Exploring the Adoption of Artificial Intelligence in Higher Education: Insights From Faculty and Student Perspectives

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Abstract

This quantitative study explores faculty and student perspectives on artificial intelligence (AI) within the context of higher education. To address this objective, a structured questionnaire was used to examine faculty and student perceptions of AI based on opportunities, challenges, and ethical concerns. Responses from a sample of 50 faculty members and 100 students were analyzed using descriptive statistics and principal component analysis (PCA). The results suggest that both faculty and students view AI as a means of facilitating student learning and improving conceptual understanding of course content through personalization, increased confidence, and improved digital literacy. Respondents also identified several challenges associated with the use of AI, including reliance on external sources of information, inaccurate information, limited institutional support, and misalignment with traditional models of pedagogical practice. Both groups indicated that ethical considerations—such as maintaining academic integrity, ensuring transparency, reducing bias, and supervision by human teachers—will be necessary to facilitate the effective use of AI. Principal component analysis identified several components strongly associated with barriers to successful use of AI, usability of AI, and ethical considerations related to AI use. Although AI is widely perceived as beneficial, it is critical that higher education institutions create an environment in which AI is used ethically and responsibly by providing appropriate policies, support, and guidance for both students and staff using AI tools in an academic context.

Keywords: artificial intelligence, higher education, faculty and student perceptions, ethical concerns, digital literacy

1. Introduction

Many facets of higher education have changed as a result of advancements in artificial intelligence (AI), including how institutions manage, teach, and learn. These fields are seeing new prospects as a result of ongoing AI research and improvement. Universities are investigating how to incorporate AI tools to provide better educational experiences, improve learning outcomes, and personalize instruction for each student. Students are currently using AI tools such as ChatGPT for various aspects of their academics, including writing, research, and problem solving. Resources such as *There Is an AI for That* provide students with links to many AI platforms that have been tailored to different uses, such as creating presentations, writing reports, making posters, and creating infographics. In addition, many widely used applications now include AI capabilities; examples include Microsoft Excel, Canva, and even social media applications such as Snapchat, suggesting that users are becoming increasingly familiar with AI technology in their daily digital lives.

However, as the number of students using AI in education increases, so does the number of ethical and technical issues. Faculty, students, and institutions must address the technical challenges of using AI within educational settings, the potential biases built into AI software, and the implications of AI use for student academic integrity, privacy, and equitable access to AI tools. Although some studies have examined how faculty and students view and adopt AI, there is a significant gap in the empirical literature examining how both groups perceive the use of AI within the same educational institution. A thorough understanding of how both groups of stakeholders perceive AI would help identify opportunities to enhance learning through AI applications, proactively plan for anticipated challenges in the use of AI in education, and build the foundation for the development of AI in higher education.

The present research is intended to fill this gap by examining how faculty and students view AI in education. The study examines three aspects of AI in higher education as perceived by faculty and students: opportunities, challenges, and ethical concerns. By examining these perceptions, the research provides insight into how institutions can use this information to develop strategies for strategically integrating AI within the education system, promoting responsible use of AI, and developing digital literacy skills among both faculty and students.

2. Literature Review

Table 1 presents a synthesis of recent studies examining AI in higher education, including their methodologies, key findings, and limitations.

Table 1

Summary of Reviewed Literature on Artificial Intelligence in Higher Education

Authors	Year	Title	Methodology	Findings	Limitations
Ghimire et al.	2024	Generative AI in Education: A Study of Educators' Awareness, Sentiments, and Influencing Factors	Survey and interview	Educators' opinions vary as their understanding of AI develops; technical confidence does not predict the ability to recognize AI-generated work.	Conducted from an instructor's perspective only; no data representing the student perspective.
Ogunleye et al.	2024	A Systematic Review of Generative AI for Teaching and Learning Practice	Systematic literature review	Generative AI has common applications in higher education learning environments, with associated opportunities and risks.	Generalized literature review; no empirical data on the most current findings.
Li et al.	2024	Bringing Generative AI to	Conceptual/literature synthesis	Combining a generative AI	Conceptually driven; no

Authors	Year	Title	Methodology	Findings	Limitations
		Adaptive Learning in Education		layer (NLP) with an adaptive learning engine can enhance personalized learning experiences, improving adaptability of systems.	proven evidence to date and multiple theoretical challenges remain.
Sajja et al.	2024	Artificial Intelligence-Enabled Intelligent Assistant for Personalized and Adaptive Learning in Higher Education	System/framework design with LMS integration	Personalized support providing adaptive learning increases engagement.	Class-level validated outcome measures are limited; scalability and integrity not fully evaluated.
Demartini et al.	2024	Artificial Intelligence Bringing Improvements to Adaptive Learning in Education: A Case Study	Case study using learning analytics	AI improves personalized products, creates accurate user profiles based on interests, and supports teaching decisions.	Limited sample; tested only in a single location.
Wu et al.	2024	Analyzing K-12 AI Education: A Large Language Model Study of Classroom Instruction on Learning Theories, Pedagogy, Tools, and AI Literacy	Large language model analysis	AI classrooms focus on concepts; few foster advanced skills or ethics. Project-based learning and collaboration improve AI literacy.	Limited to central Chinese cities; classroom-focused only.
Ayyoub et al.	2025	Advancing Higher Education With GenAI: Factors Influencing Educator AI Literacy	Mixed methods	The three key influences on faculty AI literacy are the ability to use AI technologies, the availability of	Target audience is faculty, not students.

Authors	Year	Title	Methodology	Findings	Limitations
				professional development opportunities, and a supportive community.	
Wang	2025	Scaffolding Creativity: Integrating Generative AI Tools and Real-World Experiences in Business Education	Case study	Combining AI tools with experiential learning encourages creative expression and expands knowledge retention.	Specific to a given course; does not generalize to other learning experiences.
Garousi et al.	2025	Encouraging Students' Responsible Use of GenAI in Software Engineering Education: A Causal Model and Two Institutional Applications	Design-based research using mixed methods at two institutions	A critical approach toward GenAI moves students from passive dependence to improved practices of self-validation.	Contextualized to each institution using observational methodology; limited generalizability.
Strielkowski et al.	2025	AI-Driven Adaptive Learning for Sustainable Educational Transformation	Bibliometric analysis using VOSviewer	Adaptive learning via AI facilitates customizable learning and provides accessibility of sustainable learning solutions.	Focuses on literature trends; no empirical data.
Ma et al.	2025	Preparing Students for an AI-Driven World: Generative AI and Curriculum Reform in Higher Education	Conceptual framework and curriculum analysis	AI-enabled curriculum reform increases literacy, facilitates interdisciplinary collaboration, and promotes problem-based learning.	Entirely conceptual; no empirical data.

Authors	Year	Title	Methodology	Findings	Limitations
Dalal & Bhattacharya	2025	Leveraging Chatbots in Management Education	Conceptual review on LMS-chatbot integration	Chatbots show supportive potential for personalized learning, engagement, and flipped classrooms.	Conceptual and limited empirical data.
Abubakar et al.	2025	The Role of Over-Reliance on AI in the Negative Consequences of Student Learning: The Moderating Effects of Ethical Concerns and Institutional Policies	Qualitative survey and regression analysis	AI can have negative effects on learning; however, ethical and institutional policies may reduce those effects.	Examined only one region; no actual policy data gathered.
Alsharefeen & Al Sayari	2025	Examining Academic Integrity Policy and Practice in the Era of AI: A Case Study of Faculty Perspectives	Survey and interview	Educators preferred educational AI policy over punitive policy due to concerns about workload and support systems that may affect policy implementation.	One institution; self-reported data.
Daher	2025	Integrating AI Literacy Into Teacher Education: A Critical Perspective Paper	Critical conceptual perspective	Argues for integrating ethics and equity in AI literacy within teacher education programs.	Conceptual; no empirical data.
Finkelstein	2025	A Principled Way to Think About AI in Education: Guidance for Action Based on Goals, Models of Human	Conceptual framework	Argues for aligning AI use with learning goals and human learning models.	Conceptual; no empirical data.

Authors	Year	Title	Methodology	Findings	Limitations
		Learning, and Use of Technologies			
Kennedy & Gupta	2025	AI & Data Competencies: Scaffolding Holistic AI Literacy in Higher Education	Conceptual framework	Proposes a holistic AI and data literacy competency model for higher education.	Conceptual; no empirical data.

Note. NLP = natural language processing; LMS = learning management system; GenAI = generative artificial intelligence.

3. Methodology

3.1 Sampling Technique

A purposive sampling technique was used to gather information from individuals knowledgeable about AI within an educational setting. The sample consisted of 50 faculty members and 100 students representing different disciplines, schools, and levels of study.

3.2 Data Collection

Data were collected using structured online questionnaires administered through Google Forms. A 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) was used to measure respondents' level of agreement with each questionnaire statement. Reliability testing was performed to ensure that all items produced consistent scores, although Cronbach's alpha values were not reported in the results. The questionnaire developed for faculty members consisted of 27 items, and the one developed for students consisted of 30 items. Items were designed to gather data about opportunities, challenges, and ethical issues surrounding the use of AI in education. In addition, demographic information was collected, including age, gender, area of residence (rural, urban), faculty designation, level of student study, primary area of concentration, type of institution

(public, private), and familiarity with AI in education. Participation was strictly voluntary, and responses were automatically captured upon submission.

3.3 Data Analysis

Data were analyzed using descriptive statistics (mean, standard deviation, minimum, maximum) to summarize how faculty members and students perceive AI in education; faculty and student data were analyzed separately. Additional analyses, including factor analysis and regression analysis, were conducted to examine the relationships between variables and the influence of demographic information and AI familiarity on perceptions of AI use in education.

4. Results

4.1 Survey Data Overview

A total of 50 faculty members and 100 students participated in the study. Responses were analyzed for three factors: opportunities, challenges, and ethical concerns related to AI. Factor scores were created by standardizing raw scores, and descriptive statistics were used to summarize the data. On average, faculty members rated AI's potential impact on education more favorably than did students, while both groups expressed moderate concerns about challenges and similar levels of ethical concerns. These results indicate that the two groups share several views about AI while also differing in some respects.

4.2 Faculty Sample

Kaiser–Meyer–Olkin (KMO) Measure and Bartlett's Test of Sphericity

The KMO measure and Bartlett's test of sphericity were used to determine whether the faculty sample size was adequate for factor analysis. The KMO measure was .613, indicating sufficient sampling adequacy, and Bartlett's test of sphericity was statistically significant, $\chi^2(210) = 1331.84$,

$p < .001$. These results indicated that the faculty sample was adequate for performing factor analysis and that the correlation matrix was appropriate for factor analysis.

Table 2

Descriptive Statistics for Faculty Standardized Factor Scores

Factor Score	*N*	Minimum	Maximum	*M*	*SD*
Opportunities	50	−1.94	1.70	0.00	1.03
Challenges	50	−1.80	2.91	0.00	1.04
Ethics	50	−2.60	2.15	0.00	1.04

Note. Factor scores are standardized (M = 0, SD = 1 expected). Output from IBM SPSS Statistics.

These results indicate sufficient variability within the faculty scores. The Opportunities factor scored relatively higher than both the Challenges and Ethics factors, suggesting that most faculty members view AI as offering somewhat more potential than barriers or ethical issues.

Regression Analysis for Faculty

Multiple regression analyses were conducted to examine the relationship between faculty perceptions (Opportunities, Challenges, and Ethics) and faculty background variables (teaching experience, type of institution, AI knowledge, and primary domain/major). Results are presented in Table 3.

Table 3

Regression Analyses Predicting Faculty Perceptions of AI From Background Variables

Outcome	R^2	*F*	*p*
Opportunities score	.082	0.999	.418
Challenges score	.044	0.518	.723
Ethics score	.024	0.277	.891

Note. Predictors: teaching experience, type of institution, AI knowledge, and primary domain/major. Variance inflation factor (VIF) values ranged from 1.06 to 1.16, indicating no multicollinearity concerns.

Faculty background variables did not significantly predict perceptions of opportunities, challenges, or ethics related to AI. No multicollinearity issues were detected.

4.3 Student Sample

Kaiser–Meyer–Olkin (KMO) Measure and Bartlett's Test of Sphericity

The KMO measure for the student sample was .807, indicating excellent sampling adequacy for factor analysis, and Bartlett's test of sphericity was statistically significant, $\chi^2(435) = 1870.01$, $p < .001$. Student responses were therefore highly amenable to factor analysis, and the sample size was adequate for testing the three factors of opportunities, challenges, and ethics.

Table 4

Descriptive Statistics for Student Standardized Factor Scores

Factor Score	*N*	Minimum	Maximum	*M*	*SD*
Opportunities	100	−4.37	1.71	0.00	0.97
Challenges	100	−3.40	1.72	0.00	0.96
Ethics	100	−2.05	1.97	0.00	0.91

Note. Factor scores are standardized. Output from IBM SPSS Statistics.

There was moderate variation across the three factors in the student sample.

Regression Analysis for Students

Multiple regression analyses were conducted to examine the relationship between student perceptions (Opportunities, Challenges, and Ethics) and student background variables. Results are presented in Table 5.

Table 5

Regression Analyses Predicting Student Perceptions of AI From Background Variables

Outcome	R^2	*F*	*p*
Opportunities score	.039	0.959	.434

Outcome	R^2	F	p
Challenges score	.072	1.844	.127
Ethics score	.041	1.028	.397

Note. Predictors: level of study, institutional type, and other student demographic variables. Output from IBM SPSS Statistics.

Student background variables did not significantly predict perceptions of opportunities, challenges, or ethics. Only small, nonsignificant trends were observed for level of study and institutional type.

5. Discussion

This study examined how faculty and students perceive AI in education across three dimensions: opportunities, challenges, and ethical concerns. Overall, the results show a generally optimistic view of the prospects for AI, although these positive attitudes were tempered by concerns about how to use AI effectively and responsibly within educational settings.

Both groups recognized that AI can be a useful tool for improving learning and teaching. Faculty emphasized AI's role in personalized instruction, curriculum support, and research productivity, whereas students reported using AI to gain a better understanding of concepts, receive real-time feedback, increase opportunities for collaboration, and improve time management. The standardized factor scores (centered on zero) represented comparable views across both groups, with moderate variability indicating that personal interaction with the technology influences perception. The regression analyses indicated that demographic characteristics, such as years of teaching experience, familiarity with AI, institution type, level of study, and academic discipline, had negligible effects on perceived opportunities, suggesting that perceived opportunities for AI are broadly similar across groups.

Faculty and students both identified challenges to using AI in higher education, including a lack of training, technical barriers, and difficulties integrating the technology into curriculum and

assessment. Students also expressed concerns about originality, academic integrity, and limited institutional support. Variability in challenge scores suggests that users have had different experiences with adopting the technology; however, regression results indicated that demographic variables had little to no explanatory power for these challenges. Accordingly, AI presents systemic challenges that require institutional support and training initiatives. Ethical concerns about AI use identified by faculty members focused on data privacy, algorithmic bias, and institutional governance, whereas students' ethical concerns centered on the responsible use of AI technology and maintaining academic integrity. The substantial variance in ethical concerns suggests that no standardized approach has yet been adopted for addressing ethical issues in AI use in higher education, although demographic predictors of these variances were not statistically significant.

Although evidence indicates that AI offers numerous benefits for higher education institutions, integrating AI into curriculum and assessment processes is complex and involves many interconnected factors. To achieve effective and ethical integration of AI into the educational experience, institutions should establish comprehensive policies, build capacity, and provide transparency for the governance of AI use. Universities can use the findings of this research to develop institution-wide policies, train faculty in the effective use of AI for improving educational quality, create and communicate ethical guidelines, develop infrastructure to support student access to AI, and use AI to support personalized instruction, automated assessment feedback, curriculum design, and collaborative learning environments.

This study has several limitations, including a relatively small sample, limited geographic coverage, the use of self-reported data, and a structured questionnaire that did not allow detailed elaboration of participants' perceptions. Future studies should include larger samples, longitudinal

designs, and a combination of qualitative and quantitative methods to better understand how technology is being used in the education sector and how it can best be implemented for high-quality educational outcomes.

6. Conclusion

This study examined faculty and student views of AI as an educational tool across three dimensions: opportunities, challenges, and ethical concerns. Faculty and students agree that AI can help improve education through enhanced learning, teaching effectiveness, and collaboration. In particular, faculty noted that AI can improve curriculum design and their own research productivity, whereas students noted that AI can improve personalized learning, provide opportunities for collaborative interactions, and enhance time-management skills.

Technical problems, inadequate training, dependence on technology, and ethical issues were identified by both groups as the most common challenges associated with AI use. Factor analyses confirmed significant variation in responses, and regression analyses indicated that demographic factors (e.g., teaching experience, familiarity with AI, level of study, institutional type, and primary area of study) had minimal impact on perceptions of AI's benefits, challenges, and ethics. Responses across all three categories were therefore largely consistent across respondents.

Despite many opportunities for AI in learning and teaching, careful planning and implementation are required to maximize its positive impacts through training, ethical governance, and institutional support.

7. Recommendations

- **Developing the capacity of faculty and students.** To improve faculty and student understanding and proper use of AI, both groups should receive continuous, competency-based training.

- **Ethical policies.** Creating a framework for using AI ethically—addressing concerns such as privacy and plagiarism—will allow institutions to develop appropriate policies for ethical AI use.
- **Technical services.** Institutions should maintain adequate infrastructure and support for the ongoing integration and updating of AI in their programs.
- **Awareness.** Institutions should enhance awareness of the benefits and risks of AI in higher education settings.
- **Institutional policies.** Institutions should include strategies for the implementation of AI in their curriculum and other written policies to support equitable and responsible adoption.
- **Monitoring.** Institutions should monitor and frequently review AI use and provide ongoing guidance regarding emerging ethical issues.
- **Tools and platforms for AI.** Institutions could adopt AI tools such as tutoring chatbots, adaptive learning systems, and learning analytics platforms to enhance teaching, learning, and assessment.
- **Programs and literacy.** Institutions may implement AI literacy modules, certifications, or workshops for faculty and students to develop the skills needed for effective and responsible AI use.

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