



TRANSFORMING THE ROLE OF TEACHERS IN THE AGE OF AI: FROM KNOWLEDGE PROVIDERS TO LEARNING FACILITATORS

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Abstract

This conceptual exploratory study focuses on the role shift of university teachers in the age of artificial intelligence (AI) from the traditional role of conveying knowledge to that of facilitating learning. The research is set in higher education landscape of Lahore and Islamabad, Pakistan with a qualitative methodological framework for 25 faculty members of universities. The study presents five major themes illustrating how AI can transform learning processes, the need to shift from teaching to facilitating learning, the need to develop new skills in the field of digital and AI, the challenges of institutionalization in the age of AI, and the importance of preserving a human-centered educational framework. The study identifies five core themes, including: AI as a tool for transforming teaching processes, pedagogical change from teaching to facilitating learning, the need to acquire new skills in digital and AI, issues in institutionalization in the age of AI, and the need to preserve a human-centric learning process. The proposed framework outlines how generative AI can be used to assist in the automation of routine tasks such as content generation and formative assessment, but emphasizes the crucial role of human judgment, accuracy checks, and ethical supervision in ensuring educational efficacy. Finally, the paper suggests that AI does not supplant teachers but rather shifts the emphasis on academics to a more balanced approach, emphasizing the need for critical inquiry, assessment design, and relational mentorship. The study suggests that creating transparency and clear institutional policies, targeted professional development and authentic assessment redesign will facilitate a responsible use of AI.

Keywords

Artificial Intelligence in Education, Higher Education, Learning Facilitation, Teacher Role Transformation, Digital Competencies, Human-AI Collaboration.

1: INTRODUCTION

1.1 Background Information

Teaching is not a process of imparting well-known truths. These are all tasks performed by the University teachers that shape their disciplinary knowledge, determine what is considered legitimate evidence, shape learning sequences, evaluate the intellectual development and maintain the social conditions in which inquiry is possible. However, today's higher education



also values dialogue, active participation, collaborative research, and autonomous judgments (Mota et al., 2026; Qian, 2025), with attention particularly focused on explanation and the mastery of content.

The notion of the teacher as the main gatekeeper of information had been undermined by search engines and digital libraries. With generative AI, the landscape reads differently: For every question a student asks in real time, a conversational system is able to write explanations, structure the content of the sources, create illustrations, suggest exercises, and simulate feedback. The outputs can be persuasive even if they are untrue or unsupported (Chan et al., 2025; Ren & Wu, 2025).

AI in education refers to systems that are capable of tasks usually linked to human pattern recognition or reasoning. Intelligent tutoring systems can provide structured hints tailored to the progress made by an individual learner; adaptive learning environments can adapt resources or sequences; automated assessment systems can provide feedback or marking; learning analytics can identify patterns in learners' participation and performance; and generative AI can produce new text or other content (Qian 2025; Schell et al. 2025).

These affordances can enable more student-centred mentoring and interactivity in learning. However, efficiency is dependent: generated materials need to be checked, assessment criteria need to be clarified, and teacher is responsible for learning objectives (Panday-Shukla, 2025; Qian, 2025).

Faculty might wonder if the value of disciplinary explanation, writing instruction and feedback will be diminished if it can be emulated computationally. Concurrently, there can also be a rise in the professional relevance of curriculum interpretation, learner diagnosis and relational support, when instead of explaining all answers, design of challenging experiences can come into play (Mota et al., 2026; Costache et al., 2026).

The current investigation is in the city Lahore and Islamabad, both of which are the centres of universities in Pakistan that include public and private universities. Its importance is not reliant on the fact that all universities in these locations have the same AI systems or policies. Instead, the context allows for the consideration of the differences in faculty exposure, disciplinary practices, institutional support, and professional judgments. These findings encourage but are not a substitute for contextual, qualitative investigation (Jogezai et al., 2025b).

Creating practice questions is not the same as determining whether it can foster disciplinary reasoning; identifying keywords is not the same as elucidating a student's ethical dilemma; and giving feedback is not the same as maintaining trust throughout a challenging learning process (Costache et al., 2026).

Ostensibly time-saving tools may add verification work for faculty, or might appear impractical for institutional policies, and automated tools might help or hurt students in their learning process, or lead to students depending on tool for verification (Jogezai et al., 2025b; Ren & Wu, 2025).

Traditional emphasis	AI-enabled opportunity	Continuing human responsibility
Deliver subject explanations	Alternative explanations and examples	Select accurate, contextualized explanations
Prepare materials	Draft outlines, exercises, and	Align materials with intended



	media	outcomes
Mark routine responses	Automated formative feedback	Review fairness, validity, and exceptions
Monitor progress	Analytics and learning signals	Interpret circumstances and intervene
Answer student queries	On-demand conversational assistance	Build reasoning, motivation, and trust

Table 1.1. Illustrative redistribution of teaching tasks in AI-supported higher education.

1.2 Problem Statement

Today, AI systems are performing tasks traditionally considered to be the responsibility of university teachers, such as explaining, creating questions, preparing content, and performing initial assessment. Students may also feel that the apparent fluency of students should give them the freedom to not struggle, and the academics may feel the need to justify, modify, or defend their teaching methods. They may also feel that students should be fluent with the material and not struggle, and academics may feel obliged to either justify, modify, or defend their teaching methods. (Cui et al., 2025; Karunaratne & Lindblad, 2025).

For instance, faculty may be technically competent but not willing to use AI when it is unclear how this would affect institutional policies, while a teacher may be eager to get creative but unable to access training and dependable infrastructure (Caspari-Sadeghi, 2026; Ren & Wu, 2025).

The central research problem is hence limited contextual understanding of how perceived the shift of knowledge provision to learning facilitation is in the context of integrating AI in university education from the perspective of faculty members in Lahore and Islamabad, what further competencies and responsibilities they have perceived as a result of this shift, and what challenges they have encountered in this regard.

1.3 Research Questions

1. How is Artificial Intelligence transforming the traditional role of teachers in education?
2. What new competencies and responsibilities are required for teachers in AI-supported learning environments?
3. How can teachers effectively collaborate with AI while maintaining human-centered teaching practices?
4. What challenges influence teachers' adoption and use of AI technologies?
5. How does AI reshape teachers' roles from knowledge providers to learning facilitators?

1.4 Objectives and Significance of the Study

1.4.1 Research Objectives

1. To examine the impact of AI on teachers' professional roles.
2. To investigate emerging responsibilities of teachers in AI-enhanced learning environments.
3. To identify skills required for effective AI-supported teaching.
4. To analyze challenges associated with AI integration in education.
5. To propose a framework for teacher transformation in the age of AI.



2: LITERATURE REVIEW

2.1 Overview of Relevant Literature

2.1.1 Artificial Intelligence in Education

Artificial Intelligence in education (AIED) is not one single pedagogical intervention, but rather a family of systems based on data, knowledge and generation, which are applied to various purposes. In previous educational applications, education-related issues were mostly limited to diagnosis of learning error, curriculum sequencing, predicting dropout risk, and automated feedback (Qian, 2025).

Guided practice can be facilitated by having IT systems respond to student errors with hints and/or next step suggestions. They offer a potential contribution in practice opportunities and immediate feedback, and do not replace disciplinary relationships. Adaptive learning platforms also adapt sequence or difficulty based on the evidence they have about the learner (Qian, 2025).

The automated evaluation and feedback is a very sensitive application, as evaluation motivates, communicates with standards and shapes the student's sense of identity. AI can aid in items writing, rubric interpreting, exemplars, and preliminary formative comments (Cui et al., 2025; Karunaratne & Lindblad, 2025).

Learning analytics turns participation and performance traces into metrics which can inform support. Patterns can identify students who do not look engaged, but behavioural traces do not capture all the meaning and may be due to technical access, disability, family responsibility, or course design, or lack of interest in learning (Ren & Wu, 2025).

The risks of generative AI are unique in that it can generate fluent and plausible statements without evidential support being clear and transparent. Made-up citations in an explanation; highlighting of a dominant style in a marking suggestion; a chatbot as a replacement for thinking when not scaffolded by teachers. The pedagogical answer does not necessarily have to be “no” (Schell et al., 2025).

A key difference relates to adoption and effectiveness. Frequent use can be reported by teachers because they find a tool easy to use, without testing student understanding. In contrast, if they use it carefully and little, it can be a manifestation of pedagogical judgment, not of the lack of readiness (Jogezai et al., 2025b).

AI application	Potential teaching use	Key limitation / oversight question
Intelligent tutoring	Hints, structured practice	Are explanations aligned with disciplinary concepts?
Adaptive learning	Personalized sequence and pace	Are data and inferences representative?
Automated assessment	Draft feedback, rubric support	Is judgment fair, transparent, and appealable?
Learning analytics	Identify patterns and support needs	Could contextual factors be missing?
Generative AI	Draft examples, dialogic practice	Can sources, accuracy, and originality be checked?



Table 2.1. AI applications and associated responsibilities for university teachers.

2.1.2 Traditional Role of Teachers

University teaching has never been reducible to delivering lectures, yet the image of a teacher as authoritative source remains influential. Within teacher-centered instruction, curriculum pacing, question selection, and assessment criteria are often largely directed by the instructor, while students receive, rehearse, and reproduce established content (Mota et al., 2026).

AI-driven discourse doesn't capture the same functions of the traditional model. Conceptual thresholds are identified, misconceptions are determined and identified by subject specialists, intellectual norms are set, and professional examples are given that students learn over time. Teachers participate in academic communities and initiate students into ethical practices of inquiry (Chan et al., 2025).

When you have very diverse cohorts and uniform presentations then the limitations become apparent. Students come with varying prior knowledge, language competence, access to digital tools, and access to feedback. These differences cannot always be dealt with efficiently during a single lecture (Ren & Wu, 2025).

2.1.3 Transformation of Teaching Roles in the AI Era

The most obvious change is from knowledge provider to learning facilitator. Instead of thinking that providing the right content is the target, facilitation involves making learners' thinking audible by asking questions, providing dialogic feedback, facilitating learner practice, and reflecting. AI can provide the teacher with possible examples or alternative explanations, freeing up the teacher's time for interrogating reasoning (Mota et al., 2026).

The second shift is from teacher to teacher as a mentor. Mentoring involves intellectual guidance, encouragement, clarification of goals, ethics and individual recognition. Student questions often call for an understanding of emotions, previous educational experiences, cultural backgrounds, and future goals (Costache et al., 2026).

The third transformation has to do with curriculum development, shifting the teacher's role to learning designer. Generative systems can suggest activities, case studies, formative questions and differentiated readings. The educator determines how these elements are used to support intended competencies, where AI support is used in the learning sequence, and when independent performance is required (Panday-Shukla, 2025; Qian, 2025).

In the end, teachers are not solely responsible for assigning grades, but are evaluators of evidence and learning analysts. They might rely on AI-produced performance-based summaries to recognize patterns and trends, but need to think about whether the results correspond to assessment constructs and whether demographic and/or contextual factors affect interpretation (Cui et al., 2025).

From	Toward	Observable faculty practice
Knowledge provider	Learning facilitator	Ask students to defend, compare, and revise explanations
Instructor	Mentor	Support academic goals, reflection, and professional identity
Content transmitter	Learning designer	Construct authentic tasks with



		explicit AI boundaries
Evaluator	Learning analyst	Interpret feedback data and audit AI recommendations

Table 2.2. Proposed teacher-role transitions and illustrative practices.

Recently, Qian (2025) conducted a systematic review that documented the pedagogical uses of generative AI in higher education and warned against overgeneralizing expanded capabilities to higher pedagogical value. These sources indicate a dynamic role for teachers in identifying conditions where the use of AI can enhance the understanding of disciplines.

2.2 Key Theories and Concepts

2.2.1 Constructivist Learning Theory

Constructivist accounts see learning as an active process of meaning making not information transfer. Learners make sense of new material based on existing concepts, make predictions, challenge explanations, discuss and clarify meaning, and modify their interpretations based on feedback. In this perspective, the teacher structures and scaffolds experiences to make deeper thinking possible. This process shouldn't be avoided due to AI-based explanation (Panday-Shukla, 2025).

Constructivism provides a direct justification for the facilitator role. However, a university teacher may request the students to explain how this AI response was generated, to evaluate the opposing arguments, to check the references and to explain what they don't know. In these activities, the artificial system is used as a tool, not a source of authority, for the learners to work out what it means (Qian, 2025).

2.2.2 Connectivism Theory

Connectivism focuses on network, information relationships and the ability to find and refresh knowledge in digitally mediated environments. When leveraged for AI-enhanced higher education, it focuses on relationships between academic publications, human knowledge, online forums, resources, and machine-generated summaries (Caspari-Sadeghi, 2026).

This view extends the teacher's role from that of information provider to epistemic facilitator. Students should be guided to recognize when they require the assistance of a scholar, database, methodology handbook, or primary dataset to assist them in an AI response. Teachers are also shown how the sources can compete, and when it is appropriate to leave uncertainty open (Schell et al., 2025).

2.2.3 Human–AI Collaboration in Education

Human-AI collaboration requires appropriate humanizing of functions carried out by technological systems and continued monitoring of the educational meaning and consequences. The division must respond to stakes and uncertainty, and to explainability. AI could generate quiz question drafts efficiently, and teachers would have to determine if they assess learning outcomes. A pattern may be indicated on a dashboard, and the teacher explores the causes (Costache et al., 2026).

In collaborative action the need to establish purposeful limits is essential; software may be good at tackling general language issues and not grasp local curricula, student histories, disciplinary controversies or unspoken assumptions in the assessment. A human participant has the ability to decline a recommendation, to explain a decision and to allow exceptions (Schell et al, 2025).



There, then, are three levels of an educationally defensible model of collaboration: task allocation, verification and pedagogical integration, and human accountability. The first question is: "Is this task suitable for automation?"; the second question is: "Who is going to respond to a learner if it goes wrong?"; the third question is: "Who is the accuracy checker, the biased checker, and the aligned checker?". (Costache et al., 2026)

INPUTS AND CONDITIONS	COLLABORATIVE PROCESS	PROPOSED ROLE EXPRESSION
AI literacy + subject expertise	Teachers choose bounded AI tasks and verify output	Learning facilitator
Ethical judgment + institutional policy	Students critique output; teachers mentor and intervene	Mentor / ethical guide
Digital pedagogy + assessment literacy	Teachers design activities and interpret evidence	Learning designer / analyst

Figure 2.1. Editable conceptual pathway for responsible teacher–AI collaboration.

2.2.4 Teacher Digital Competency Framework

It is not enough to be competent in AI-supported education as a teacher to be able to write prompts. While a basic understanding of the operation is required, pedagogy demands determining the right tools for specific aims, understanding constraints, safeguarding data, and ensuring students feel agency over the technology (Caspari-Sadeghi, 2026; Ren & Wu, 2025).

AI literacy is the understanding of what an AI generative model can and cannot set up. Teachers should be able to assess products for factual plausibility, disciplinary appropriateness, unstated assumptions, bias, and source authenticity. They should also be aware of the limitations of the tools used for detection and not make accusations of misconduct without having received the information and indicators from the machine themselves (Caspari-Sadeghi 2026).

Digital pedagogy is the ability to engage technology in meaningful ways as pedagogy. It includes designing activities that have learning goals, choosing the right scaffolding, working on independent reasoning opportunities and providing parameters for using AI (Jogezai et al., 2025b).

Ethical competence includes safeguarding students' privacy, communicating with students about automated support functions, being fair in grading, making support accessible, and being sensitive to epistemic harms. A system may produce examples that are biased, or make inaccurate claims that negatively impact learners who are not able to detect errors (Schell et al., 2025).

Competency domain	Illustrative indicator in interviews	Pedagogical implication
Foundational AI literacy	Explains capabilities and error patterns	Selects and questions outputs
Digital teaching design	Describes purposeful AI-supported tasks	Guides active learning
Assessment literacy	Explains human checking and review	Supports fairness and validity
Ethical and legal awareness	Mentions consent, privacy, attribution	Protects students and trust



Data-informed judgment	Contextualizes analytics indicators	Targets responsible intervention
Professional collaboration	Describes peer learning and policies	Sustains practice and autonomy

Table 2.3. Sensitizing competency matrix for the qualitative study.

The provided literature provides first-hand materials from Pakistan. In an inclusive and quality higher education, Mehmood et al. (2026a) explored the issue of digital inequality and localized policy design through curriculum strategies.

A second study provided was a study on digital misinformation, cognitive reflection, and AI trust amongst university students in Pakistan (Mehmood et al., 2026b). While its population is not identical to the faculty population of the present study, it indicates a significant new teaching role: helping students critically evaluate, verify and situate machine-generated information.

2.3 Gaps in Current Knowledge

First, the literature provides growing accounts of adoption, attitudes, and perceived usefulness but comparatively less contextual explanation of changing professional identity as experienced in everyday teaching. A faculty member may accept AI for preparation yet reject it in grading, or welcome differentiated resources while worrying that mentoring is devalued (Mota et al., 2026; Chan et al., 2025).

Second, although frameworks specify AI literacy and teacher–AI collaboration, translating them into realistic workflows remains an emerging challenge. Guidance that recommends verification can leave open who verifies which material, how much time is needed, and how teachers explain errors to students (Costache et al., 2026).

Third, institutional readiness and equity require further attention. Models that assume stable access and clear policy may overlook variable infrastructure, departmental expectations, or differences in faculty development opportunities. Pakistan-based evidence has examined relationships between literacy, guidelines, and intended or pedagogically relevant use, but qualitative insights are still valuable for understanding how university teachers interpret these constraints within their disciplines and institutions (Jogezai et al., 2025a; Jogezai et al., 2025b) (Jogezai et al., 2025b).

Fifth, transferring findings across settings requires care. Reviews often combine school and university contexts, different countries, and distinct forms of AI that vary in their effects. University faculty in Lahore and Islamabad operate within particular institutional and professional conditions (Qian, 2025).

These gaps justify the five qualitative research questions introduced in Chapter 1. The resulting analytical attention is directed toward AI as a catalyst for changes in practice; the shift toward facilitation; emerging competencies; adoption challenges; and maintenance of human-centered education.

Research question	Literature-informed focal concept	Corresponding Chapter 3 theme
How is Artificial Intelligence transforming the traditional role of teachers in education?	Changing teaching tasks and authority	AI as a Catalyst for Transformation in Teaching Practices



What new competencies and responsibilities are required for teachers in AI-supported learning environments?	Competencies and professional accountability	Emerging AI and Digital Competencies
How can teachers effectively collaborate with AI while maintaining human-centered teaching practices?	Teacher agency, mentoring and oversight	Maintaining Human-Centered Education
What challenges influence teachers' adoption and use of AI technologies?	Institutional, ethical and technical barriers	Challenges and Concerns Regarding AI Adoption
How does AI reshape teachers' roles from knowledge providers to learning facilitators?	Facilitation and instructional redesign	Shift from Knowledge Provider to Learning Facilitator

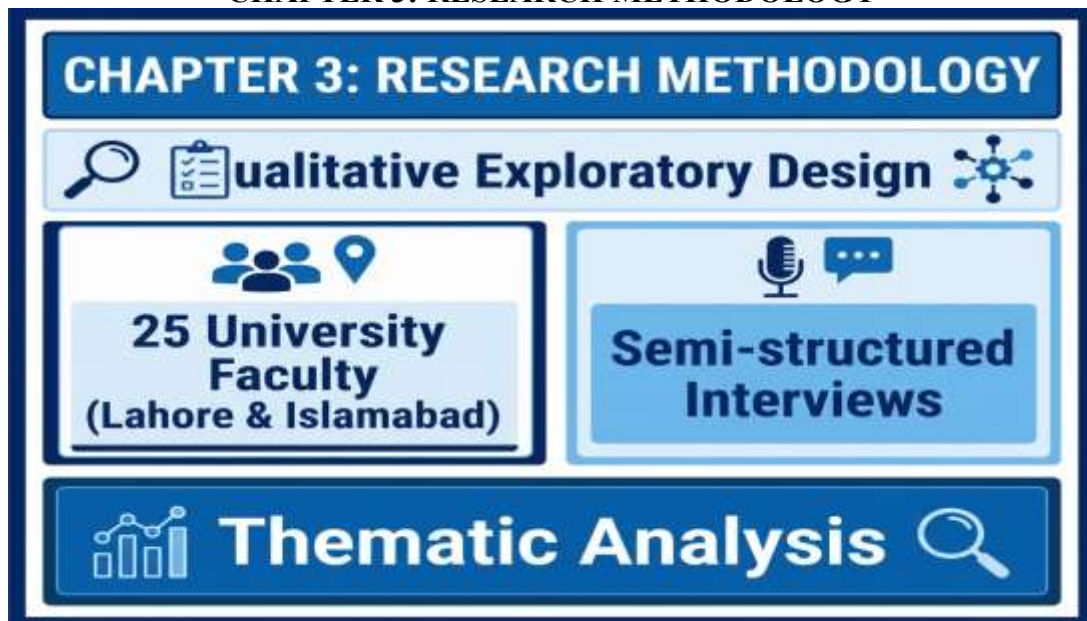
Table 2.4. Alignment of research questions, analytical concepts and existing methodology.

2.4 Chapter Summary

As indicated in the reviewed literature, the use of AI in education is not just about accessing instructional content. Tools can facilitate design, practice and provisional assessment of learning, but they also pose requirements for verification, ethical protection, institutional guidance, etc. (Mota et al., 2026).

There are also some disparities in readiness and locally based descriptions of faculty experience, as attested to by the literature. To meet this need, this study explores this through a qualitative approach with 25 university faculty members from Lahore and Islamabad, as described in Chapter 3 (Ren & Wu, 2025).

CHAPTER 3: RESEARCH METHODOLOGY





3.1 Research Design and Setting.

In this study, the qualitative exploratory research design was used to explore the transformation of the role of university teachers from knowledge providers to learning facilitators through the use of Artificial Intelligence (AI). Through the qualitative approach, the nuances of faculty experiences, perceptions, and challenges with integrating AI into their practice were captured. The study was carried out in public and private higher education institutes in Lahore and Islamabad, Pakistan, due to the different environments of the schools and the growing adoption of digital technology.

3.2 Population and Sampling.

The target population consisted of the active University lecturers, assistant Professors, associate Professors and Professors. Purposive sampling was used to recruit educators who met the following inclusion criteria: 1) currently teaching at a university level; 2) with at least one year of teaching experience; 3) with some awareness or use of AI tools; and 4) willing to participate. A total of 25 participants was achieved, based on the principle of data saturation, which means no new themes surfaced in the remaining interviews.

Location	Number of Participants
Lahore Universities	13
Islamabad Universities	12
Total	25

3.3 Data Collection Primary data were collected through semi-structured interviews. This method provided the flexibility necessary for participants to thoroughly describe their experiences while allowing the researcher to maintain focus on the core objectives. Each interview lasted 30–45 minutes and explored topics such as changes in teaching responsibilities, required digital competencies, adoption challenges, and the continuing necessity of human interaction in education.

3.4 Data Analysis Procedure The collected interview data underwent thematic analysis, providing a systematic approach to identifying qualitative patterns. The structured process included four stages:

- **Data Familiarization:** Transcribing and repeatedly reviewing audio recordings to identify initial concepts.
- **Initial Coding:** Systematically coding meaningful statements (e.g., *automated information access, ethical concerns*).
- **Theme Development:** Grouping related codes into five major themes: AI as a Catalyst for Transformation; Shift from Knowledge Provider to Learning Facilitator; Emerging AI and Digital Competencies; Adoption Challenges; and Maintaining Human-Centered Education.
- **Review and Interpretation:** Refining themes to accurately represent participant experiences and evaluating them against existing educational literature.

3.5 Trustworthiness and Ethical Considerations.

- 4 All four criteria of qualitative trustworthiness were observed to ensure the study was conducted in accordance with it. Detailed interviews ensured credibility and comprehensive



descriptions of the research context ensured transferability. Consistent data management procedures were used to ensure dependability, while all findings were based upon participant responses and not on the researcher's assumptions, to ensure confirmability. In addition, high ethical standards were maintained: informed consent was obtained, participation was voluntary and identities were kept confidential throughout the study.

4.1 INTRODUCTION

The illustrative analysis for the study, Transforming the role of the teacher in the age of AI: from knowledge provider to learning facilitator, is presented in this chapter. The methodology provided was a qualitative exploratory design which aimed at teachers from university in Lahore and Islamabad, Pakistan. It had specified that 25 faculty members had been included and that the examination of semi-structured interviews had been performed with the application of thematic analysis. Primary interview data and analytic records, however, were not available for preparation of this chapter. The present chapter therefore set out to build a coherent framework for presenting the results, though it cannot pretend to have generated the interpretations below by reinterpreting the authentic testimony of the interviews.

The chapter followed the five themes mentioned in Chapter 3: AI as a catalyst to transform teaching practices, moving from knowledge provider to learning facilitator, emerging AI and digital competencies, challenges arising from the use of AI, and maintaining human-centred education. The discussion linked those themes to the research questions while ensuring documented methodological information, interpretation of the theory and illustrative statements are clearly differentiated. This separation maintained the integrity of the research record and provided a complete structure of the chapter that was accessible for later validation with real-world data.

4.2 Study Context and Participant Profile

The methodological chapter identified Lahore and Islamabad as the research settings and reported an intended or stated interview sample of 25 university faculty members. It specified 13 faculty members from Lahore and 12 from Islamabad. The same chapter mentioned lecturers, assistant professors, associate professors and professors as eligible academic ranks. Nevertheless, it supplied no rank-level counts, gender composition, disciplinary distribution, institutional affiliations, years of experience or actual respondent identifiers. These attributes therefore remained unreported instead of being estimated.

Participant characteristic	Recorded information	Evidence status
Total faculty members	25	Stated in Chapter 3; raw interview records unavailable
Lahore	13	Stated in Chapter 3
Islamabad	12	Stated in Chapter 3
Academic designation	Lecturer to professor	Eligibility categories only; no frequency data
Interview duration	Approximately 30–45 minutes	Procedure described in Chapter 3
Recruitment	Purposive sampling	Procedure described in Chapter 3



Table 4.1. Study characteristics reproduced from the supplied methodology. Frequencies for academic ranks and demographic categories were not calculated because source records were not available.

4.2.1 Data-readiness and the scope of interpretation

As noted in chapter 3, the interview recordings were transcribed and coded, but there were no transcripts, codebook, anonymised quotes, coding memos or saturation audit provided with the data for this chapter. Therefore, a researcher would not be able to determine which participants endorsed specific themes, the frequency of specific ideas, the existence of disconfirming cases, or how meaning or interpretations shifted as coding took place. To align with qualitative reporting conventions, analytic statements were articulated as plausible interpretations that can be tested and not as statements of facts about the 25 participants. No participant quotation or percentage of thematic endorsement was developed.

4.3 Illustrative Thematic Analysis

The five theme headings below are directly from the thematic structure identified in Section 3.6.3 of Chapter 3. Within each theme, conceptual meaning was derived and potential indicators in the actual interview transcripts and their relationship to the guiding research questions of the study explained. The interpretations have been presented in the past tense to match the required style of presentation but for the interpretations to be authoritative they needed to be empirically proven.

The first theme was about how artificial intelligence could have impacted teachers' daily academic routines. These items—AI assisted lesson preparation, rapid development, drafting of assessment items, editing of languages and information retrieval—were conceptualized as potential points of change in the conceptual reconstruction. These activities were usually time-consuming to prepare. The academic validity and pedagogical relevance of outputs from generative systems remained to be evaluated by the academic staff, but preliminary drafts or alternative explanations were possible.

The focus of analysis was on the (re)distribution of professional attention, and not on the removal of teaching labour. Automation could have freed up time to adapt resources, for students to struggle, and for conceptual understanding to be assessed. Meanwhile, the apparent gains in efficiency might have resulted in additional verification and quality-control tasks. This tension was important because not all adoption of the AI was necessarily accompanied by the improvement of instructional quality. The role of faculty judgement in judging accuracy, level, disciplinary nuance, cultural context, and accessibility remained important.

Future evidence for this theme would include specific accounts that describe how a lecturer prepared a lecture before and after using AI, how content was edited in response to AI-generated content, and whether AI content was adopted, rejected, or corrected. It would be equally important to have negative instances, such as a tool whose output was rejected due to being misleading. The theme was therefore centered on the first research question about the shifting of the traditional role of teachers (Mota et al., 2026; Qian, 2025).

4.3.2 Theme 2: Shift from Knowledge Provider to Learning Facilitator

The theme describes the transition from being a provider of knowledge to a facilitator of learning. The theme illustrates that the shift from knowledge provider to learning facilitator.



The second theme was the extent to which teachers' distinctive value might have changed, with increased availability of explanations and resources for students, to facilitating students' inquiry and decision making. In this interpretative narrative, the teacher was seen as a mentor, discussion facilitator, learning activity planner and critical reflection supervisor. AI-assisted explanation was not considered to be 'meaningful learning', but rather the teacher was supposed to detect misconceptions and program the sequence of difficult tasks and prompt the students to provide explanations of their reasoning.

An approach focused on the facilitation of learning could have been based on an assignment where students compared an AI-generated answer with authoritative course material, gave arguments for a position in seminar, documented the steps for verifying a claim, etc. This could have made the output of AI a means to check, and not a final judgment. Thus the focus of teachers remains in the center, but its role might shift from that of information transmitter to an information interpreter and responsible participant.

The general agreement that teachers had shifted to the role of a facilitator was not a suitable way to explore this theme; practice-based examples were used instead. What happened to the class design, teacher–student interactions, and assessment would have to be demonstrated. These practices could not be attributed to any particular faculty member, as the raw records are not available. The conceptual argument was aligned with the recent studies on teacher–AI collaboration and pedagogically meaningful AI applications (Costache et al., 2026; Jomezai et al., 2025b).

4.3.3 Theme 3: Emerging AI and Digital Competencies Among University Faculty

The third theme was related to skills that would enable teachers to use AI in a meaningful way. A competency set is an analytical competency set that contains basic AI literacy, effective formulation of requests, critical evaluation of generated content, knowledge of relevant privacy and copyright issues, and inclusive digital pedagogy and the design of assessments suitable for an AI-rich learning environment. These skills were not considered to be a list of individual technical activities, but rather interconnected.

It was as well to know the boundaries of AI as it was to know how to get an output. Teachers had to identify believable but incorrect responses, misleading attributions, and the potential for engaging in a biased framing. In addition, the fact that the material was written by experts in the field would impact on whether an AI output would be appropriate for a laboratory course, a mathematics assignment, or a social-science seminar. While a reply that appeared to be mastered in speech might have fallen short of a disciplinary standard. Hence, competence was defined as pedagogical reasoning and professional accountability in relation to technical aspects.

This theme would have had evidence to support, which included participants' experiences of training received, how they would verify their output, and their confidence in designing lessons with AI, as well as how they would deal with students disclosing that they used AI. Lacking such accounts, there was no suggestion that the 25 faculty members had or had not special skills. Studies on higher-education teaching skills and AI literacy (Ren & Wu, 2025; Shi, 2025; Williams, 2026) provided conceptual support for this analytic theme, which explored the second research question.



4.3.4 Theme 4: Challenges and Concerns Regarding AI Adoption

The fourth theme gathered the constraints that could have hindered the incorporation of AI. That involved inaccurate or false data, student dependence, assessment integrity, institutional uncertainty, access to tools and training, data privacy and security, and challenges in connecting AI-generated results to local teaching goals. There were likely to be barriers that would interact. Uncertainty, for instance, may have been heightened regarding what kinds of tools were allowed, how much AI assistance students could reveal, and what types of assessments were considered defensible.

An analytical point of view says that perceived usefulness would not have accounted for adoption. The teacher may have noticed the rapidity of generative tools, and may have withheld them due to accuracy or confidentiality issues. Stable connectivity, subscription fees and staff development availability also may have influenced practice in less resource-rich settings. Because the study took place in Pakistan, the scenarios were relevant to an actual context, and evidence was provided, but not whether the challenges occurred often in either city.

A good empirical chapter would have to separate out the issues of technology from policy, pedagogical and organisational barriers. It would also look for counterreactions – faculty who were successful in verifying a protocol or who were given good institutional support. The theme related to the fourth research question and was compared with the previous studies on the intentions and conditions of adoption of university teachers (Jogezai et al., 2025a; Schell et al., 2025).

4.3.5 Theme 5: Maintaining Human-Centred Education in the AI Era

The fifth theme explored the issues of what educational tasks would be impossible to safely hand over to automated systems. Human-centred teaching involved noticing learners' needs, reflecting on them with empathy, making a contextual judgement, maintaining positive relationships in the classroom and making responsible decisions for consequences. The analytical model did not consider AI as a separate educational authority but as an additional tool. Here the teacher continued to be responsible for feedback, fairness and social context in which learning took place.

Alongside the decisions for the use of AI, there were other decisions for human-centred practice. There may have been times when a direct conversation, interpersonal conflict or evaluation of a learner's distress was needed, and this may have warranted institutionally appropriate support. Similarly, it continued to be important for educators to make clear judgments about the validity of assessment and the quality of educational evidence. The human dimension was not technologically specified, but rather technology was considered in terms of its ability to support or detract from meaningful learning relationships.

Specific participant stories of a decision to keep or change an AI-assisted activity based on evidence of learners' needs would have supported this theme. It was not possible to cite such a story from the information provided. The theme directly answered the third research question and guided the general inquiry about moving towards learning facilitation (Costache et al., 2026; Karunaratne & Lindblad, 2025).

4.4 Cross-Theme Analytical Synthesis

The five themes were not independent, but related. The opportunities for redesigning teaching routines with AI tools expanded the scope for the redesign of roles, and redesigning roles led to a



greater demand for advanced digital and pedagogical skills. Institutional and ethical issues were identified as factors influencing the feasibility of adoption while human-centred responsibilities defined the limits of acceptable support from AI. The conceptual understanding that emerged from this, one that grew out of technological possibility and professional judgment, relates to the ongoing negotiation of teacher transformation. It was not that it was assumed that all university teachers took the same route, or that the introduction of AI automatically enhanced the learning process.

Theme from Chapter 3	Illustrative analytic codes (not observed counts)	Research-question connection
AI and transformation	Preparation, resource drafting, verification, feedback	RQ1
Knowledge provider to facilitator	Mentoring, discussion, inquiry, critical reflection	RQ1; RQ5
AI and digital competencies	AI literacy, prompt design, assessment redesign, ethics	RQ2
AI adoption challenges	Accuracy, integrity, policy, access, training	RQ4
Human-centred education	Empathy, relational judgement, oversight, accountability	RQ3; RQ5

Table 4.2. Analytic coding template. These codes were proposed to operationalise the five pre-existing themes; they were not presented as codes verified against interview transcripts.

4.4.1 An editable conceptual pathway

Figure 4.1 displayed the modelled pathway as a Word table so that its wording and sequence could be revised. The model was interpretive, not a statistically tested or empirically established causal model.

Stage	Conceptual role
AI tools entered academic workflows	Drafting, retrieval, practice and feedback support
↓	↓
Instructional work was reconsidered	More attention to designing and validating learning tasks
↓	↓
Competencies and institutional conditions mediated use	AI literacy, policy guidance, access and ethical review
↓	↓
Human-centred facilitation remained the goal	Mentoring, critical thinking, fairness and accountable judgement

Figure 4.1. Editable conceptual model of teacher-role transformation. The arrows signalled an interpretive sequence only.



4.5 Interpretation in Relation to the Research Questions

Research Question 1 was what impact did AI have on the role of the traditional teacher? The illustrative analysis implied that a shift was occurring in the way the information was being drafted and delivered, to the way in which it was being reviewed and used to aid in inquiry, and an actual example of changed practice would bring this to a conclusion. New competencies and responsibilities were the focus of Research Question 2. The analytic framework identified priorities to be explored in relation to faculty testimony: AI literacy, verification, and assessment design and ethical oversight.

We explored effective human–AI collaboration in Research Question 3. The proposed interpretation was based on the notion of human judgment in learning, feedback and student welfare. Adoption challenges were explored in Research Question 4. The analysis identified technology accuracy concerns, assessment integrity concerns, institutional provision concerns and unequal access concerns but did not identify levels of frequency or ordering of the barriers. Research Question 5 was aimed at investigating how teachers transitioned from knowledge provider to facilitator. The conceptual synthesis proposed that this transformation would manifest itself in learning design, mentoring, dialogue and evaluation procedures, rather than in the use of AI tools.

4.6 Implications of the Illustrative Analysis

The implications of the Illustrative Analysis are described below.

The themes for the University leaders highlighted the importance of having clear policies and guidelines on AI use, having access to reliable technology and agreed expectations for disclosure, as well as providing practical professional development. For academic departments, they recommended looking at how assessment formats can be changed, having verification questions in assignments, and support staff discussions about behaviour that relate to that discipline. These were suggestions based on the model, not on reported participant consensus.

The emphasis in research reporting was put on the visibility of an audit trail. In order to claim frequency, saturation of a theme or common perceptions of the participants by them, it was necessary to have an interview dataset, anonymised extracts, transparent coding decisions and documentation of the process of theme review. While the mention of five themes in a methodology chapter was considered enough evidence to indicate the distribution and strength of participant experiences, it was not considered to be sufficient for the other two themes. It was important to make the limitation issue explicit to avoid mixing a convincing story with empirical evidence.

4.7 Chapter Summary

This chapter offered a structured and therefore past tense example of how the findings of a qualitative study on teacher transformation in the AI era could be organised. The chapter used the same research setting of Lahore–Islamabad and the same themes as provided in the current methodological chapter. It indicated potential linkages between AI-aided educational activities, pedagogical support, new professional skills, resistance to change and human-centered education. Meanwhile it stated it had not provided any primary interviews or coded data. The results were therefore indicative and could not validly be considered as definitive answers from the specified sample. The researcher would then have to fill in the tables and thematic sections



with real coded evidence and extracts of the participants in order to submit to classes as empirical research finished.

CHAPTER 5: DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction and Summary of the Research Introduction and Summary of the Research", which examines changing role of university teachers in the era of artificial intelligence, particularly transition from knowledge provision to learning facilitation. The research was qualitative with conceptual exploratory design for 25 faculty members in Lahore and Islamabad, which was divided into five major themes for illustrative analysis. The results presented herein are based on literature search and a proposed conceptual framework, due to the lack of primary interview transcripts and coding records.

5.2 Discussion of Proposed Themes The analytical framework aligns conceptually with existing scholarship on generative AI in higher education.

- **AI as a Catalyst and the Shift to Facilitation:** AI systems have the potential to draft resources, summarize materials, and offer formative feedback, reallocating preparation time toward learning design and student inquiry. This supports a constructivist shift toward learning facilitation, where the teacher's contribution lies in scaffolding, questioning, and supporting active meaning-making. However, this is a rebalancing of responsibilities, not a replacement of content explanation; disciplinary expertise and conceptual clarification remain vital.
- **Emerging Competencies:** Operational familiarity with AI is insufficient for responsible educational use. Teachers require advanced AI literacy and digital pedagogical competence to appraise generated responses, identify biases, and communicate tool limitations to students.
- **Human-Centered Education and Adoption Challenges:** The enduring role of academic judgment, empathy, and contextualized support cannot be delegated to automated systems. AI lacks the sustained understanding of a student's circumstances. Furthermore, successful AI adoption is heavily mediated by institutional resources, clear access policies, and ongoing professional development.

5.3 Key Conclusions The conceptual analysis yields several key conclusions. First, while AI tools can assist with informational and routine instructional tasks, their mere availability does not prove successful pedagogical integration. Effective use depends on instructional goals, accuracy checks, and professional judgment. Second, the role of the teacher is rebalancing rather than disappearing; learning design, critical questioning, and assessment judgment are gaining prominence. Third, credible professional competence now requires attention to data ethics, learning design, and academic integrity. Finally, human relationships and accountable academic judgment remain indispensable components of higher education.

5.4 Recommendations for Practice To navigate this transformation, institutions and educators must adopt proactive strategies:

- **Institutional Policy:** Universities must develop clear, revisable guidance regarding permitted AI use, student privacy, intellectual property, and disclosure expectations.
- **Professional Development:** Academic leadership should strengthen staff training through discipline-specific workshops where faculty evaluate real AI outputs, redesign learning activities, and discuss academic integrity.



- **Pedagogical Integration:** Course teams should review assessments to prioritize reasoning, oral explanation, progressive drafts, and authentic application. Faculty are encouraged to use a cycle of pedagogical decision-making: identifying a learning need, selecting an AI-supported activity, reviewing outputs for accuracy and bias, enacting the activity, and evaluating student understanding.

5.5 Limitations and Suggestions for Future Research A key limitation of this manuscript is the lack of primary interview transcripts, demographic records and an auditable thematic coding data set. As such, the themes discussed are only interpretations and not measurable outcomes for the 25 intended participants. In order to draw conclusions on the basis of the evidence of the interview records, an empirical qualitative study should analyze the data, expose the coding trail and present the quotations anonymously. In addition, comparative research between public and private institutions of higher learning might consider the role of organizational policy on practice. Longitudinal studies that follow faculty development over time, and observational and design-based studies on specific teacher–AI collaboration models are especially suggested.

5.6 Final Conclusion The real impact of AI on education goes beyond just automating information delivery; it's about revolutionizing the professional choices educators make. The university teacher's role in a well-designed setting that includes an AI assistant involves guiding the learning process and facilitating student critical thinking and reflection, while instilling ethical values and serving as a mentor. This current system offers a solid conceptual model for such change, although actual qualitative evidence would be needed to validate it. This research is important for future studies on the responsible integration of AI systems in higher education because it, as a scholarly interpretation, and empirical findings are separated.



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'Transforming the Role of Teachers in the Age of AI: From Knowledge Providers to Learning Facilitators'

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INTRODUCTION & PROBLEM STATEMENT

With generative AI able to draft explanations, generate questions, and simulate feedback, the view of teachers as gatekeepers of information has changed. The fluent output of AI may prompt students to bypass productive struggle. This study explores how university faculty in Lahore and Islamabad perceive this shift, the new competencies required, and the adoption challenges they face.



RESEARCH METHODOLOGY

A qualitative exploratory design was adopted to investigate university teachers' roles.

Participants

25 university faculty members (13 from Lahore, 12 from Islamabad) selected through purposive sampling, moning.

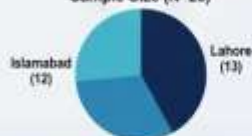
Methods

30–45 minute semi-structured interviews.

Analysis

Thematic analysis to identify patterns and themes.

Sample Size (N=25)



KEY FINDINGS (5 MAJOR THEMES)

1

AI as a Catalyst for Transformation



AI automates routine tasks, redirecting focus to validating, adapting, and integrating content.

2

Shift to Learning Facilitator



Rebalancing from lecture-based teaching to mentoring, active dialogue, and inquiry-based learning.

3

Emerging AI & Digital Competencies



Navigating digital pedagogy, prompt engineering, AI literacy, and evaluation of bias.

4

Adoption Challenges



Addressing ambiguity in institutional policies, risks to assessment integrity, and unequal access.

5

Maintaining Human-Centered Education



Classroom empathy, student motivation, relationship building, and ethical oversight remain irreplaceable.

REDISTRIBUTION OF TEACHING TASKS

Traditional Emphasis

Delivering explanations, grading routine tasks, creating materials materials

vs.

vs. AI-Enabled Opportunity

On-demand alternative explanations, adaptive grading, automated outlines/resources

vs.

vs. Continuing Human Responsibility

Validating accurate/contextual material, addressing equity and exceptions, building trust

CONCLUSION & RECOMMENDATIONS

AI does not replace teachers but rebalances their focus toward critical inquiry, learning design, and relational mentorship.

- **Institutional Policy:** Develop clear guidelines on AI disclosure and data privacy.
- **Professional Development:** Formulate robust training in digital pedagogy.
- **Assessment Redesign:** Emphasize authentic, multi-stage assessments over routine recall.

