](#)).

Despite international policy frameworks supporting fair AI governance and gender-responsive digital transformation ([World Bank, 2021](#); [Miao et al., 2021](#)), institutional execution is still inconsistent. It is critical to determine if higher education systems are successfully integrating AI adoption methods with equity and inclusion objectives. As a result, this research focuses on the key question: In the age of AI, how well do colleges and universities promote women's professional growth while also fostering equality and inclusion?

Objectives

The primary goal of this study is to conduct a critical analysis of the professional growth of women in higher education within AI-enabled academic contexts. It seeks to examine how institutional policies, digital strategies, leadership structures, and professional development initiatives influence women's academic participation and career advancement.

The specific objectives of the study are to:

1. Analyze institutional approaches to integrating AI in ways that promote gender equality.
2. Identify technological, cultural, and structural barriers that hinder women's career advancement.
3. Examine how AI can create opportunities for inclusive leadership, research innovation, and flexible career pathways.

This research contributes to global discussions on gender equality, ethical AI integration, and sustainable institutional development in higher education.

Research Questions

The study is guided by the following research questions:

1. How effectively do higher education institutions implement AI-responsive policies that support women's leadership representation and career advancement?

2. What technological, cultural, and structural barriers impede women's career progression in AI-integrated academic environments?
3. What opportunities does AI-driven transformation offer for enhancing inclusion and equity in women's academic careers?

Linkage between Objectives and Research Questions

The subject of the research should be tied to the research questions and the aim of the study. The study's goal and research questions are both squarely focused on thoroughly examining how AI-enabled academic settings affect women's career progression in higher education. Therefore, the study's aim is immediately related to its research questions. The objective offers a broad picture of key domains such as institutional policies, digital strategies, leadership structures, and professional development programs, while the research questions transform these broader goals into more specific areas of study. By looking at AI-oriented policies, the first study question addresses how institutional tactics promote women's leadership roles and career progress. The second question seeks to identify barriers by looking at the structural, cultural, and technological barriers that hinder women's advancement in AI-integrated academic environments. The third question explores potential ways that AI advancements may foster greater equity, inclusion, and more flexible academic career paths. Overall, the study's objectives and research questions combine to form a clear and consistent framework for systematically analyzing the opportunities and challenges facing women's professional development in higher education.

Systematic Review Procedure

This study adopted a systematic review framework based on established protocols by Matthew J. Page and David Moher, who developed the PRISMA guidelines for transparent and structured reporting of systematic reviews. The review process followed four key stages: Identification, Screening, Eligibility, and Inclusion.

During the identification phase, a comprehensive search was conducted across major academic

databases, including UGC, Scopus, Web of Science, ERIC, JSTOR, Delhi Business Review, and Google Scholar. Open-access platforms such as DOAJ and NepJOL were also used. Reports from international organizations, including [UN Women \(2024\)](#) and [UNESCO \(2020\)](#), were reviewed to strengthen contextual understanding. To ensure wider coverage, grey literature such as dissertations, conference papers, and policy briefs was included. Although the primary focus was on studies published between 1990 and 2025, earlier influential works were also considered where relevant. Reference management tools such as Mendeley and Zotero were used to organize citations and remove duplicates, following good practice recommended by Julian P. T. Higgins and colleagues.

Policy documents were evaluated based on credibility, authority, and relevance. The included studies mainly used qualitative or interpretive approaches, particularly from Nepal and South Asia, focusing on women's participation in higher education, especially in faculty and leadership roles. Studies were excluded if they addressed primary or secondary education, lacked a gender focus, or were not available in full text. The selection process was documented using a PRISMA flow diagram.

Data extraction was conducted using a structured template covering authorship, context, design, findings, theoretical framework, challenges, and enabling factors. Studies with minor methodological limitations were still included if they met quality standards based on CASP or JBI guidelines. CASP provides structured checklists focusing on validity, results, and relevance, while JBI offers a more detailed framework emphasizing rigor, bias assessment, and comprehensive evidence synthesis.

In summary, CASP is simpler and more user-friendly, whereas JBI is more detailed and technical; both enhance research quality and transparency. Finally, thematic synthesis was used, combining inductive and deductive coding to generate three key themes: Women's representation in academia, structural and institutional barriers, and the impact of globalization, artificial intelligence, and professional development opportunities.

Review of Literature

This study's systematic review is conducted in the following manner:

Gender equality in professional development and AI transformation in higher education

Recent research indicates that Artificial Intelligence is now deeply integrated into higher education systems, changing teaching methods, research, and institutional administration. The use of AI is growing at a rate that outpaces institutional policymaking, which necessitates the upskilling of academic personnel ([Kalim et al., 2025](#); [Isaifan, 2026](#)). This change, however, is not gender-neutral.

Due to structural and institutional barriers, women academics frequently have unequal access to professional development possibilities in the field of artificial intelligence ([Kalim et al., 2025](#)). Recent studies highlight that AI-driven transformation necessitates new skills in data literacy, algorithmic understanding, and digital pedagogy, but access to this education is still unequal among genders ([AlBlooshi, 2026](#); [Sharples, 2023](#)).

Obstacles to the Adoption of AI in Higher Education Based on Gender

In higher education, recent systematic reviews corroborate the numerous obstacles women encounter when adopting AI, especially in Asian and developing nations. These include restricted digital infrastructure, socioeconomic restrictions, and fewer students enrolled in academic programs related to STEM ([Kalim et al., 2025](#)).

Due to a lack of training and institutional support, empirical data indicate that women are less likely to interact with cutting-edge digital systems and generative AI technologies ([Thien et al., 2025](#)). Gendered expectations in academia, where women frequently have more teaching and administrative responsibilities, exacerbate these obstacles by restricting the time available for professional development in new technologies ([OECD, 2018](#); [Kalim et al., 2025](#)).

Institutional Inequality, a lack of leaders, and career advancement

Recent research emphasizes that women continue to be underrepresented in leadership

roles in higher education, particularly in areas related to AI governance and digital transformation strategies ([Huber et al., 2024](#)). Women's capacity to influence AI adoption laws and institutional professional development frameworks is directly impacted by inequality in leadership.

[Elsevier \(2017\)](#) continues to offer fundamental proof that, on a worldwide scale, women's academic advancement and research exposure are slower. Due to unequal access to research funding, digital technologies, and professional networks, this gap widens in academic settings driven by AI ([Thien et al., 2025](#); [Isaifan, 2026](#)).

Women's Professional Development and Inclusion Opportunities in AI

Recent research highlights that AI provides transformative opportunities for women's academic progress, even with persistent obstacles. AI tools can enhance professional development and work-life balance by facilitating flexible learning routes, supporting research synthesis, and lowering administrative costs ([Holmes et al., 2019](#); [Luckin et al., 2016](#)).

Recent research has also emphasized the potential of AI-enabled learning analytics and adaptive systems to facilitate individualized professional growth, particularly for under-represented academic populations ([Al-Zahrani & Alasmari, 2024](#); [Sharples, 2023](#)). When used ethically, AI can improve inclusivity by lowering conventional institutional hurdles and broadening access to information.

Gender equality, bias, and ethical AI in educational institutions

Recent studies highlight the potential for AI systems to replicate gender prejudice if they are not well-regulated and designed. The work of [Buolamwini & Gebru \(2018\)](#), which has implications for academic hiring, evaluation, and assessment tools, is still fundamental in demonstrating algorithmic bias in classification systems.

Recent studies draw attention to the moral hazards of generative AI in education, such as issues of fairness, transparency, and accountability ([Holmes et al., 2019](#); [Porayska-Pomsta](#)

[et al., 2023](#)). To avoid exacerbating existing inequalities in higher education systems, [Miao et al. \(2021\)](#) emphasizes that gender equity considerations must be explicitly included in AI governance frameworks.

Empowering Female Academics with AI Literacy and Capacity Building

AI literacy is becoming more widely acknowledged as a fundamental academic skill. The capacity to comprehend, assess, and critically interact with AI systems is what [Long & Magerko \(2020\)](#) define as AI literacy. Recent studies, though, demonstrate that because of the scarcity of institutional training programs, women academics have less chances to build these skills ([OECD, 2018](#); [Kalim et al., 2025](#)).

Systematic evaluations from 2024-2025 show that the absence of formal professional training in AI is one of the best indicators of gender disparity in AI adoption in higher education ([Castillo-Martínez et al., 2024](#); [Sharples, 2023](#)). The critical need for inclusive AI capacity-building programs is highlighted by this.

Inequality in Research Output and Digital Transformation

Recent systematic and bibliometric research has shown that AI is transforming research productivity in higher education by automating literature reviews, data analysis, and academic writing assistance ([Sahar & Munawaroh, 2025](#)). In contrast, unequal access to these tools exacerbates gender disparities in publication results.

Due to their limited access to cutting-edge AI research infrastructure and collaborative networks, women scholars are frequently less visible in academia and advance in their careers ([Elsevier, 2017](#); [Kalim et al., 2025](#)). If digital transformation is not managed through inclusive policies, it may unintentionally exacerbate existing inequalities.

Inclusive AI Governance and Policy Frameworks in Higher Education

Recent policy-focused research highlights the significance of gender-responsive AI governance in postsecondary education systems. Both the [OECD \(2021\)](#) and [Miao et al. \(2021\)](#)

highlight the necessity for inclusive digital approaches that guarantee fair engagement in the academic revolution driven by AI.

Recent journal publications (2024-2025) corroborate that policy gaps remain significant, especially in less developed areas where institutional AI preparedness is just beginning to take shape ([AlBlooshi, 2026](#); [Isaifan, 2026](#)). Effective policy frameworks should include institutional monitoring systems to guarantee equitable results, required AI literacy training, and gender-inclusive leadership pathways.

Recent literature (2023-2025), as previously stated, continuously shows that AI-driven change in higher education is both widening access to professional development and exacerbating structural disparities. Comparative analyses highlight the convergence in identifying data competencies, digital pedagogy, and AI literacy as critical components of academic achievement ([Sharples, 2023](#); [Castillo-Martínez et al., 2024](#); [Kalim et al., 2025](#)). Empirical research, however, shows ongoing gender disparities in access to AI training, leadership engagement, and research infrastructure ([Huber et al., 2024](#); [Thien et al., 2025](#)), even though policy frameworks from groups like [Miao et al. \(2021\)](#) and [OECD \(2021\)](#) promote inclusive digital strategies. In particular, research from developing and Asian contexts contrasts with results from technologically advanced systems, emphasizing greater socio-cultural and institutional obstacles to women's participation in AI ([Kalim et al., 2025](#)). Recent research indicates that the adoption of AI may exacerbate these inequalities if professional development continues to be unstructured and unfair, despite earlier foundational work (e.g., [Elsevier, 2017](#)) that showed gender inequalities in research productivity and advancement. The literature's deficiency is the lack of integration between gender, AI capacity development, and institutional governance within a single analytical framework, particularly utilizing current empirical data from 2023-2025.

The literature also continues to be divided when it comes to evaluating the long-term professional effects of AI for female academics, even though research is becoming more and

more aware of the dangers of algorithmic bias and the revolutionary capacity of AI to alleviate administrative loads and create flexible career routes ([Porayska-Pomsta et al., 2023](#); [Al-Zahrani & Alasmari, 2024](#)). Although fundamental research by [Buolamwini & Gebru \(2018\)](#) raised concerns about gender bias in algorithmic systems, current studies in higher education rarely empirically link algorithmic bias to women's advancement, assessment, or leadership trajectories in AI-mediated institutions. In the same way, even though AI-enabled tools are marketed as ways to boost inclusion and research output ([Sahar & Munawaroh, 2025](#)), only a few studies examine whether these benefits extend equally across gendered academic positions that have disproportionate workloads. As a result, there is still a large gap in research on how institutional culture, leadership representation, AI governance, and structured AI literacy programs work together to influence women's career advancement in higher education. To close this gap, empirical studies are needed that are intersectional, policy-related, and regionally varied, and that go beyond descriptive accounts to evaluative models of equity outcomes in the age of artificial intelligence.

Review Synthesis

There is widespread consensus in the studies examined that Artificial Intelligence is revolutionizing higher education by changing teaching methods, research methodologies, and institutional governance structures, while simultaneously raising the need for continuous professional development among academic staff ([Kalim et al., 2025](#); [Isaifan, 2026](#); [Sharples, 2023](#)). Although researchers regularly point out that skills like digital pedagogy, data management, and AI literacy have become necessary for academic work, many universities are finding it difficult to keep up with technological advancements by changing their curriculum and training methods ([Castillo-Martínez et al., 2024](#); [Miao et al., 2021](#)). The literature becomes more critical when gender is taken into account: Despite the fact that AI is frequently portrayed as a catalyst for efficiency, innovation, and inclusive education, data reveal that women academics are not treated equally in terms of access to AI training opportunities, research infrastructure, and leadership roles ([OECD, 2021](#); [Huber et](#)

al., 2024; Thien et al., 2025). In developing and Asian environments, where socio-cultural norms and heavier teaching and administrative responsibilities limit women's involvement in AI-related professional development, these inequalities are especially noticeable (Kalim et al., 2025; AlBlooshi, 2026). However, AI is also known for its capacity to lessen administrative costs, improve research efficiency, and promote more adaptable career development paths, provided that its implementation is fair and inclusive (Holmes et al., 2019; Al-Zahrani & Alasmari, 2024). However, research on algorithmic bias and ethical risks calls this optimistic outlook into question by showing how AI systems may reinforce or exacerbate gender disparities in evaluation, recruiting, and academic recognition processes (Buolamwini & Gebru, 2018; Porayska-Pomsta et al., 2023). Overall, the literature is still fragmented, with little integration between governance structures, institutional leadership, and professional development systems, leaving a significant hole in unified explanatory models that link these aspects to the career outcomes of women academics, even though there is agreement on both the revolutionary potential of AI and the persistence of gender inequalities.

The evidence indicates that numerical access does not always equate to fair engagement in academic areas driven by AI, even in countries like Nepal, where the [University Grants Commission \(2024\)](#) reports greater female enrollment in higher education (358,140 females vs 274,913 males out of 633,053 total students). Increased enrollment indicates better access to higher education, but it does not ensure inclusion in developing fields like data science, artificial intelligence, and digital innovation, where institutional power and research financing are increasingly concentrated. Empirical studies seldom look at how AI governance, institutional capacity development, and leadership representation interact to influence women's career pathways in higher education, even though international policy frameworks from UNESCO and the OECD strongly promote inclusive digital transformation strategies. In a similar vein, despite the groundbreaking work on algorithmic bias (Buolamwini & Gebru, 2018) that shines a light on structural discrimination inherent in AI systems, these findings are not adequately linked to research output metrics, university-level promotion systems, or performance review procedures. In particular, when evaluating long-term equity

results, comparative research across industrialized and developing nations remains restricted. Consequently, women are still overrepresented in conventional academic areas and underrepresented in AI-intensive industries, which are becoming more and more concentrated with decision-making power, technological infrastructure, and research resources. Ongoing obstacles, such as a gendered division of labor, insufficient technical mentorship, digital skill deficiencies, and limited access to leadership positions, continue to contribute to unequal professional outcomes. To go beyond descriptive equality, these restrictions must be addressed using a more integrated analytical framework that links AI literacy, institutional governance, leadership access, and research infrastructure.

Research Gaps

Despite the increasing body of research on the AI revolution in higher education, there is a significant research gap in the absence of a comprehensive framework that links AI literacy, institutional governance, leadership structures, and gender equity. The majority of current research looks at these dimensions independently, providing little insight into how they interact to impact the professional advancement and research output of female academics. Despite the fact that UNESCO and OECD policy frameworks encourage inclusive digital transformation, empirical data on how these policies are implemented in institutional practice – especially in developing countries like Nepal – remains inadequate ([University Grants Commission, 2024](#)). Furthermore, although algorithmic prejudice has been well documented (Buolamwini & Gebru, 2018), there has been little research into its immediate effects on academic promotion mechanisms, financial access, and career advancement. Our knowledge of the long-term gendered consequences of AI adoption in higher education is also hampered by the paucity of longitudinal and comparative studies across regions.

Results

The results of this review analysis are consistent with the literature review, research questions, and purpose, as seen below:

Insufficient Incorporation of Gender-Responsive AI Laws

The results of this research theme support (RQ1). The analysis reveals that despite the fact that universities are quickly integrating

AI technologies into academic systems, gender-responsive policy integration is still patchy and underdeveloped. As demonstrated in earlier studies (e.g., [Miao et al., 2021](#); [OECD, 2018](#); [Huber et al., 2024](#)), institutional AI agendas often prioritize innovation and efficiency over equity-driven results. Although strategic documents encourage inclusive digital transformation, implementation rarely includes clear gender indicators in institutional evaluation systems, leadership development frameworks, or AI training programs. The paucity of cohesive governance mechanisms connecting the use of AI to women's career advancement supports this research gap.

Enduring Structural and Socio-cultural Limitations in AI-driven Environments

The conclusion of the literature review and (RQ2) is this topic. The results, which echo recent empirical research ([Kalim et al., 2025](#); [Thien et al., 2025](#); [OECD, 2021](#)), emphasize persistent structural disparities, such as disproportionate teaching and administrative duties, limited access to AI training, and underrepresentation in STEM-related disciplines. Women's involvement in AI-centric research and decision-making positions is further constrained by gendered expectations and institutional norms. The research, which expands on earlier worldwide data ([Elsevier, 2017](#)), shows that AI integration might exacerbate existing inequalities in the absence of purposeful change. As a result, it helps to bridge the gap in our understanding of how these limitations manifest in academic contexts that are enabled by artificial intelligence.

Disparities in research assistance systems and the growth of AI talent

In the same way, this topic is addressed by a combination of (RQ1 & RQ2). The findings highlight the growing importance of AI skills and digital proficiency as key factors in research outcomes and academic advancement. Nevertheless, especially in higher education systems in Asia and developing nations, opportunities for professional development in AI continue to be unevenly distributed ([Sharples, 2023](#); [Castillo-Martínez et al., 2024](#)). Insufficient finance, little mentoring, and limited engagement in AI research networks are among the challenges that many female

academics face. The identified gap is reinforced by these trends, underscoring the need for integrated frameworks that link AI capacity-building activities with concrete equity indicators in professional development.

Increasing Opportunities for Flexible and Inclusive Career Development

This topic demonstrates review responses pertaining to (RQ3). AI technologies also provide valuable possibilities for professional integration, despite continuing hurdles. The results, which corroborate prior research ([Holmes et al., 2019](#); [Al-Zahrani & Alasmari, 2024](#); [Sahar & Munawaroh, 2025](#)), demonstrate that AI applications may improve administrative procedures, increase research efficiency, and make academic pathways more adaptable. Tailored growth routes may be supported by tools like analytics-driven professional development platforms and adaptive learning systems. However, these benefits rely on fair access, institutional dedication, and good administration. This goes straight to the topic of possibilities made possible by AI while also addressing unanswered questions about the long-term professional ramifications for women.

The Critical Role of Ethical AI Governance in Promoting Fairness

By aligning review and (RQ1, RQ2 & RQ3), the aforementioned theme demonstrates shared results. Additionally, the research demonstrates that women's academic progress in AI-mediated schools is significantly impacted by algorithmic bias, a lack of transparency, and inadequate accountability structures. The results, which are based on fundamental worries about algorithmic bias ([Buolamwini & Gebru, 2018](#)) and recent debates on ethical AI in education ([Porayska-Pomsta et al., 2023](#)), indicate that AI-based systems for recruiting, assessing, and evaluating performance may inadvertently replicate structural gender inequities. The restricted empirical link between AI governance practices and the advancement of women, their access to leadership roles, and their academic prominence is directly addressed in this study.

In general, the integration of the research shows that the higher education sector's AI-driven transition does not always result in

equitable outcomes. The interplay of institutional policy design, leadership representation, and access to AI literacy, research infrastructure, and ethical oversight determines the course of women's professional growth. Without consistent, gender-responsive governance models, digital transformation has the potential to exacerbate inequalities that already exist. However, if backed by inclusive leadership frameworks and well-organized capacity-building programs, AI has the potential to significantly improve women's fair and long-lasting career advancement in higher education.

Discussion

Higher education is becoming more and more integrated with artificial intelligence, resulting in a major shift in teaching methods, research procedures, and institutional governance structures. Recent research, however, reveals that the rate of AI adoption is considerably quicker than the creation of associated institutional regulations, which has resulted in a rise in the demand for digital upskilling among academic personnel (Kalim et al., 2025; Isaifan, 2026). Due to structural and institutional restrictions, women academics are sometimes denied equal access to professional development in AI-related fields, making this change gender-biased (Kalim et al., 2025). Although participation in such training remains uneven along gender lines, core competencies like data literacy, algorithmic awareness, and digital pedagogy have become essential for academic advancement (AlBlooshi, 2026; Sharples, 2023).

Additionally, the literature emphasizes ongoing gender-based obstacles to AI adoption, particularly in Asian higher education environments and in developing nations. Women's participation in academic activities that require a lot of AI is still hampered by socio-cultural conventions, a lack of digital infrastructure, and underrepresentation in STEM fields (Kalim et al., 2025). Due primarily to a lack of institutional support and training possibilities, empirical data also point to lower levels of female participation in sophisticated digital systems and generative AI technologies (Thien et al., 2025). Gendered academic workloads, where women are disproportionately responsible for teaching and administrative duties, leaving them less time to acquire technological skills, exacerbate

these challenges (OECD, 2018; Kalim et al., 2025). These inequalities, therefore, exacerbate existing disparities in promotion rates and research visibility (Elsevier, 2017), which are exacerbated in academic settings driven by artificial intelligence (Thien et al., 2025; Isaifan, 2026).

Conclusion

This research finds that the use of artificial intelligence in higher education is a dual revolution that has both positive and negative implications. It fosters innovation, boosts research output, and offers adaptable professional development and learning possibilities, on the other hand. It could, however, worsen current gender disparities if it is not handled with caution. Several interacting variables, such as restricted access to AI literacy education, underrepresentation in leadership roles, unequal workload distribution, inadequacies in digital infrastructure, and ineffective institutional governance practices, influence women's professional progress in AI-enabled academic settings (Kalim et al., 2025).

Additionally, the results demonstrate that AI is not inherently inclusive or exclusive, but rather that the results are mostly determined by how institutions develop laws and governance structures around its usage. Without inclusive AI capacity-building programs and gender-responsive institutional structures, the uptake of AI might exacerbate inequalities in productivity, research visibility, and academic advancement. But if AI is guided by ethical precepts and fair implementation methods, it may help women in higher education pursue more inclusive academic engagement and professional development (Kalim et al., 2025).

Overall, the review emphasizes that the shift to AI-driven education presents both possibilities and continuing challenges for women's academic careers. Despite the potential of digital technologies to improve knowledge access, increase flexibility, and boost research efficiency, structural obstacles such as leadership gaps, restricted AI training possibilities, and inadequate institutional policies continue to cause these advantages to be uneven. Technology progress may unintentionally exacerbate rather than alleviate existing inequalities if it is not governed deliberately and in a way that takes gender into account (Kalim et al., 2025).

A comprehensive and integrated policy strategy

that combines AI literacy development, institutional governance reform, access to research infrastructure, and inclusive leadership routes is necessary to overcome these obstacles. Future initiatives must concentrate on assessing the long-term equity consequences of AI adoption, rather than merely describing it. The alignment of ethical oversight, organized professional development, and institutional accountability with gender-equitable approaches to academic advancement will be essential for a sustainable and inclusive transition in higher education ([Kalim et al., 2025](#)).

Implications

This study has got the following implications:

Reforming Policy and Governance to Create Gender-Responsive AI Systems

Higher education institutions need to integrate gender equality into their digital transformation and AI governance frameworks. This includes establishing quantifiable equity indicators in institutional policies, aligning with international standards, and mandating monitoring systems that assess the gendered consequences of AI implementation in academic processes. Recent policy guidance emphasizes that AI governance in education must explicitly address fairness, transparency, and inclusion to avoid reinforcing existing inequalities ([Miao et al., 2023](#); [Regulation \(EU\) 2024/1689, 2024](#)).

Representative and Inclusive Leadership in AI Decision-Making

Equitable institutional transformation requires strengthening women's participation in AI-related leadership and governance systems. Inclusive leadership ensures that decisions regarding resource allocation, digital strategy, and academic planning incorporate diverse perspectives and mitigate gender-specific barriers to career advancement. Global evidence shows that gender-balanced leadership structures significantly improve equity outcomes in digital and innovation-driven environments ([World Economic Forum, 2024](#); [OECD, 2023](#)).

Establishing Equity in Professional Development and Capacity Building

Universities should provide structured, continuous, and inclusive AI literacy and

professional development programs. These initiatives must be flexible enough to accommodate teaching-heavy roles and should include targeted mentoring, financial support, and AI-enabled personalized learning platforms to reduce skill disparities among academics. Recent research highlights that equitable access to digital skills training is essential for reducing gender gaps in AI-intensive fields ([World Bank, 2021](#)).

Moral Supervision, Research Evaluation, and Global Comparative Study

Institutions require robust ethical oversight mechanisms, including AI auditing systems to detect and mitigate algorithmic bias in hiring, evaluation, and promotion processes. Emerging regulatory frameworks stress the importance of accountability and fairness in AI deployment across educational systems. Future research should extend beyond descriptive studies to examine long-term career trajectories and productivity outcomes in AI-mediated environments across diverse socio-economic contexts ([Regulation \(EU\) 2024/1689, 2024](#); [IEEE, 2019](#)).

Contributions

This study has got following contributions:

Conceptual Input

This study develops an integrated analytical framework linking AI transformation, institutional governance, gender equity, leadership representation, and professional development. It conceptualizes AI not merely as a technological tool but as a structural force shaping academic labor, institutional power relations, and career pathways. Recent scholarship emphasizes the importance of viewing AI as a socio-technical system embedded in governance and equity structures ([OECD, 2023](#); [Miao et al., 2023](#)).

Theoretical Advancement

This research extends existing theories of gender inequality in higher education by incorporating AI literacy, algorithmic governance, and digital leadership perspectives. It enhances understanding of how AI-driven academic environments reshape gendered experiences in employment, promotion, and institutional

participation. Contemporary theoretical developments highlight that digital transformation intensifies both opportunities and inequalities within academic systems ([World Economic Forum, 2024](#)).

Empirical Contribution

By integrating global evidence from 2023-2025, this study provides an updated synthesis of AI adoption and its implications for gender disparities in academia. It consolidates fragmented empirical findings into a coherent account of emerging structural inequalities in increasingly digitized higher education systems. Recent comparative studies confirm that AI integration in academia is reshaping career progression patterns and widening digital divides when equity safeguards are weak ([World Bank, 2021](#)).

Policy-Relevant Contribution

The study connects international ethical AI frameworks and inclusive digital transformation policies with institutional realities in higher education. It provides actionable insights for strengthening gender-responsive AI governance, enhancing professional development systems, and supporting equity-oriented implementation strategies. Global policy bodies increasingly emphasize the need for inclusive governance structures to ensure that AI benefits are distributed equitably across gender and professional groups ([Regulation \(EU\) 2024/1689, 2024](#); [IEEE, 2019](#); [Miao et al., 2023](#)).

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