TPM Vol. 32, No. S7, 2025
ISSN: 1972-6325
https://www.tpmap.org/

ARTIFICIAL INTELLIGENCE AND THE FUTURE OF THE PROFESSORIATE: A STUDY OF THE IMPACT OF AI ON FACULTY ROLES AND RESPONSIBILITIES

TAZEEN HUMA
SENIOR LECTURER, MEDIA SCIENCES DEPARTMENT, FACULTY OF MEDIA SCIENCES, IQRA UNIVERSITY KARACHI.

*TOOBA AHMED
LECTURER IN ENGLISH, DEPARTMENT OF HUMANITIES, COMSATS UNIVERSITY ISLAMABAD, LAHORE CAMPUS.

MUHAMMAD RASHID AKBAR
PHD SCHOLAR & ASSISTANT PROFESSOR, MEDIA SCIENCES DEPARTMENT, FACULTY OF MEDIA SCIENCES, IQRA UNIVERSITY KARACHI.

SUNNIA IKRAM
DEPARTMENT OF COMPUTER SCIENCE AND IT, THE ISLAMIA UNIVERSITY BAHAWALPUR, PAKISTAN.

DR. UM E RUBAB
ASSISTANT PROFESSOR DEPARTMENT OF EDUCATION, FATIMA JINNAH WOMEN UNIVERSITY (FJWU).

DR. AUSIMA SULTAN
ASSISTANT PROFESSOR, DEPARTMENT OF HUMANITIES AND SCIENCES, INSTITUTE OF SPACE TECHNOLOGY, ISLAMABAD.

WAQAS MAHMOOD
ASSISTANT PROFESSOR, DEPARTMENT OF EDUCATIONAL TRAINING, THE ISLAMIA UNIVERSITY BAHAWALPUR, PAKISTAN

DR. MUHAMMAD SHAHZAD ASHFAQ
ASSISTANT PROFESSOR, FATIMA JINNAH WOMEN UNIVERSITY RAWALPINDI.

ABSTRACT

The present study aimed to evaluate the impact of Artificial Intelligence on the responsibilities of faculty members at universities in Pakistan. Using a mixed-methods approach, the study explored the changes in teaching, research, and administrative responsibilities driven by the integration of AI technologies. The study was carried out in the years 2024-2025 at five public and private universities in Karachi, Lahore, and Islamabad. Two hundred and fifty faculty members responded to the structured questionnaires and twenty department heads and senior professors were interviewed for qualitative data. For quantitative data analysis, SPSS was used to apply descriptive statistics, correlational analysis, and regression analysis. The qualitative data were transcribed and thematically coded and analyzed. The study demonstrated that AI impacted teaching the most, with 68% of faculty participants indicating a shift in the ways courses were delivered. While there was a moderate increase in research output, the enhancement of administrative functions was considerably greater. The most prominent challenges were lack of preparation and training, insufficient tech-

infrastructure, and a lack of willingness to embrace change. The study also found that attitudes toward AI technologies differed by discipline, with faculty in STEM fields more positively inclined than those in the humanities. As a minimum, the findings of the study suggest the need for institutions to put mechanisms in place to assist the shift.

Keywords: Impact, Artificial Intelligence, Responsibilities, Faculty Members, Integration, AI Technologies, Universities, Pakistan.

INTRODUCTION

Artificial intelligence is rapidly changing the world, and the changing of the world brought the change to the world of education and higher education is no exception. Across the world, universities are embedding AI technology within their systems and redefining the creation, distribution, and evaluation of knowledge and information (George and Wooden 2023). In Pakistan, the challenges posed to higher education, including constrained finances, large heterogeneous classes, and diverse students' populations, is where the challenges of AI for faculty are most pronounced. Faculty, who have always provided the knowledge and expertise, now have to contend with the automation of functions core to their roles, such as grading and adaptive learning. The questions that arise are questions critical to the future of intelligent automation technology and the academia of higher education: what are the changing roles of faculty (Baig 2024).

The Higher Education Commission oversees the work of more than 200 universities in Pakistan's higher education system, which serves millions of students across a wide range of locations and socioeconomic environments. Professors at these universities have historically balanced multiple, often conflicting, responsibilities of teaching, research, administration, and outreach to the community (Murtaza and Hui 2021). The arrival of AI technologies in this context is beginning to alter these roles in potentially transformative ways. Some universities are piloting AI-driven learning management systems, automated tools for assessment, and AI-based research assistants. However, adoption of these innovations is inconsistent, particularly in the unevenly developed public and private sectors, urban and rural areas, and across academic fields. It is important to understand how these innovations affect faculty work to devise policies and support systems that will minimize risks and maximize the promise of these technologies (Khurshid, Khurshid et al. 2024).

The importance of this shift goes beyond simply using new technologies. In a university, a faculty member performs the role of a knowledge holder. In addition to teaching, they mentor students, foster critical thinking, and help create knowledge through research (Nizami, Mirza et al. 2025). Advanced AI technologies that offer customized teaching, real-time feedback, and conduct academic literature reviews raise the question, "What are the distinct contributions of human faculty?" In Pakistan, the answer is complicated by the educational culture, which is heavily focused on personal teacher-student relationships, and by the underdeveloped technological infrastructure in many areas of the country. The interaction of deeply rooted educational traditions and cutting-edge technologies raises important questions that need to be addressed (Bibi and Shahzad 2025).

Globally, there have been discussions on the implementation of AI in higher education, ranging from determining its value on the learning outcomes to the possible threats of staff replacement and loss of humanity in education. However, empirical research on the topic has been very limited, especially on the intersection of culture, the economy, and the educational practices in Pakistan (Mustafa, Tlili et al. 2024). In the case of Pakistan, university faculty do not have enough resources, and face challenges in terms of ratio, and vary in degree of technologic literacy. How AI incorporation in the educational practices of university faculty transforms everyday work, professional identity, and the sense of effectiveness, will be crucial in making sound policies and institutional frameworks. In the case of Pakistan, striving to improve its position on the globe especially in higher education and research, it will be important to integrate AI in the analysis of the workload of university faculty, and the output of higher education institutions (Jiali, Dayo et al. 2024).

This study addresses the major knowledge gap by systematically investigating the effect of AI on various dimensions of faculty roles and responsibilities. Conducting the study at five universities of various types and situated in different regions allowed the research to collect a wider array of experiences and viewpoints. The study was concerned with the impacts on the role of teaching, research, and administration, and also with the attitudinal and perceptual factors

that influence faculty engagement with AI. The study also explored institutional policy, supports and resources as factors shaping the intersection of AI use and faculty work. It is hoped that such a study will provide an evidence-based approach to guide the design of institutional frameworks, professional practice, and policy at the university and national levels expected in the integration of advanced AI technologies.

RESEARCH OBJECTIVES

1. To determine the influence of AI on teaching, research, and administration in universities of Pakistan.
2. To determine the reasons and challenges faculty encounter in the use of AI in their work.
3. To assess the relationship between the institution's support structures and faculty's integration of AI into their work.

RESEARCH QUESTIONS

1. In what ways has artificial intelligence transformed the teaching methods, research, and administrative roles of faculty in Pakistani universities?
2. What are the key obstacles and challenges faculty members face in the adoption and integration of AI into their academic functions?
3. What is the role of institutional support in the successful integration and use of AI tools by faculty members in their roles?

SIGNIFICANCE OF THE STUDY

For many stakeholders in the higher education system of Pakistan, this research serves multiple purposes. The findings highlighted the need for university administrators and policy makers to develop AI integration plans, guide administrators on AI-related resource allocation, and assist in the formulation of the AI-related faculty professional development plans. University faculty members and instructors also gained insights on how AI was being adopted across other disciplines and eager institutions, which also in turn helped to address anxieties around AI adoption. The research also helped fill the gap on the influence of AI in higher education on developing countries and provided perspectives beyond the Western lens. The research also helped shape policy around technology integration, faculty development, and infrastructure in higher education for the Higher Education Commission and relevant government bodies. Faculty unions and professional bodies also gained insights for advocacy around appropriate working conditions. As a result of documenting both opportunities and challenges, the study brought attention to the importance of balanced approaches to technological integration in the humanistic dimensions of education, while readying the potential of Artificial Intelligence in education to improve teaching, research, and administration in resource-constrained environments more efficiently.

LITERATURE REVIEW

In the last decade, the integration of artificial intelligence in higher education has become a notable topic of research, focusing on different aspects of this technological change. The earlier body of research in educational technology primarily concentrated on technology-enabled distance education and the delivery of courses online. More recent research has moved toward more complex artificial intelligence uses in education such as adaptive learning, intelligent tutoring, and automated assessment which promise to solve some of the persistent problems of higher education: customized teaching, fast feedback, and quality education achieved at scale and in a cost-efficient manner (O'dea and O'Dea 2023). The potential impact on the role of the professor has been less studied, especially outside North America and Europe. Some studies argue that AI systems used in higher education can strengthen teaching faculty's control in some aspects but at the same time diminish the control that empowers traditional academic authority. Understanding this paradox requires an examination of the AI technology as well as the organizational, cultural, and professional context within which faculty operate (Doğan, Celik et al. 2025).

Faculty role conceptualizations in higher education have focused on the integration of teaching, research, and service. For teaching, the responsibilities relate to content delivery and curriculum design, assessment and feedback on student submissions, student advising, and evaluation of learning outcomes. Participation in research means undertaking original inquiries, publishing results, obtaining grants, and mentoring graduate students. For administrative service, the faculty member engages in committee work, program coordination, activities in accreditation, and community

outreach (George and Wooden 2023). There are unique impacts of AI technologies on each of these functions. In teaching, automated systems have the capability to perform routine activities such as grading multiple-choice exams, giving feedback on writing assignments, and responding to frequently asked questions. Time previously spent on these functions may be used for higher-order teaching activities such as facilitating engaging discussions, guiding students in solving complex problems, and mentoring them in meaningful, one-on-one relationships. Still, the potential for meaningful interactions between students and faculty should be preserved, as meaningful student-teacher relationships are the core of effective education (Rahiman and Kodikal 2024).

Within the research realm, artificial intelligence tools have begun to automate the literature review process, analyze data, recognize patterns, and innovate the formation of hypotheses. AI and machine learning systems have the ability to analyze large swathes of the scientific literature, recognize gaps, and propose new research avenues. In addition, AI and Natural Language Processing (NLP) systems have the potential to assist researchers in manuscript drafting and editing. Such advances will undoubtedly affect the research productivity of faculty and the scholarly work itself (Bearman, Ryan et al. 2023). Some researchers have claimed that AI-augmented tools will democratize research in the global South, allowing researchers in resource-limited settings to conduct sophisticated analyses, others have warned of the dependency on closed proprietary systems and the biases of AI tools. In disciplines outside of STEM, the potential of AI tools to augment research activities remains. Issues surrounding the use of AI in research to blockade the imagination in the construction of original ideas and the loss of those unexpected, transformative, and often serendipitous insights central to the research process have not been adequately addressed (Alakoum, Nica et al. 2024).

In educational technology integration literature, besides technical know-how, there are other factors that determine how successful the integration will be. Factors such as the institution's culture, the support of the leadership, the resources, and the disposition of the faculty greatly sway how adoption takes place (Chan 2023). Ms. Rogers' diffusion of innovation theory describes the predictable patterns of technology adoption and classifies population segments as early adopters, early majority, late majority, and laggards. In the higher education sphere, there are disciplinary cultures that determine technology acceptance, with the STEM (science, technology, engineering, and mathematics) domains being more receptive to technological change than the humanities and the social sciences. Faculty age, technological self-efficacy, and perception of adoptive usefulness determine adoption. Western universities research indicates that the more faculty members perceive value to their work, receive sufficient training and support, and are provided with low-risk opportunities to try new technologies, the more they will embrace new technologies. Whether this research will be applicable to the Pakistani universities' context with its different resource and cultural contexts remains to be seen (Mbatha 2024).

Research on the use of AI in education in some developing countries is still in the initial stages, although some studies suggest the importance of contextual factors on the specific impacts of technologies. For example, the lack of proper infrastructure such as unreliable internet access, insufficient computers, and scarce technical assistance, makes the AI implementation process even more challenging (Aderibigbe, Ohenhen et al. 2023). Large class sizes and heavy teaching loads do not provide space to try and explore more innovative methods. In several countries, the lack of cultural infrastructure such as teaching and learning hierarchies, lack of pedagogy centered on students, and exam-oriented learning may limit the way teaching AI tools can be adopted. Several studies suggest that, in environments where the educational system is focused on rote learning and standardization, AI tools will likely intensify these practices, rather than stimulate the higher order thinking and creativity educators seek to develop. Such challenges should inform the level of expectation we set on AI as a tool aimed to improve higher education in countries like Pakistan, where the challenges in education are quite unlike those in developed countries (Shahzad, Xu et al. 2025).

RESEARCH METHODOLOGY

The researchers adopted mixed-methods research design to investigate the influence of Artificial Intelligence on the roles and responsibilities of faculty members in Pakistani higher education institutions. The research was carried out in five public and private universities, in Karachi, Lahore, and Islamabad, during the 2024-2025 academic year. For the selection of the 250 interdisciplinary faculty members from the purposively sampled 250 faculty members from the humanities, social sciences, natural sciences, and engineering disciplines, a purposive sampling technique was employed. For the collection of data on the AI and teaching methodology, research and administrative AI integration, a structured questionnaire comprising Likert-scale items was administered. The higher education institution

administrators, in the form of 20 in-depth semi-structured interviews, were also asked about their teaching practices and research responsibilities. The quantitative data were analyzed using the SPSS software, while qualitative data were thematically analyzed. The study also analyzed the documents issued by the institutions, policies and curriculum frameworks concerning the use of AI in higher education, and institution-specific frameworks. Ethical approvals, research design, and informed consents from participants were sought and collected by the respective university ethics committees.

RESULTS AND DATA ANALYSIS

QUANTITATIVE ANALYSIS

Table 1: Demographic Profile of Respondents

Characteristic	Category	Frequency	Percentage
Gender	Male	162	64.8%
	Female	88	35.2%
Age Group	25-35 years	78	31.2%
	36-45 years	102	40.8%
	46-55 years	51	20.4%
	Above 55 years	19	7.6%
Academic Rank	Lecturer	95	38.0%
	Assistant Professor	89	35.6%
	Associate Professor	44	17.6%
	Professor	22	8.8%
Discipline	Humanities	63	25.2%
	Social Sciences	71	28.4%
	Natural Sciences	58	23.2%
	Engineering	58	23.2%
Institution Type	Public	152	60.8%
	Private	98	39.2%

The demographic analysis revealed that the majority of respondents were male faculty members representing 64.8% of the sample, while female faculty comprised 35.2%. The largest age group consisted of faculty members between 36-45 years (40.8%), followed by the 25-35 years category (31.2%). In terms of academic rank, lecturers constituted the largest group at 38.0%, followed by assistant professors at 35.6%. The disciplinary distribution showed relatively balanced representation across humanities (25.2%), social sciences (28.4%), natural sciences (23.2%), and engineering (23.2%). Public universities contributed 60.8% of respondents while private institutions accounted for 39.2%, reflecting the broader composition of Pakistani higher education.

Table 2: Awareness and Current Use of AI Technologies

AI Technology	Aware (%)	Currently Using (%)	Not Using (%)
Automated Grading Systems	72.4	34.8	65.2
AI-powered Learning Management Systems	68.8	41.2	58.8
Plagiarism Detection Tools	89.6	67.2	32.8
AI Research Assistants	54.4	22.8	77.2
Chatbots for Student Queries	63.2	18.4	81.6
AI-based Literature Review Tools	47.6	16.4	83.6
Automated Feedback Systems	58.8	26.0	74.0
AI-powered Presentation Tools	71.2	38.4	61.6

Faculty awareness and utilization of AI technologies varied significantly across different tools and applications. Plagiarism detection tools showed the highest awareness (89.6%) and usage rates (67.2%), indicating widespread adoption of academic integrity technologies. AI-powered learning management systems demonstrated moderate awareness (68.8%) and usage (41.2%). However, more advanced AI applications such as research assistants (22.8% usage), chatbots (18.4% usage), and literature review tools (16.4% usage) showed considerably lower adoption rates. The data suggested that faculty members were more comfortable with AI technologies that supported traditional academic practices rather than those requiring substantial pedagogical or research methodology changes.

Table 3: Impact of AI on Teaching Responsibilities

Teaching Aspect	Mean Score	SD	Interpretation
Course content preparation	3.62	0.89	Moderate Impact
Lecture delivery methods	3.84	0.76	High Impact
Student assessment approaches	3.91	0.82	High Impact
Feedback provision to students	3.56	0.94	Moderate Impact
Student engagement strategies	3.48	1.02	Moderate Impact
Personalization of learning	3.23	1.08	Moderate Impact
Time spent on teaching preparation	3.67	0.88	Moderate Impact
Overall teaching effectiveness	3.79	0.79	High Impact

Note: Scale 1=No Impact to 5=Very High Impact

The impact of AI on teaching responsibilities demonstrated varied effects across different dimensions of pedagogical work. Student assessment approaches received the highest mean score (3.91), indicating that faculty perceived significant changes in how they evaluated student learning. Lecture delivery methods (3.84) and overall teaching effectiveness (3.79) also showed high impact ratings. However, personalization of learning (3.23) and student engagement strategies (3.48) received comparatively lower scores, suggesting that AI's promise of individualized instruction remained partially unrealized. The standard deviations indicated considerable variability in perceptions, with personalization showing the highest variation (SD=1.08), reflecting diverse experiences and disciplinary differences in AI implementation.

Table 4: Impact of AI on Research Activities

Research Activity	Mean Score	SD	Interpretation

Literature review and synthesis	3.44	1.12	Moderate Impact
Data collection processes	3.28	1.06	Moderate Impact
Data analysis capabilities	3.71	0.94	High Impact
Manuscript preparation	3.52	0.98	Moderate Impact
Research collaboration	3.19	1.15	Moderate Impact
Grant proposal writing	2.94	1.21	Low-Moderate Impact
Research productivity	3.38	1.04	Moderate Impact
Quality of research output	3.41	0.99	Moderate Impact

Note: Scale 1=No Impact to 5=Very High Impact

AI's impact on research activities showed moderate effects across most dimensions, with data analysis capabilities receiving the highest rating (3.71). Faculty members recognized AI's utility in processing and analyzing complex datasets, particularly in quantitative disciplines. Literature review and synthesis (3.44) and manuscript preparation (3.52) demonstrated moderate impacts, suggesting growing but not yet transformative influences. Grant proposal writing received the lowest score (2.94), indicating limited AI application in this critical research activity. The relatively high standard deviations across all items reflected significant disciplinary variations, with STEM faculty reporting higher impacts compared to humanities and social sciences faculty members.

Table 5: Impact of AI on Administrative Responsibilities

Administrative Task	**Mean Score**	**SD**	**Interpretation**
Course scheduling and planning	3.76	0.86	High Impact
Student record management	3.89	0.79	High Impact
Communication with students	3.64	0.92	Moderate Impact
Committee work efficiency	3.21	1.08	Moderate Impact
Report generation	3.82	0.81	High Impact
Meeting coordination	3.53	0.96	Moderate Impact
Documentation processes	3.71	0.88	High Impact
Time spent on administration	3.58	0.93	Moderate Impact

Note: Scale 1=No Impact to 5=Very High Impact

Administrative tasks demonstrated substantial AI impacts, particularly in student record management (3.89), report generation (3.82), and course scheduling (3.76). These findings indicated that AI technologies effectively supported routine administrative functions, potentially reducing faculty time burdens. Documentation processes (3.71) also showed high impact, reflecting increased use of automated systems for record-keeping and compliance activities. Committee work efficiency (3.21) received the lowest rating, suggesting that collaborative decision-making processes

remained largely unchanged despite technological availability. The data revealed that AI's administrative impact was strongest in structured, repetitive tasks rather than complex decision-making or interpersonal coordination activities.

Table 6: Challenges in AI Adoption

Challenge	Mean Score	SD	Severity Level
Lack of adequate training	4.12	0.76	Very High
Insufficient technological infrastructure	4.06	0.82	High
Limited institutional support	3.94	0.88	High
High cost of AI tools	3.87	0.91	High
Resistance to change	3.76	0.96	High
Concerns about academic integrity	3.68	1.02	Moderate-High
Lack of time to learn new technologies	3.84	0.89	High
Privacy and data security concerns	3.79	0.94	High
Unclear institutional policies	3.91	0.85	High
Fear of job displacement	2.98	1.24	Moderate

Note: Scale 1=Not a Challenge to 5=Extreme Challenge

The challenges in AI adoption revealed multiple barriers that faculty members encountered during technological integration. Lack of adequate training emerged as the most significant challenge (4.12), highlighting critical gaps in professional development opportunities. Insufficient technological infrastructure (4.06) and unclear institutional policies (3.91) also represented major obstacles, particularly affecting public universities with limited resources. Interestingly, fear of job displacement received the lowest rating (2.98) with high standard deviation (1.24), suggesting that most faculty did not perceive AI as an existential threat to their careers, though significant variation existed. The data demonstrated that practical implementation barriers outweighed philosophical or existential concerns about AI's role in higher education.

Table 7: Disciplinary Differences in AI Adoption

Discipline	Mean Adoption Score	SD	ANOVA F-value	p-value
Engineering	3.94	0.68	18.42	<0.001
Natural Sciences	3.78	0.74		
Social Sciences	3.21	0.89		
Humanities	2.87	0.96		

Note: Scale 1=Very Low Adoption to 5=Very High Adoption

Disciplinary analysis revealed statistically significant differences in AI adoption rates across academic fields. Engineering faculty demonstrated the highest adoption levels (3.94), followed by natural sciences (3.78), social

sciences (3.21), and humanities (2.87). The ANOVA results (F=18.42, p<0.001) confirmed that these differences were statistically significant rather than occurring by chance. Post-hoc analyses indicated that engineering and natural sciences faculty significantly differed from humanities faculty in adoption patterns. These findings reflected disciplinary cultures, availability of relevant AI tools, and the nature of teaching and research activities. STEM disciplines with quantitative emphases and established computational traditions showed greater readiness for AI integration compared to humanities fields emphasizing interpretive and qualitative methodologies.

Table 8: Relationship Between Institutional Support and AI Integration Success

Variable	1	2	3	4	5
1. Training Programs	1.00				
2. Technical Support	0.67**	1.00			
3. Infrastructure Quality	0.58**	0.72**	1.00		
4. Policy Clarity	0.54**	0.61**	0.49**	1.00	
5. AI Integration Success	0.71**	0.68**	0.63**	0.57**	1.00

*Note: *$p<0.01$*

Correlation analysis demonstrated strong positive relationships between institutional support mechanisms and successful AI integration. Training programs showed the strongest correlation with integration success (r=0.71, p<0.01), followed by technical support (r=0.68) and infrastructure quality (r=0.63). All support dimensions correlated significantly with each other, suggesting that effective AI implementation required comprehensive institutional approaches rather than isolated interventions. Policy clarity, while significant (r=0.57), showed somewhat weaker correlations, indicating that practical support mechanisms might matter more than formal policy frameworks. These findings underscored the importance of holistic institutional strategies encompassing training, technical assistance, resource provision, and clear guidance for maximizing faculty AI adoption and effectiveness.

Table 9: Regression Analysis - Predictors of Teaching Effectiveness with AI

Predictor Variable	Beta	SE	t-value	p-value
AI Technology Use Frequency	0.342	0.048	7.125	<0.001
Training Received	0.284	0.052	5.462	<0.001
Technological Self-Efficacy	0.237	0.046	5.152	<0.001
Institutional Support	0.196	0.051	3.843	<0.001
Years of Teaching Experience	-0.089	0.044	-2.023	0.044
Discipline (STEM vs Non-STEM)	0.168	0.067	2.507	0.013

Note: $R^2=0.524$, Adjusted $R^2=0.512$, $F=42.86$, $p<0.001$

Regression analysis identified significant predictors of teaching effectiveness enhancement through AI integration. AI technology use frequency emerged as the strongest predictor (β=0.342), indicating that regular engagement with AI tools produced greater teaching improvements than sporadic use. Training received (β=0.284) and technological self-efficacy (β=0.237) also significantly predicted teaching effectiveness, highlighting the importance of both formal preparation and individual confidence. Interestingly, years of teaching experience showed a small negative relationship

(β=-0.089), suggesting that more experienced faculty might face greater challenges adapting to AI-enhanced pedagogy. The model explained 52.4% of variance in teaching effectiveness, indicating that additional factors beyond those measured also influenced outcomes.

Table 10: Faculty Perceptions of AI's Future Impact

Future Impact Area	Positive (%)	Neutral (%)	Negative (%)	Mean Score
Job security	34.8	42.4	22.8	3.12
Professional autonomy	28.4	38.0	33.6	2.95
Teaching quality	64.8	26.4	8.8	3.76
Research productivity	58.4	31.2	10.4	3.62
Student learning outcomes	71.6	22.0	6.4	3.89
Faculty workload	46.8	28.8	24.4	3.34
Academic freedom	22.0	41.6	36.4	2.86
Overall higher education quality	67.2	24.4	8.4	3.81

Note: Scale 1=Very Negative to 5=Very Positive

Faculty perceptions regarding AI's future impact revealed generally optimistic views about educational outcomes but more ambivalence about professional implications. Student learning outcomes received the highest positive rating (71.6% positive, mean=3.89), indicating confidence in AI's pedagogical potential. Teaching quality (64.8% positive) and overall higher education quality (67.2% positive) also generated favorable expectations. However, academic freedom (36.4% negative) and professional autonomy (33.6% negative) raised concerns about potential constraints on faculty independence. Job security showed mixed perceptions with 34.8% positive and 22.8% negative responses, reflecting uncertainty about long-term employment implications. These findings revealed a nuanced perspective where faculty recognized AI's educational benefits while maintaining concerns about professional and institutional changes.

QUALITATIVE ANALYSIS

Theme 1: Transformation of Pedagogical Practices

Interviews with faculty indicated significant changes to teaching methods as a result of AI integration. Respondents described a move away from lecture-based teaching toward more interactive and personalized learning facilitated by AI. One social sciences associate professor remarked that AI-enabled teaching analytics made it possible to identify intervention opportunities for struggling students much sooner and helped initiate targeted interventions. Engineering faculty especially noted how students were able to practice skills with automated feedback simulation tools and received guidance in real-time. In contrast, technology overuse concerns were raised by a number of humanities professors, who claimed that face-to-face discussions, critical for the students' analytical skills and verbal communication, were being lost. Transformative changes in teaching methods appeared to be more embraced by younger faculty and STEM disciplines, while senior faculty in more traditional disciplines appeared to show greater pedagogical conservatism. Respondents described the challenge of integrating technology while retaining personal connection with students as a core.

Theme 2: Research Capability Enhancement and Constraints

Some research skills have really improved and some have become constraints and made researchers dependent. Faculty doing quantitative research were very appreciative of the use of AI tools for statistical analysis and data visualization which previously required deep expertise. The automation of literature reviews even helped researchers more quickly identify the relevant literature, something especially useful when library resources are limited which is

the case for many of the universities in Pakistan. The dependence AI tools made researchers somewhat less positive when asked about dependence on AI systems, especially when the systems are proprietary and are likely to be pulled, be too costly, or constantly change. A few professors of more advanced research courses were concerned about younger research having strong technical skills and weak conceptual levels. AI tools provide less to qualitative researchers for the interpretive work; however, they are more likely to be asked to provide interpretive work. They are interpreting uneven support. A few also raised the weaker ethics of AI tools and the AI tools used for pattern recognition, and asked if the recognition is really scholarly work or simply sophisticated processing.

Theme 3: Administrative Efficiency Versus Professional Identity

Conflicting ideas about administrative efficiencies and the value of professional identity proved the most salient topic. Some of the faculty were positive about AI systems that relieved the burdens of attendance tracking, grade processing and scheduling, and were able to report time savings. Others were concerned that more administrative service automation might convert faculty Cash 100 members from autonomous professionals to mere operators of automated systems. While department heads acknowledged the improvements AI made to operational efficiencies, they commented that the reduction in manual processing of administrative tasks meant fewer occasions in which informal collegial and student interactions could take place. Participants expressed the concern that institutional administrators might see the AI-harvested efficiencies and increase workloads and/or reduce faculty headcounts to irrational leveling. The underlying problem of the overly automated administrative tasks AI executed more pointedly addressed the poorly conceived technological integration that primarily met institutional efficiency and cost reduction goals, leaving the faculty and the faculty service administration burdens significantly unaddressed. This raises the question of whose priorities informed the AI adoption and integration decisions in the institution.

Theme 4: Digital Divide and Inequitable Access

During interviews, differences in access and capabilities in AI technology became a major problem. Faculty of well-resourced private colleges spoke of generous AI instruments and advanced technical support, while teachers in state universities talked of failed internet connections, obsolete computers, and negligible institutional investment in AI technologies. These inequities went beyond institutions and included individual faculty inequities. Some subscribed to AI technologies while others did not have the most basic technology. Respondents described how learners from the under-resourced households often did not have access to AI augmented educational materials, and thus educational gaps were likely to get even wider. Many participants noted the global and institutional discourse around the adoption of AI technologies did not consider the realities of AI resources and infrastructure. It is of little surprise that the digital divide, and in particular, inequitable access to AI technologies, reinforced the inequities in the Pakistani higher education system. It is the elite institutions and the privileged individuals that have access to the most advanced technologies while the elite formal educational system serves to further marginalize the less privileged.

Theme 5: Training Gaps and Professional Development Needs

Of all the concerns shared in the interviews, lack of training and professional development might be the most prevalent. Faculty mentioned how institutions would implement new AI systems from which faculty were supposed to learn to use AI without any introductory training. Provided training sessions would focus on the most simplistic of operational training, leaving the pedagogical uses, advanced features, and integrative even the higher-order uses training of AI systems untouched. Respondents expressed the most useful training would be in the respondents' disciplines and include the ways AI systems might support and advance their teaching and research. Even more senior faculty expressed disappointment about the absence of fundamental digital literacy training before sophisticated AI and primary gap training. Participants shared that effective training included collaboration, safe experimental opportunities, and on-going support, and performance inconsequential environments. They pointed to the lack of support training, across the training gaps delineated in the primary research, focused on the technical aspects, and faculty deserving investment most institutions had yet to offer.

Theme 6: Ethical Concerns and Academic Integrity Challenges

Concerns and friction regarding the ethics and the violation of academic integrity were articulated by the faculty regarding the integration of AI tools in the classroom. The emergence of AI programs that write essays, solves mathematical problems, and analyzes data raises the fundamental question of learning outcome assessments. Some respondents noted the growing sophistication of students' AI use in ways that were difficult to detect and prevent. This prompted the need to rethink the design of assignments. Some Faculty members believed that AI would encourage academic dishonesty, while others proposed that the use of AI focuses on a need to revise the notions of originality

and authorship. Concern regarding the ethics of AI extended to the attribution and authorship of published research, the privacy of personal data covered by learning analytics, and the potential bias of AI that evaluates students. Several respondents pointed to educational AI technology adoption tensions between institutional expectations and educational AI technology adoption and educational standards, as defined by the professorate. This theme highlighted the need to address the technical aspects of educational AI in the classroom, together with the philosophical question regarding of education, the production of knowledge, and the learning participation of a human verses a machine.

DISCUSSION

The results show AI's effects on university faculty's roles and responsibilities in Pakistan are complex and multifaceted. This complexity arises not from simple adoption of technology but from competing priorities, structural barriers, and reconfiguring professional roles. The quantitative results indicated that AI's impacts were unequal across the teaching, research, and administration triad, with the greatest effects on functions that involve more structured and repetitive tasks such as grading, record-keeping, and data analysis. This finding is consistent with the technology automation literature, which suggests that automation is most effective for routine tasks, while more complex tasks that require higher-order cognition, creativity, and interpersonal interactions will remain in the realm of human workers. However, qualitative results challenged this interpretation by showing that the effective AI integration of tools to perform tasks still raised issues of professional autonomy and academic freedom, as well as the faculty work essence which is not solvable by any technical means.

The noticeable differences across disciplines in the adoption and impact of AI demonstrate that academic fields function as distinct cultures, consisting of unique epistemologies, methodologies, and values that shape the reception of technology. Faculty in the engineering and natural sciences were relatively more at ease with the integration of AI technology because their disciplines have a longer history of the use of computational tools and because the available AI technology matched quantitative, data-intensive research practices that are predominant in these fields. In contrast, the lower adoption rates in the humanities and the interpretive, context-dependent, meaning-centered scholarship, human humanities, represent, more than technophobia, AI relevance as a legitimate question. These findings suggest that the absence of a coordinated strategy in the AI-initiatives of institutions strongly recognizes and values the need to design and preserve diverse academic cultures, as opposed to uniformity. Interdisciplinary interaction, wherein STEM offers technical tools and the humanities offers a critique to balance perspectives, will likely enrich experiences across disciplines.

As the study progressed, the attention shifted towards the role of institutional support. In particular, resource availability in the form of training, technical assistance, infrastructure, and policy frameworks were analyzed. It became evident that AI integration can positively be achieved through adequate support and institutional investment as it indicated that no much support would leave the faculty to work out the technological transformation on their own. Yet, qualitative information pointed to the difficulties champions of support faced in many Pakistani universities, especially the public ones, which in many cases, result in resource frustration. Most of the public universities in Pakistan, due to the limited availability of resources, seemed to be missing out on support structures and consequently, the institutes were left with resource frustration and resulted in the disparity that exists in the universal applications of AI. There was also a prevailing belief that faculty were the main engine to drive such technology and AI integration, and as such, the focus of institutional policies to a great extent aimed to facilitate teaching and learning. These findings suggest that while primary AI technology infrastructure integration was almost complete, policies aimed to facilitate technology integration at the educational level were still in the planning stages.

CONCLUSION

The study on the effect of AI on faculty roles and responsibilities in Pakistani universities showed both the challenges and the great potential of the technology. AI tools shaped the way educators taught, how they performed research, and how they handled administrative tasks, although the influence AI had was different, depending on the academic discipline, the institution, and the faculty member. There was potential for AI to improve the quality of education, research output, and operational efficiency, but there were also challenges to address such as lack of adequate training, infrastructure, policy clarity, and institutional support. The study showed the integration of AI in Pakistani higher

education is uneven, with resource-rich institutions and STEM fields making greater progress, while public universities and the humanities are falling further behind, deepening existing disparities.

The study's findings suggest that dialogues on AI in higher education need to address the limitations of the current discourse and focus on the core issues of the goals of education and the complex issues of educator identity and the human/machine contribution dynamics in teaching and learning. While faculty expressed a practical willingness to accept AI tools that truly streamlined their work, they were protective of tools that encroached on their professional autonomy and educational abs value. Such attitudes displayed an appreciation of the instrumental nature of technology and the educative purpose of technology integration. Evidence-based policy formulation and inclusive stakeholder engagement will be vital to address the transition needs of the higher education sector in Pakistan, especially aligned to the adoption of AI and the evidence suggesting that the higher education sector in Pakistan is at another decisive moment in its history.

RECOMMENDATIONS

It is important for the Pakistan Higher Education Commission and all of Pakistan's Higher Education institutions to prioritize multidisciplinary comprehensive faculty development programs directed towards AI literacy and AI pedagogical integration for faculty who teach in every discipline. There should be significant investment in the development of essential technological infrastructure which encompasses the provision of reliable internet connectivity, modern computing facilities, and AI tools of various ranges and levels. This is especially directed towards public and rural institutions which are generally underserved. Institutional policies regarding the use of AI in teaching, research, and assessments should be developed through collaborative and participatory policies negotiated among faculty, students and administrators. Universes should establish resource centers to provide ongoing and continually adaptive technical assistance to faculty, pedagogical consultation, collaborative spaces to experiment and integrate AI and other educational technologies. Institutional leaders must create spaces for deliberative discourse on the adaptive integration of AI, regarding faculty and students as partners.

Research funding agencies should support studies on the impacts of AI on the higher education system in Pakistan as a means to develop local contextual knowledge to develop local strategies focused on higher education. Lastly, Pakistan requires national-level coordination to understand the gaps in the digital divide, provide frameworks for the ethical use of technology, and determine how the use of AI in education can be equitable and not exacerbate the inequities already present in the system. This will allow the higher education sector in Pakistan to take full advantage of the technological advancements while still keeping the defining characteristics of education—its humanistic and transformative elements.

REFERENCES

1. Aderibigbe, A. O., et al. (2023). "Artificial intelligence in developing countries: Bridging the gap between potential and implementation." Computer Science & IT Research Journal **4**(3): 185-199.
2. Alakoum, A., et al. (2024). "Revolutionizing faculty performance evaluation: the future role of AI in higher education." Journal of Self-Governance and Management Economics **12**(1): 25-49.
3. Baig, M. A. A. (2024). "Artificial intelligence, emerging technologies and national security of Pakistan." CISS Insight Journal **12**(1): P90-114.
4. earman, M., et al. (2023). "Discourses of artificial intelligence in higher education: A critical literature review." Higher Education **86**(2): 369-385.
5. Bibi, S. and A. K. Shahzad (2025). "Impact of Artificial Intelligence on English Language Teaching at University Level: A Study of EFL Teachers' Perspectives in Pakistan." ASSAJ **4**(01): 200-234.
6. Chan, C. K. Y. (2023). "A comprehensive AI policy education framework for university teaching and learning." International journal of educational technology in higher education **20**(1): 38.
7. Doğan, M., et al. (2025). "AI in higher education: Risks and opportunities from the academician perspective." European Journal of Education **60**(1): e12863.
8. George, B. and O. Wooden (2023). "Managing the strategic transformation of higher education through artificial intelligence." Administrative Sciences **13**(9): 196.
9. Jiali, S., et al. (2024). "The Impact of Artificial Intelligence on Personalized Learning in Education: A Systematic Review." Pakistan Journal of Life & Social Sciences **22**(2).

10. Khurshid, S., et al. (2024). "Learning for an uncertain future: artificial intelligence a challenge for Pakistani education system in the era of digital transformation." Qualitative Research Journal.
11. Mbatha, B. (2024). Diffusion of innovations: How adoption of new technology spreads in society. Information, Knowledge, and Technology for Teaching and Research in Africa: Human Machine Interaction and User Interfaces, Springer**:** 1-18.
12. Murtaza, K. G. and L. Hui (2021). "Higher education in Pakistan: challenges, opportunities, suggestions." Education Quarterly Reviews **4**(2).
13. Mustafa, M. Y., et al. (2024). "A systematic review of literature reviews on artificial intelligence in education (AIED): a roadmap to a future research agenda." Smart Learning Environments **11**(1): 59.
14. Nizami, A. N., et al. (2025). "The Role of Artificial Intelligence in Shaping Personalized Education and Student-Centered Learning in Pakistan." The Critical Review of Social Sciences Studies **3**(3): 2989-3003.
15. O'dea, X. and M. O'Dea (2023). "Is artificial intelligence really the next big thing in learning and teaching in higher education?: A conceptual paper." Journal of University Teaching and Learning Practice **20**(5): 1-17.
16. Rahiman, H. U. and R. Kodikal (2024). "Revolutionizing education: Artificial intelligence empowered learning in higher education." Cogent Education **11**(1): 2293431.
17. Shahzad, M. F., et al. (2025). "Factors affecting generative artificial intelligence, such as ChatGPT, use in higher education: An application of technology acceptance model." British Educational Research Journal **51**(2): 489-513.