AI in Higher Education: Usage, Perceptions, and Ethics at BUITEMS

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Abstract

Higher education has embraced artificial intelligence (AI), which is changing methods for academic support, evaluation, and learning. The impact of AI usage, student perceptions, and ethical concerns on academic performance at Balochistan University of Information Technology, Engineering, and Management Sciences (BUITEMS) is examined in this study. Cross-sectional data from 300 students in three departments (Computer Science, English, and Economics) was used in a descriptive quantitative design. A systematic, self-administered questionnaire that was adapted from well-known frameworks, such as the General Attitudes Toward Artificial Intelligence Scale (GAAIS) and the Technology Acceptance Model (TAM), was used to collect data. Acceptable internal consistency across constructs was demonstrated by reliability analysis (perceptions α =.72; ethics α =.61; use α =.64). With average scores above 3.5 on a 5-point scale, descriptive statistics showed that students had good opinions regarding AI. There were no discernible variations in AI use, attitudes, or ethical concerns amongst departments, according to the results of a one-way ANOVA. Regression analysis, however, revealed that academic performance was considerably and favorably impacted by AI usage (β = 0.50, p <.001) and perceptions (β = 1.36, p =.002), whereas ethics had a favorable but non-significant effect. The model as a whole accounted for 56% of the variation in student grades. These results demonstrate AI's beneficial effects on academic performance while simultaneously emphasizing the significance of resolving ethical issues. In order to create responsible AI integration strategies that improve student learning while maintaining academic integrity, the study provides evidence-based insights for institutions in developing countries. The study suggests that Governments in these countries can incorporate AI related components in curriculum, which may further improve AI utility amongst students.

Keywords: *Artificial Intelligence, student performance, perceptions, ethics, BUITEMS.*

Introduction

One of the most revolutionary developments in contemporary education is artificial intelligence (AI) (Hennekeuser et al., 2024), which is impacting methods of instruction, learning, and evaluation all around the world (Edtech, 2020). Artificial intelligence (AI) has evolved from a futuristic idea (Hwang et al., 2020) to a crucial part of contemporary educational institutions across the globe (García-Martínez et al., 2023). Traditional approaches include drawbacks such limited user engagement, accessibility problems, a slow rate of change adaption, and a failure to fully utilize new technology (Saqlain, 2023). The use of AI in education has changed how students learn, engage, and perform academically, from virtual learning assistants and automated grading systems to adaptive learning platforms and AI-driven research tools (Joyce & Harris, 2018). Learner data analysis (Pinkwart, 2016), personalized delivery of content (Selwyn, 2022), and immediate feedback (Facione, 2020) are all made possible by AI-powered systems, which allow students to participate in more effective and focused learning experiences (Krause et al., 2025). Furthermore, ChatGPT, Grammarly, Turnitin, and AI-based coding helpers have opened up new possibilities for students to improve their academic performance (Selwyn, 2019) and acquire useful skills (Chin, 2018).

The academic landscape is changing due to AI-driven technologies like adaptive checks, individualized learning systems, and intelligent tutoring systems (Kausar et al., 2024). By offering discipline-specific solutions and encouraging interdisciplinary collaboration, artificial intelligence (AI) presents an unparalleled potential in higher education, especially in multidisciplinary universities, to fill gaps across various fields of study (Holmes et al., 2019). For example, management students can use predictive analytics to make business decisions, while engineering students can use AI to solve complicated problems (Castaneda & Selwyn, 2018; Du Boulay, 2000; Selwyn, 2016). Because of this, students nowadays are more interested in adopting AI for personalized and tailored learning, which increases the flexibility and accessibility of their education (Rehman & Kang, 2024). Even though there is a rising global conversation about AI in education, there is still a lack of empirical study in Pakistan, particularly in the region of Balochistan.

Offering programs in technology, engineering, management, and applied sciences, Balochistan University of Information Technology, Engineering, and Management Sciences (BUITEMS) is one of the province's top public universities. BUITEMS offers a distinctive setting for investigating the impact and adoption of AI technologies across disciplines because of its multidisciplinary setting. Developing informed policy, improving teaching strategies, and improving student learning outcomes all depend on an understanding of how AI is incorporated into students' academic schedules and whether it has a noticeable impact on their academic performance (Chen et al., 2020; Zawacki-Richter et al., 2019).

Concerns about an excessive dependence on technology, the technological gap between students who have different access to AI tools (Johnson & Smith, 2019), and ethical issues like plagiarism or diminished critical thinking (Ali et al., 2024; Dergaa et al., 2023) still exist despite the increased interest in AI. Therefore, to support sustainable integration plans and offer verifiable proof of AI's academic influence, a methodical, data-driven study is required. By objectively assessing BUITEMS students' usage, perceptions and ethics of applying artificial intelligence for academic purposes—with special emphasis to variations among academic disciplines—this study seeks to bridge that gap.

Significance

This study is important from an academic, institutional, and social perspectives. With a focus on Balochistan, an underrepresented context in the global discourse on AI in education, it quantitatively evaluates the usage, perceptions, and ethics of using AI for academic purposes among BUITEMS students, filling a significant research gap at the academic level. The results will help BUITEMS create discipline-specific interventions, evidence-based curriculum design methodologies, and capacity-building programs that guarantee the effective incorporation of AI technologies into teaching and learning practices. The study provides information for Pakistani institutions and policymakers about the fair and efficient use of AI technology at the societal and policy level.

Research Objectives

i. To examine the impact of AI usage on students' academic performance across three departments.
ii. To explore students' perceptions of AI and its influence on their academic performance.
iii. To investigate the role of ethical considerations between AI usage and academic performance.

Research Questions

i. What is the impact of AI usage on students' academic performance?
ii. How do students perceive the effectiveness and limitations of AI in their academic learning?
iii. To what extent do ethical considerations influence the relationship between AI usage and students' academic performance?

Hypotheses

H1: Increased AI usage is positively associated with higher academic performance among university students.

H2: Students with positive perceptions of AI report better academic outcomes compared to those with negative perceptions.

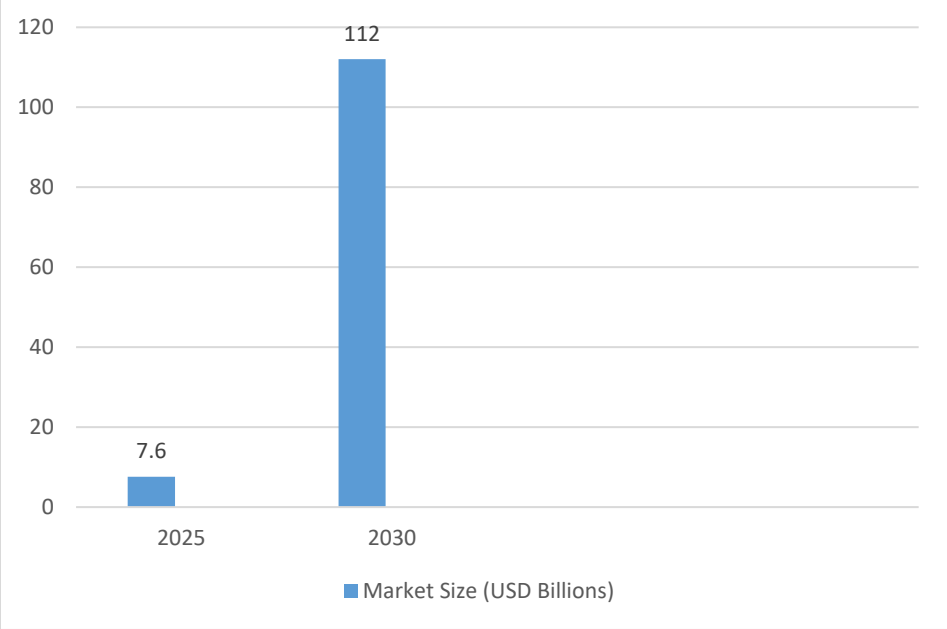
H3: Ethical concerns moderate the relationship between AI usage and academic performance.

Literature Review

AI and Education: A Global Approach

AI is now an essential component of the virtual world. AI undoubtedly has a significant impact on both general education and higher education (Edtech, 2020). The market for AI in education is anticipated to develop quickly worldwide, from USD 7.6 billion in 2025 to USD 112 billion by 2030 (Hennekeuser et al., 2024). The use of AI-assisted grading systems, intelligent tutoring systems, and adaptive learning platforms is what is causing this growth (Arshad et al., 2024). Visual representations of this trend and the exponential market growth predicted over the next five years are shown in Figure 1**.**

Figure 1
Projected AI in Education Market Size (2025–2030)



Note. Adapted from MarketsandMarkets (2024). The market is forecast to grow more than 14-fold, indicating accelerating adoption in educational institutions worldwide.

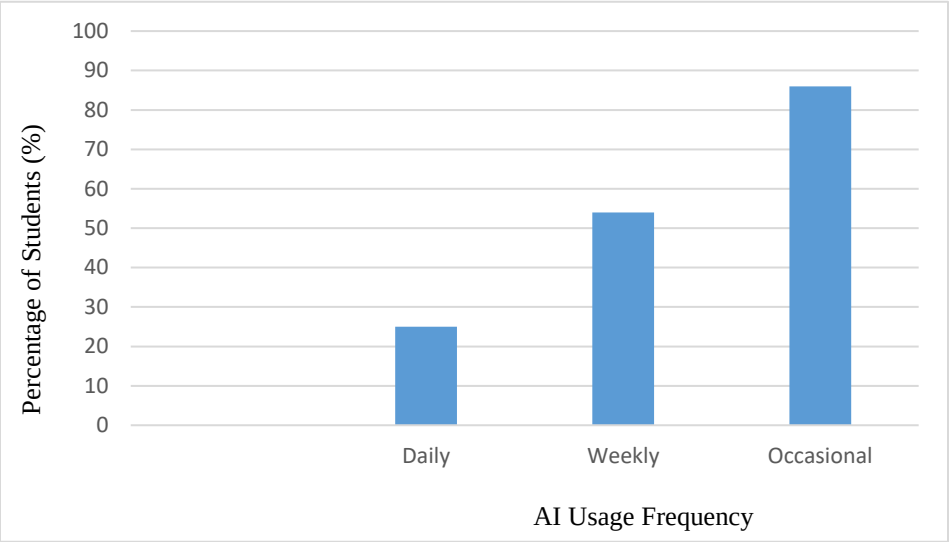
Usage Trends of AI in Higher Education

AI integration in higher education is seen in student usage trends in addition to market size. According to surveys, students' use of AI varies greatly; roughly 25% use it every day, 54% once a week, and 86% once in a while (Educause, 2024). These numbers imply that although adoption is broad, the degree of use varies depending on the discipline, goal, and availability of technology.

These usage patterns are shown in Figure 2, which also shows that occasional users outnumber daily adopters.

Figure 2

AI Usage Frequency Among University Students



Note. Data adapted from Educause (2024), showing cumulative usage trends across higher education.

In their study of the effects of artificial intelligence (AI) tools on student learning, Phua, Neo, and Teo (2025) focused on how attitudes and adoption behaviors are influenced by students' views of the tools' utility, usability, and privacy and security issues. Their study, which focused on well-known products like ChatGPT, QuillBot, Grammarly, and Perplexity, polled students at Multimedia University in Malaysia using the Technology Acceptance Model (TAM) and the General Attitudes towards Artificial Intelligence Scale (GAAIS). The results showed a high level of interest in AI, mostly due to the belief that technology could enhance productivity, academic achievement, and individualized instruction. The study did, however, also draw attention to several serious issues, such as the possibility of data privacy violations, an excessive dependence on AI, and the possible deterioration of pupils' critical thinking and problem-solving abilities. These revelations highlight AI's dual function as a useful aid for academic achievement and a source of pedagogical and ethical issues that call for cautious incorporation in higher education (Phua et al., 2025).

At the National University of Science and Technology POLITEHNICA Bucharest, Vieriu and Petrea (2025) investigated the effects of artificial intelligence (AI) on students' academic growth, highlighting the advantages and disadvantages of integrating AI in higher education. 85 second-year students who had direct experience with AI-enhanced learning environments participated in the study via purposive sampling, and data was collected using a standardized questionnaire that combined quantitative and qualitative techniques. The results emphasized the advantages of AI, such as enhanced student engagement, better academic achievement, and individualized learning,

while also pointing out its drawbacks, including an over dependence on AI, a decline in critical thinking, data privacy issues, and academic dishonesty. To strike a balance between creativity and accountability, the writers underlined the necessity of an organized integration framework backed by moral principles. The study concludes by highlighting AI's potential to revolutionize learning outcomes and efficiency, so long as educational institutions address concerns about accuracy, ethics, and cognitive engagement to guarantee equitable and long-lasting practices (Vieriu & Petrea, 2025).

In a private senior high school in the Philippines, Milloria, Marzon, and Derasin (2024) examined how integrating artificial intelligence (AI), more especially ChatGPT 3.5, into classroom instruction affected student performance. The study investigated the use of AI in interactive Q&A sessions during formative assessments using a quasi-experimental pretest–posttest design with Grade 11 Humanities and Social Science students. The results showed that by improving conceptual organization, engagement, and congruence with learning styles, ChatGPT integration considerably raised students' academic performance. In order to assure responsible AI use in education, the study underlined the significance of resolving ethical problems relating to data privacy, security, and academic integrity, in addition to academic gains. These results highlight AI's promise as a teaching tool and a driver of deeper learning, so long as it is applied with safeguards that uphold accountability and fairness (Milloria et al., 2024).

An empirical study by Slimi & Carballido (2023) examined the impact of artificial intelligence (AI) on teaching, learning, assessment, ethics, skills, and career preparedness in higher education. The study, which used a qualitative survey approach, discovered that AI has a great deal of promise to improve students' learning of new information and abilities, automate administrative and grading work, and tailor education. According to the findings, AI can increase higher education's efficacy and efficiency while equipping graduates with the skills they'll need for future jobs. The study also emphasized how critical it is to address ethical issues including data protection, equity, and the wider societal ramifications of integrating AI. Higher education institutions should integrate AI more widely into their curricula, according to Slimi and Carballido, in order to optimize its advantages and responsibly educate students for the demands of the changing workforce (Slimi & Carballido, 2023).

Research Methodology

The current study is about the usage, perceptions and ethics of using artificial intelligence for academic purpose by students. This is a descriptive quantitative research. The research is based on cross sectional data which is collected on a specific time.

Balochistan University of Information Technology, Engineering and Management Sciences (BUITEMS) students is the population of this study. This study randomly selected 350 students from 03 departments: Economics, English and Computer Science. A prior approval from respective DEANS and chairpersons of departments was taken. Later, students were informed of the academic purpose of the study and their consent was sought. The data has been collected through structured questionnaire on perceptions, ethics and usage of AI for academic purpose which has been designed on established frameworks; Technology Acceptance Model (TAM) and

the General Attitudes towards Artificial Intelligence Scale (GAAIS) adopted from the studies of (Davis, 1989; Venkatesh et al, 2003 & Schepman & Rodway, 2020). Responses are recorded on 5 points Likert scale where one stands for strongly disagree while five shows strongly agree. The questionnaires are provided to all the students in hard copies and data received around 327 responses and after cleaning the data, 300 questionnaires were completed and ready for analysis. Inverse order questions have been included in items to make sure that responses are diligently recorded. This study uses 4, 5 and 8 items to measure 3 constructs: ethics, usage and perceptions. The researcher took a prior consent and also informed all the students about the purpose of the research. All the analysis is performed through STATA 17.

Internal consistency of the items is important as it is the tool that overall research and findings are dependent on. After decoding the reverse order questions, the internal consistency is checked. All the items showed that construct is internally reliable.

Table 1

Internal Consistency Measures

Construct	Items	α values
Perceptions	8	0.72
Ethics	4	0.61
Usage	5	0.64

The above table reports internal consistency values which are on lower side but still acceptable (Tavakol & Dennick, 2011). In case of ethics and usage alpha values are on lower side but due to the nature of data, e.g. cross sectional and multidiscipline these values may well be accepted and moved to further analysis (Nunnaly, 1978). Since the data is collected from three different departments so the following table shows the division of respondents in terms of departments they belong to.

Table 2

Division of Respondents in Terms of Departments

Department	No of students participated	Percentage out of total
Economics	189	63
English	67	22
Computer Sciences	44	15

The descriptive statistics of data provides a good snapshot of the data and it makes it easier for the readers to understand data (Creswell,2018). The following table shows descriptive statistics of the data.

Table 3

Descriptive Statistics

Variable	Observations	Average	Variation	Max	Min
Usage	300	4.01	0.62	4.6	1.8

Ethics	300	3.52	0.66	4.1	1.2
Perceptions	300	3.82	0.72	4.7	1.3

On average the respondents have shown more inclination towards positive responses as the values hover around 4. There is not much variation in terms the responses on different variables as all the values are in close vicinity. Extreme values have not been opted by respondents.

To check if there is any difference in using AI by the students of all three departments, ANOVA is used. This test is preferred over z and t-test because ANOVA can be used for comparison of more than two sets. In our case, we have three departments so ANOVA is perfect (Field, 2018). Moreover, for normality, it is necessary that n be greater than 30, which is also met in current case. For ANOVA, one more test is needed which can confirm if there is difference in variances across department, e.g. assumption of homogeneity of variances. If p>0.05 then this assumption is met. In present study, Levene's test values are not significant which shows assumption of equal variance satisfied. All three variables showed homogeneity in variances across departments which shows we can safely move on with one-way ANOVA test for analysis.

Table 4
Analysis of Variance

Variable	F value	df (between and within)	P value
Perceptions	0.25	2, 297	0.72
Ethics	0.31	2, 297	0.82
Usage	0.36	2, 297	0.71

In current study, values of p are greater than 0.05 in case of all each variable across departments which suggest there is no statistical difference. That means that perceptions, ethics and usage across all departments are the same since their means are closer (Field, 2018).

It is also important to determine if AI usage, perceptions and ethics affects students' performance. The students' grades improvement has been taken as dependent variable while ethics, usage and perceptions are all independent variables in our regression analysis. The following model is run through ordinary least square regression. This is widely used model and has is very effective in estimating linear relationships (Wooldridg, 2019).

$$\boldsymbol{g = \beta_0 + \beta_1 p + \beta_2 e + \beta_3 u + \epsilon}$$

Where g is grades, p, e and u are AI related perceptions, ethics and usage. ϵ is catch all effect while β_s are coefficients showing partial effects.

Table 5

Regression Result

Independent variables	β	Standard error	T	P values
Ethics	0.13	0.94	1.64	0.124
Perceptions	1.36	0.090	15.09	0.002

Usage	0.50	0.07	5.17	0.000
F(3, 296) = 125.67 Prob > F 0.05				
R-squared = 0.5602				

The regression result shows that all three predictors explain 56% variation in dependent variable and perceptions and usage are significantly and positively related to grades of students while ethics are positive but not significant in its effect on grades of the students.

Findings of the Study

The current study is an endeavor to know students' usage, perceptions and ethical considerations while using AI for academic purposes in three different departments. By employing variance of analysis (ANOVA) the study found no difference across departments. This implies students in different departments have the same perceptions of AI and its usage also does not vary. This study also attempted to check the impact of AI usage, students' perceptions and ethical considerations on their academic performance. The overall impact of all predictors is significant and positive. This shows that AI has been a positive contributor and students are using it for better results. Ethical considerations have positive impact on students' performance but it is not significant. Since the research on AI ethical usage is at nascent stage hence the area is relatively unexplored, therefore, this dimension lacks measurement tools too (Zawacki et al., 2019).

Discussion and Recommendations

Current digital era has been posing challenges and providing opportunities to this generation. Students have been becoming over reliant on technologies which can affect them either way. Sensible and responsible use of technology can help students improve their academic performance. The current study checked the use of AI, perceptions of AI and ethical considerations while using AI across three different departments: English, economics and computer sciences. The study finds that students of all three departments are equally using AI while ethical considerations, and perceptions about AI are also the same. This shows that students are equally dependent on AI across departments. AI usage, perceptions and ethics are also significantly affecting overall grades of the students. Since grades reflect the achievement of the students and this result is dependent on AI hence it becomes imperative to use it more diligently. This research has linked students' achievement with AI, hence it urges Governments in developing countries to incorporate AI related components in curriculum, which may further improve AI utility amongst students. As far the usage, Governments may lay down frameworks for AI utilization at institutional level by students more responsibly. A better coordination between teachers and students on AI usage can improve its utility. There is a need of more robust and effective system of check and balance to counter plagiarism and other malpractices.

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