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Artificial Intelligence as a Co-Teacher: Redefining Pedagogical Authority in Higher Education

Kiran Shahzadi
MPhil Education, Institute of Education and Research, University of the Punjab, Lahore.
Email: nomia0930@gmail.com
Professor Dr. Abdul Qayyum Chaudhry
Director, Institute of Education and Research, University of the Punjab, Lahore.
Email: director.ier@pu.edu.pk
Naveed Ahmad Taseer
Lecturer in Education, Govt. Graduate College of Science, Wahdat Road, Lahore.
Email: taseer642nat1@gmail.com

Abstract
This paper explored the concept of redefined pedagogical authority in the context of higher education with reference to selected public sector universities of Punjab, Pakistan with the application of artificial intelligence (AI) as co-teacher. The study employed a qualitative research approach in which the university teachers' perceptions, experiences and concerns about AI in teaching and learning were explored. The study was informed by Actor-Network Theory to provide an understanding of how the role played by teachers, students, AI tools, digital platforms, and institutional practices within the educational landscape evolved. The data obtained was by using semi-structured interview technique with purposive sampling of the primary respondents that consisted of university teachers until there was data saturation. Thematic analysis was used to analyze the data. The results indicated that AI was perceived as an assisting co-teacher to support lesson planning, explanation of concepts, feedback generation and personalized learning. But there were also some concerns mentioned by the participants relating to over-depending students, academic dishonesty, the reliability of assessment, absence of institutional policy and inadequate teachers' training. The study concluded that AI was not taking the place of teachers, rather it was transforming the role of teachers from being a provider of knowledge to a facilitator, ethical guide, evaluator, and final decision-maker for academic studies. The study proposed several recommendations for the responsible use of AI in higher education, such as the establishment of clear policies, training for teachers, ethical guidelines, and assessment system changes.

Keywords: *Artificial Intelligence, Co-Teacher, Pedagogical Authority, Higher Education, Teacher Role, Ethical AI, Qualitative Study*

1. Introduction

The use of Artificial Intelligence (AI) in higher education has gradually revolutionized the traditional education and learning settings. AI-powered tools like adaptive learning systems, automated assessment tools, intelligent tutoring systems, and generative language models have been implemented in education across various universities globally to facilitate teaching and learning processes. This transformation has shifted higher education towards digitally-enabled learning environments where human teachers and intelligent systems work together and complement each other in the teaching process (Holmes & Tuomi, 2022; Ouyang & Jiao, 2021).

Amidst this shifting landscape, AI has emerged as a co-teacher alongside educators, serving as a tool to aid in lesson planning, teaching, giving feedback, and offering personalized academic support to learners. This has posed a threat to the traditional teacher-centered approach to teaching and learning in classrooms. Through real-time suggestions, learning analytics, automated feedback and individual learning pathways, the AI systems now impact the decision-making process in teaching and learning (Chen et al., 2020; Zawacki-Richter et al., 2019).

The use of AI in an educational context also starts to change the notions of pedagogical authority. The authority of a teacher, traditionally, rests on his or her knowledge, legitimacy in the classroom, experience, and moral responsibility. However, when using AI-supported systems, authority shifts and is more distributed as algorithmic tools might have an impact on learning content, learning support, assessment practices, and student decision making. This re-distribution poses several questions on the issues of control, accountability, professional autonomy and how the role of educators will evolve in the context of AI-assisted higher education.

Meanwhile, AI has some key learning opportunities. Can adapt to personalize learning, provide feedback, cut down the teachers' basic workload and help students get explanations after class. Recent empirical studies indicate that students and teachers generally recognize the usefulness of generative AI in learning support, academic writing, feedback, and instructional preparation, but they also express concerns related to accuracy, privacy, ethics, over-reliance, and academic integrity (Baek et al., 2024; Chan & Hu, 2023; Lee et al., 2024; Perveen & Hussain, 2023; Hussain & Abbas, 2023; Hussain & Khoso, 2021; Hussain & Khoso, 2022).

Despite growing adoption of AI technologies, limited attention has been given to how AI as a co-teacher reshapes pedagogical authority in higher education, especially in the Pakistani context. Much of the existing literature has focused on technical effectiveness, student performance, or general perceptions of AI adoption. Fewer studies have examined the deeper relationship between AI tools, teacher authority, ethical decision-making, classroom control, assessment responsibility, and institutional policy. Therefore, this study explored how artificial intelligence as a co-teacher redefined pedagogical authority in selected public sector universities of Punjab, Pakistan.

2. Rationale of the Study

The rationale for this study stems from the rapid proliferation of AI in higher education and the use of generative AI tools in teaching, learning, writing, providing feedback and assessment related tasks. AI has transcended administrative support to become a part of academic activities traditionally reserved

for teachers. This has given rise to new pedagogical situations where the presence of humans as teachers is combined with the support of algorithms and automated decision-making.

The study is also motivated by the fear that AI can impact the autonomy, independence and academic honesty of students and reliability of assessments for teachers. The use of AI can streamline the allocation of learning support and make it more efficient, but it could also lead to dependency if students rely on it as a quick fix instead of a tool to aid learning. Teachers thus have to model good practice in the use of AI, validate AI outputs, redesign assessments, and uphold the human touch in teaching.

In Punjab, Pakistan, institutions of higher education are now starting to face changes due to the adoption of AI, and there is still a lack of institutional policies and teacher training programs. Therefore, it is essential to have a good understanding of the perceptions of university teachers about AI as a co-teacher and how they cope with the negotiation of their professional authority in the context of AI-supported teaching. The results of this study can assist universities in finding a balance for the responsible, ethical and pedagogically significant integration of AI.

3. Statement of the Problem

Artificial intelligence has become an important part of higher education and is increasingly used to support teachers in teaching, learning, assessment, and student guidance. However, this change has created a problem because the role and authority of teachers are no longer as clear as before. Traditionally, teachers were considered the main source of knowledge, guidance, evaluation, and classroom decision-making, but AI tools can now explain concepts, generate feedback, support students, and assist in assessment-related tasks. This raises questions about how much authority should remain with teachers and how AI should be used responsibly as a co-teacher. Therefore, this study examined how artificial intelligence as a co-teacher redefined pedagogical authority in higher education.

4. Objectives of the Study

1. To examine how artificial intelligence as a co-teacher reshaped the traditional pedagogical authority of university teachers in selected public sector universities of Punjab, Pakistan.
2. To explore the challenges and strategies through which university teachers maintained their professional authority while using artificial intelligence in teaching and learning.

5. Research Questions

1. How did artificial intelligence as a co-teacher reshape the traditional pedagogical authority of university teachers in selected public sector universities of Punjab, Pakistan?
2. What challenges did university teachers face, and what strategies were needed to maintain professional authority while using artificial intelligence in teaching and learning?

6. Significance of the Study

The findings of this study are of great importance as they do show the influence of Artificial Intelligence in the role of Teacher in higher education. It can assist teaching and learning practitioners, students, university leaders and policy makers better understand the ways in which AI can serve as a supporting co-teacher, rather than a substitute for human teachers. The study further may offer some valuable insights for the implementation of AI in teaching and learning in an ethical, responsible and effective manner especially in public sector universities of Punjab, Pakistan.

7. Literature Review

With the increased availability and utilization of generative artificial intelligence (AI) tools like ChatGPT, Gemini, Copilot, and other AI-based learning assistants, AI is quickly becoming a significant aspect of higher education. In recent years, the research results have indicated the use of AI is no longer limited to a technical tool, but has become a partner in teaching and learning. In a 2023 study, Chan and Hu (2023) investigated the attitudes of 399 undergraduate and postgraduate students from Hong Kong towards generative AI and concluded that generative AI was welcomed since it assisted them in personalized learning, writing, brainstorming, and research activities. Students, however, also voiced concerns regarding accuracy, privacy, ethics, and potential personal and academic impacts of AI. Alikunju and Adeoye (2024) also conducted a survey of higher education students in Nigeria and identified that the students were able to see the positive impact of generative AI and also reported its challenges with regard to its responsible use and reliability in education.

Recent experimental evidence backs up the notion of a co-teacher AI. In an experimental study with 400 participants, Niloy et al. (2025) concluded that the use of co-teaching assistants like ChatGPT, Copilot and Gemini positively affected the understanding of students, their academic performance and satisfaction. The study was also found to have reduced the time teachers spend on their grading and allowed them to devote more time to covering content when AI assisted with self-learning. Based on these findings, it can be seen that AI can be used as a teacher's assistant in giving explanations, feedback and helping in learning. This however also presents a key issue around pedagogical authority: sharing the content, learning and assessment with AI undermines the traditional role of the teacher as a teacher-centered authority.

There's often a gap between the understanding of teachers and students with regard to AI. Chan and Tsi (2024) conducted a survey of university students and teachers from eight universities in Hong Kong, which revealed a positive attitude among students towards using generative AI in learning, yet a cautious stance among teachers due to concerns regarding the potential for over-reliance, ethics, privacy, and the erosion of holistic competencies. In addition, teachers and students understood that the AI can't entirely substitute the human teacher as teachers offer critical thinking skills, emotional support, moral guidance and social interactions.

Another strand that is significant in the literature is teachers' readiness. Kohnke et al. (2023) investigated the readiness of higher education English language teachers and concluded that the key factors for successful integration of AI were teachers' familiarity with AI, their confidence in the technology, their digital competence, their pedagogical knowledge, and the institutional support. Similarly, in a recent study of Australian university teachers, Lee et al. (2024) identified that while the use of AI in teaching and assessment-related activities was prevalent amongst many educators, many were still not sufficiently prepared at the institutional level and/or professionally supported to use AI.

The use of AI by students also has an impact on the authority of the classroom, academic responsibility. In their study of 1,001 U.S. college students, Baek et al. (2024) discovered that students' use of ChatGPT varied based on their age, gender, academic major, type of institution, and policies of their institution. The study also revealed that foreign people who don't speak English as their native language were more likely to seek ChatGPT's assistance in writing. This indicates that whilst AI can offer valuable academic

support for certain student populations, there is a potential for marketing the use of AI as "legitimate" academic support to become confused with academic dishonesty due to the lack of clarity in policy.

AI feedback studies also confirm that AI can be used as an adjunct but not a replacement for a teacher. Banihashem et al. (2024) compared the feedback among the graduate students from their peers and AI, and determined that there were differences between the two sources. AI feedback proved helpful for descriptive comments, human feedback for contextual issues and to facilitate deeper learning. This is significant as one of the areas that teachers traditionally have authority over is feedback. While AI can assist in this, it must also be interpreted and understood by a human and have pedagogical judgment.

Universities are still in the process of formulating policies for the use of AI at an institutional level. McDonald et al. (2025) have studied the generative AI policies and guidelines of 116 research-intensive universities in the United States. They discovered that the majority of the universities supported some kind of usage of AI, and many offered classroom guidance, sample syllabi and sample activities for the curriculum related to AI. Teachers, however, were cautioned that they might be given too much responsibility on redesigning pedagogy without sufficient structure. This finding indicates that pedagogical authority is not only a classroom issue, but also relates to institutional policies, ethics, curriculum and teacher education.

In conclusion, the literature indicates that AI is reshaping the pedagogical role of the teacher in HE to alter the delivery of knowledge, the feedback provided to learners, the learning process, and the instructional decision-making of teachers. AI can be used as a co-teacher to facilitate personalization, feedback, explanation, design of assessment, and delivery of content. But, the evidence also indicates that AI cannot substitute for the moral duty, emotional intelligence, situational judgment and the contribution of the human teacher in nurturing critical and social skills of students.

8. Theoretical Framework

The Actor-Network Theory (ANT) was used as a guide for this study. Actor-Network Theory was applicable in this study as it accounts for networks of human and non-human actors as in shaping actions, authority and decision making. Thus, Latour (2005) claimed that social practices do not only come into existence through human action, but rather through the relationship between various actors in a network. Fenwick and Edwards (2010) elaborating on the above, showed that technology, policy, materials and institutional systems play a role in shaping teaching and learning in addition to teachers and students. Hence, in the Higher Education sector, the teachers, students, artificial intelligence tools, digital platforms, assessment systems and university policies are considered to be part of a single educational network. Pedagogical authority used to be primarily linked to the teaching body which had the power over knowledge, interaction in the classroom, feedback and assessment. AI as a co-teacher, however, diffused and negotiated this authority, in a larger network. AI was used to offer explanations, feedback, learning support, and assistance with assessments, with the teachers maintaining their ethical judgment, emotional support, critical guidance, and final decisions on academic grading. In this way, Actor-Network Theory supported this study to investigate the redefinition of the role of the pedagogical authority in the context of higher education, in which the relationship between teacher, students, technology and institutional practices was transformed with the use of AI.

9. Conceptual Framework

The conceptual approach in this study was by using the relationship between artificial intelligence as a co-teacher and pedagogical authority in higher education. In this context, AI tools are viewed as supportive teaching partners that can support teachers in the explanation of concepts, feedback, personalization of learning and support for assessment. These AI tools had an impact on the traditional power of teachers, altering the delivery of knowledge, the way students were guided and the decisions made in the class. Nevertheless, there was still strong support by the teachers in ethical decision making, emotional support, critical thinking and final academic judgment. Hence, it was assumed that AI was not a substitute for teachers but rather a way of changing the pedagogy of teaching and learning by sharing the process of teaching and learning between teachers and AI systems.

The conceptual model simply looks like this: artificial intelligence as a co-teacher had an impact on teaching support, feedback and personalized learning, which in turn had an impact on the pedagogical authority in higher education.

10. Methodology of the Study

This study adopted qualitative research method to explore the nature of the redefinition of pedagogical authority in higher education with the use of artificial intelligence as a co-teacher. The research was descriptive in nature to gain insights into the university teachers' views, experiences, and perceptions on using AI in teaching and learning. The study was limited to a few public sector universities of Punjab, Pakistan. The sampling area comprised of University of the Punjab Lahore, University of Education Lahore, Government College University, Faisalabad, University of Sargodha, Sargodha and Bahauddin Zakariya University, Multan. These universities were chosen because of their representation of the Higher Education institutions of the central/southern Punjab region.

The universe of the study was all University Teachers of selected public sector universities of Punjab. The selected teachers were experienced and had basic knowledge of the use of artificial intelligence tools in educational activities using a purposive sampling technique. Firstly, 15-20 teachers from the universities were identified for conducting semi-structured interviews, where about three to four teachers were selected from a university. A data saturation principle, however, was used in the determination of the final sample. Data collection was done until no more themes, ideas or appreciable information came up from the participants' responses. This was deemed appropriate for the qualitative study as it helps to ensure collected data is enough and meaningful to be interpreted in themes (Guest et al., 2006; Glaser & Strauss, 1967; Hennink & Kaiser, 2022; Saunders et al., 2018).

Semi-structured interviews were used to gather data, allowing the participants to share their thoughts in detail regarding the support of AI in teaching, the evolving teacher role, authority in the classroom, feedback and assessment, and ethical issues. Thematic analysis was used to analyze the data collected. The themes that emerged from the participants' responses were: AI as a teaching assistant, shift of pedagogical power, overreliance on students, ethical and evaluation issues, the need for institutional policies, and the role of human teachers. Ethical issues were considered by securing informed consent, confidentiality, voluntary participation and academic privacy of all the respondents.

11. Results and Findings

The study utilized semi structured interview technique for gathering the results with the teachers of selected public sector universities of Punjab, Pakistan. The participants were from the fields of education, social sciences and humanities. Thematic analysis was used to analyze the data and data collection was done till saturation. The results indicated that overall, the university teachers in Punjab have a positive attitude towards the use of artificial intelligence as a supportive tool in the academic field but they did not see it as a substitute for human teachers. Results indicated that the understanding of AI co-teacher was mixed. Some participants considered AI useful for prepping lessons, explaining complex ideas, providing feedback to support student learning, and for student engagement. On the other hand, they pointed out the potential issues of over-dependence, academic dishonesty, lack of critical thinking, lack of policy and that the role of teachers in higher education could be undermined.

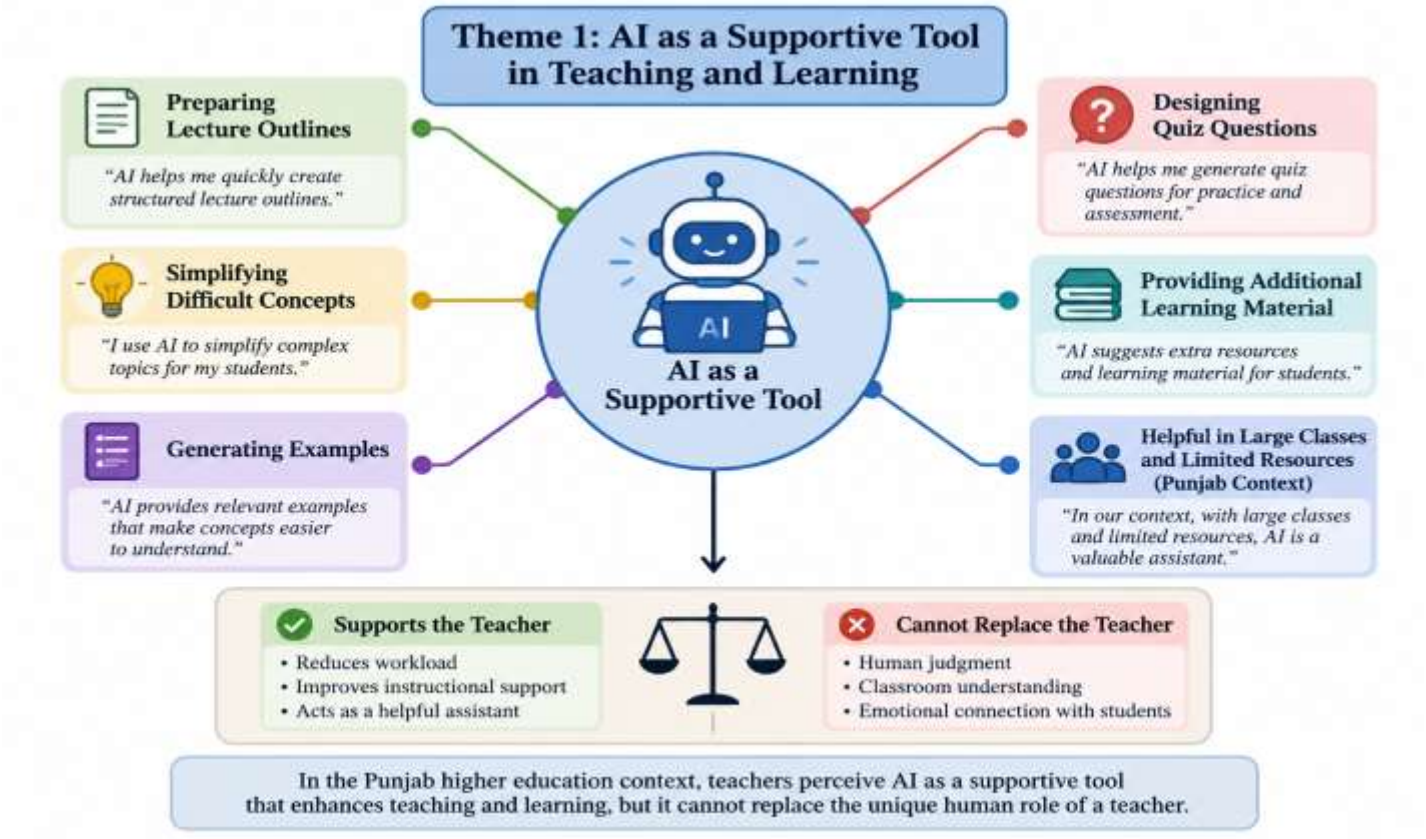
Table 1

Major Themes Emerging from the Data

Theme	Main Finding	Related Research Question
AI as a supportive co-teacher	AI helped teachers in lesson planning, explanation, feedback, content preparation, and student support.	RQ1
Redefinition of pedagogical authority	Teacher authority shifted from knowledge control to facilitation, ethical guidance, and academic judgment.	RQ1
Student over-dependence	Some students used AI as a shortcut instead of developing independent understanding and critical thinking.	RQ2
Ethical and assessment challenges	AI created concerns about plagiarism, originality, authenticity, and assessment reliability.	RQ2
Lack of policy and training	Teachers needed institutional guidelines, AI literacy, and professional development.	RQ2
Human teacher as final authority	Teachers remained essential for ethics, judgment, emotional support, and final academic decisions.	RQ1 and RQ2

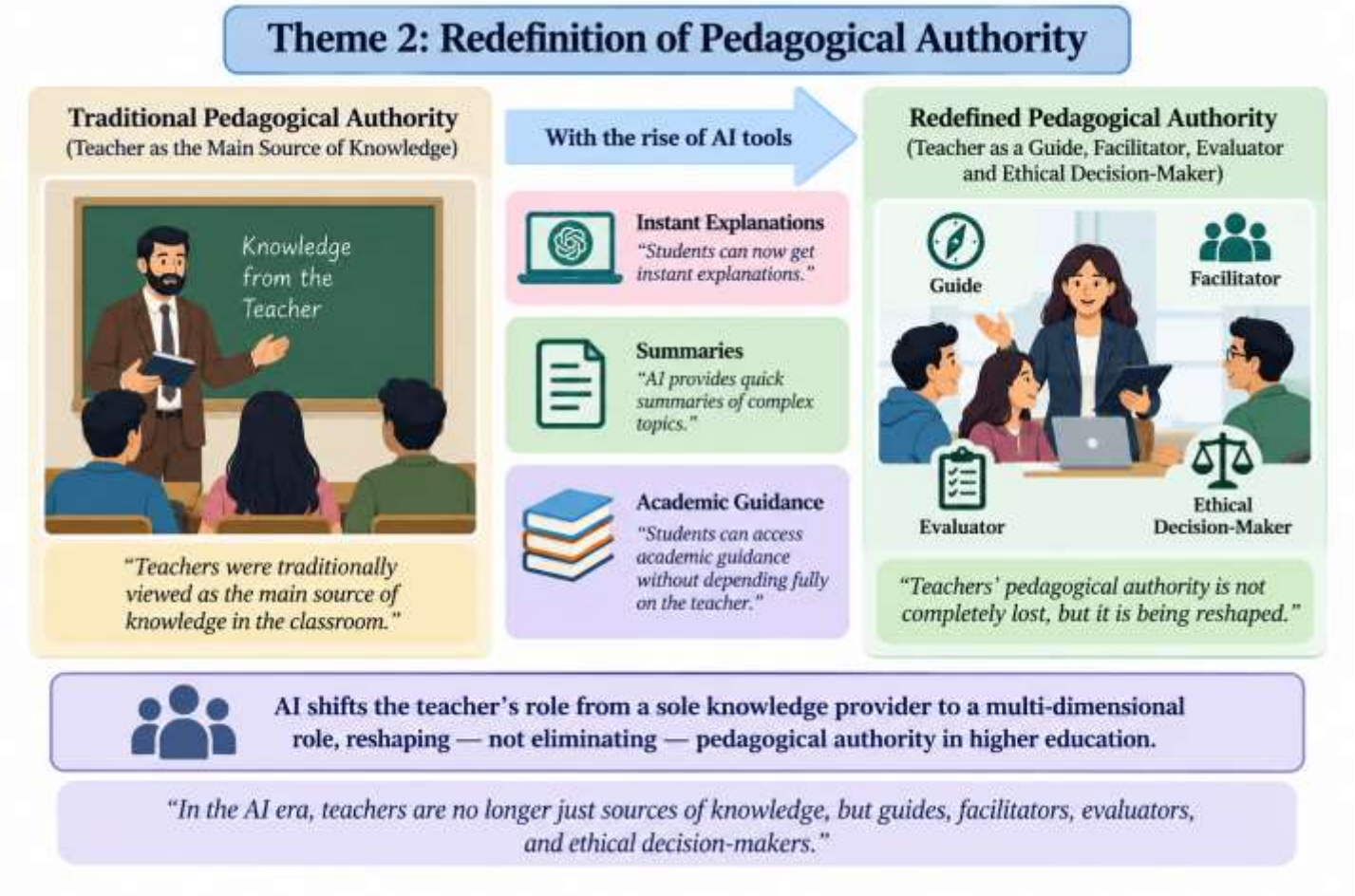
Theme 1: AI as a Supportive Co-Teacher

The first prominent theme indicated teachers saw AI as a tool to support teaching and learning. The participants reported that AI assisted them in creating lecture outlines, breaking down complex topics, creating examples, creating quiz questions and providing additional learning material for students. AI was viewed as a valuable aid in reducing workload and enhancing instructional support, which is often a challenge in the context of education in Pakistan's higher education system where teachers are required to manage large classes and limited academic resources. But it was clear that the participants believed that AI could assist the teacher, but not replace the teacher's human perceptive and emotional bond with the students in the classroom.



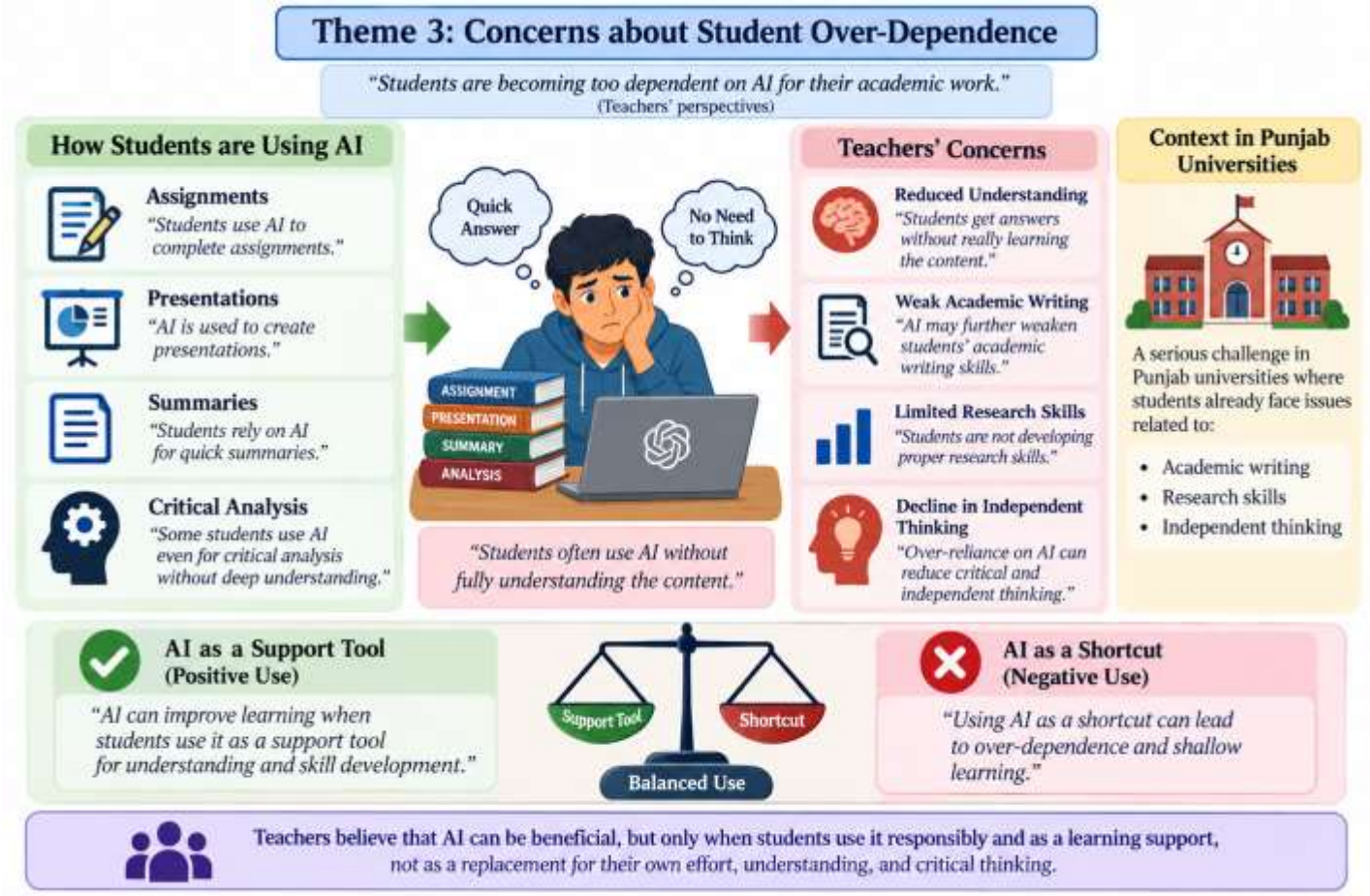
Theme 2: Redefinition of Pedagogical Authority

The second theme pointed to the transformation of the traditional authority of teachers in higher education, through the use of AI. Traditionally, it was believed that, in the classroom, the teacher is the source of knowledge. But, as more and more students are starting to use AI tools, they can receive explanations, summarizations, and academic advice in an instant, bypassing the need to fully rely on the teacher. This resulted in a shift of the teacher's role from that of knowledge provider to guide, facilitator, evaluator and ethical decision maker. Peds had not been completely lost, but they felt it was being reshaped, the participants believed.



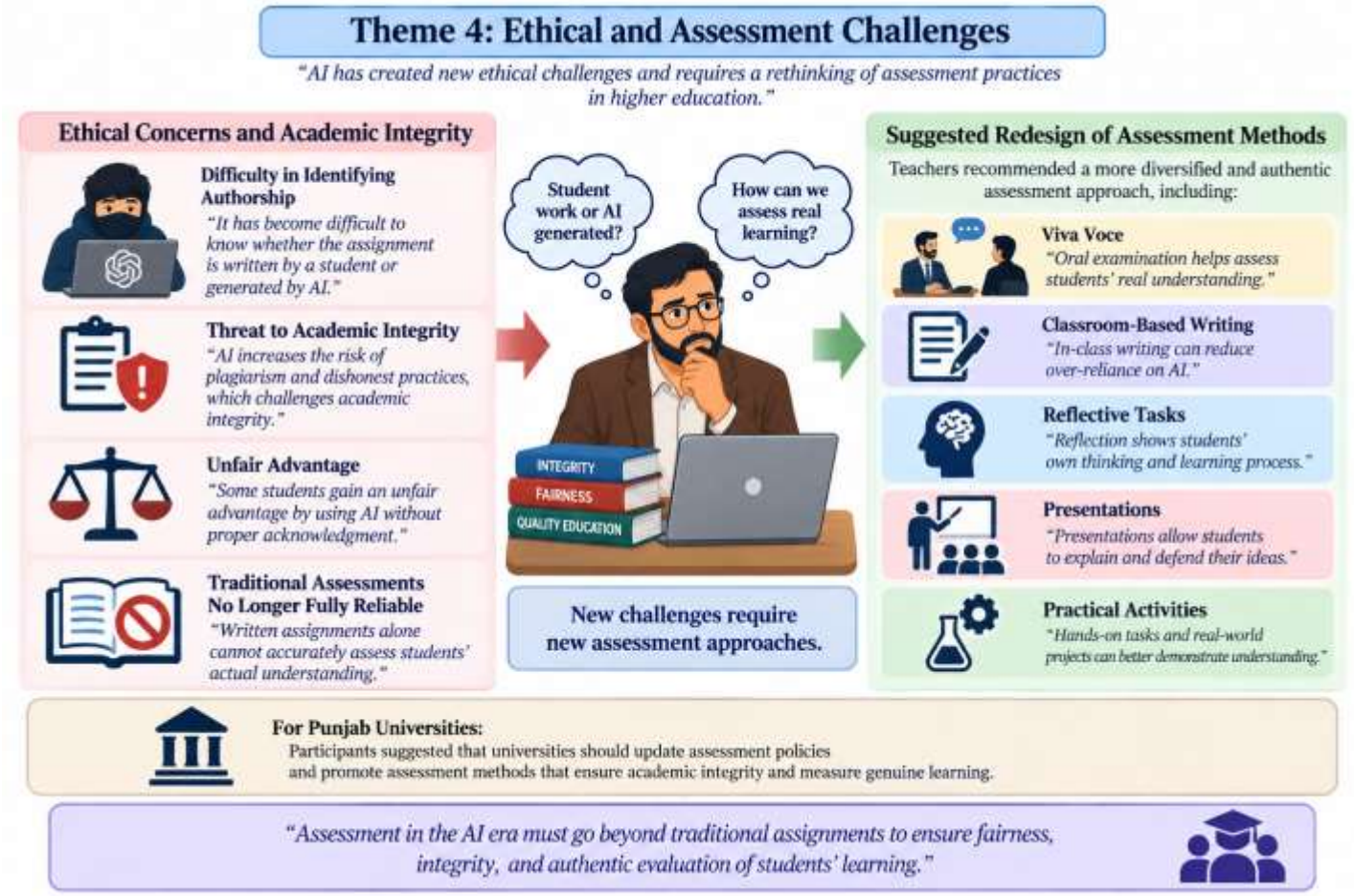
Theme 3: Concerns about Student Over-Dependence

The third theme was about concerns teachers had regarding students' over-reliance on AI. Many participants noted that students utilized AI tools for assignments, presentations, summarizing content and even critically analyzing it without comprehending it. This was considered a huge hurdle in Punjab Universities as already students were struggling with academic writing, research skills and thinking abilities. Participants felt that AI had the potential to enhance learning outcomes if students could use AI as a learning aid and not a learning shortcut.



Theme 4: Ethical and Assessment Challenges

The 4th theme concerned with ethical issues and assessment practices. Participants said that AI had posed new issues for academic integrity, as it was hard to tell if an assignment was produced by AI or the student. Teachers expressed that traditional written assessments now were no longer wholly accurate in determining student knowledge. Some of the participants recommended that universities in Punjab need to redesign their assessment methodology to introduce viva voce, assessment through writing in class, reflective type assessment, presentation, practical type assessment etc.

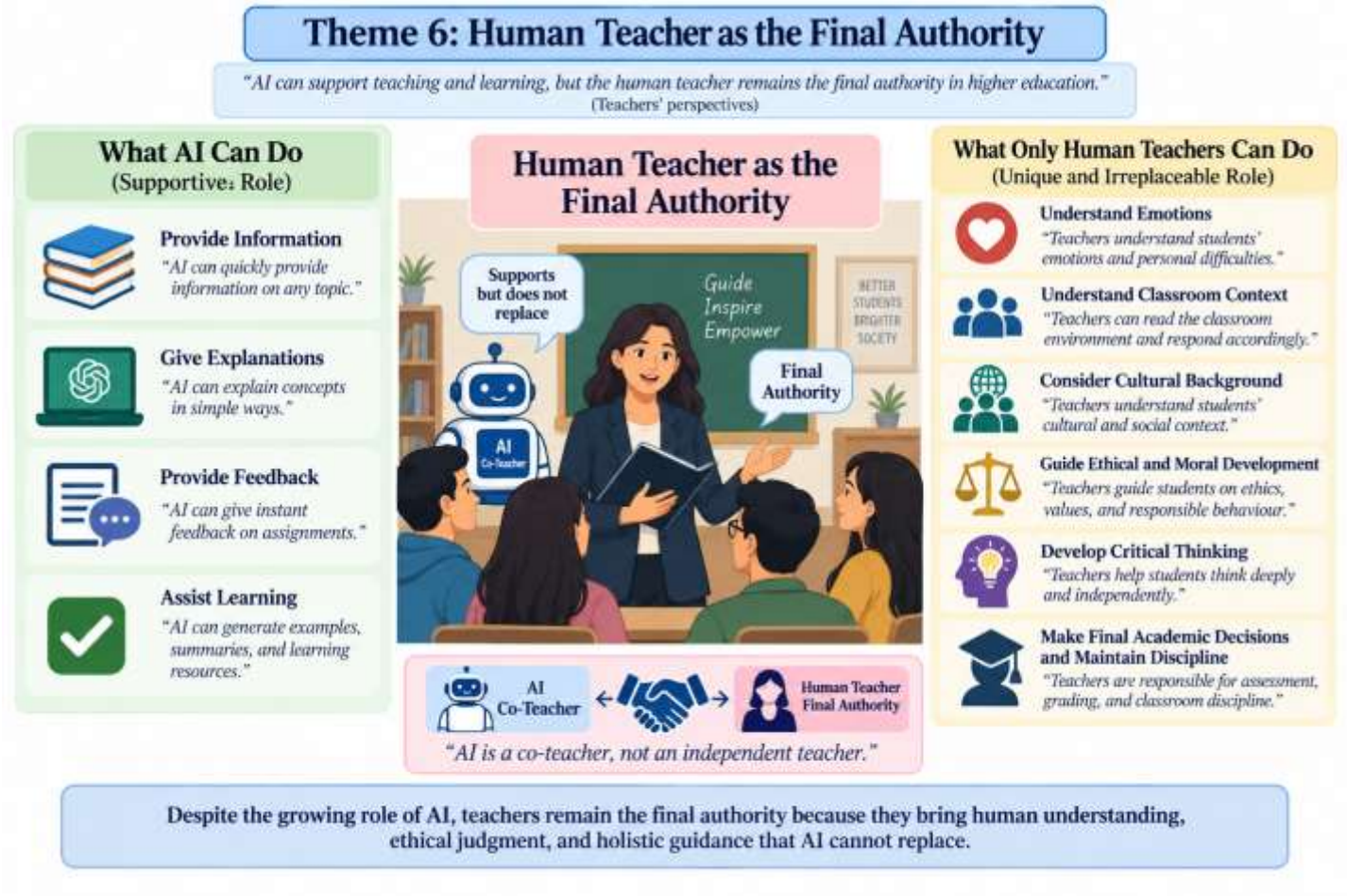


Theme 5: Lack of Institutional Policy and Training

The fifth theme revealed that the majority of teachers observed that there were no clear guidelines or adequate training for the use of AI in teaching and learning from universities. It was felt by the participants that the use of AI was informal and that both teachers and students used AI but there was no clear institutional guidance on acceptable and unavailable use. This led to some confusion among teachers, as to whether AI should be used, restricted or prohibited in academic tasks. Teachers further indicated the need for professional training in the understanding of AI tools, their limitations, challenges of ethical use, and pedagogical use.

Theme 6: Human Teacher as the Final Authority

The sixth theme confirmed that although with the increasing role of AI, participants highly believed that in higher education the final authority is for the teacher. While AI might be able to give information, explanations and feedback, it could not get an understanding of the emotions experienced by the students, the environment of the classroom, the cultural background of students, the moral development of students, and the personal learning difficulty experienced by students in the same way as a teacher. The participants stressed the current role of teachers in guiding the students morally, cultivating critical awareness, making the final decisions regarding their academic performance and in disciplining students in classes. Thus, AI was considered as co-teacher and was not considered an independent teacher.



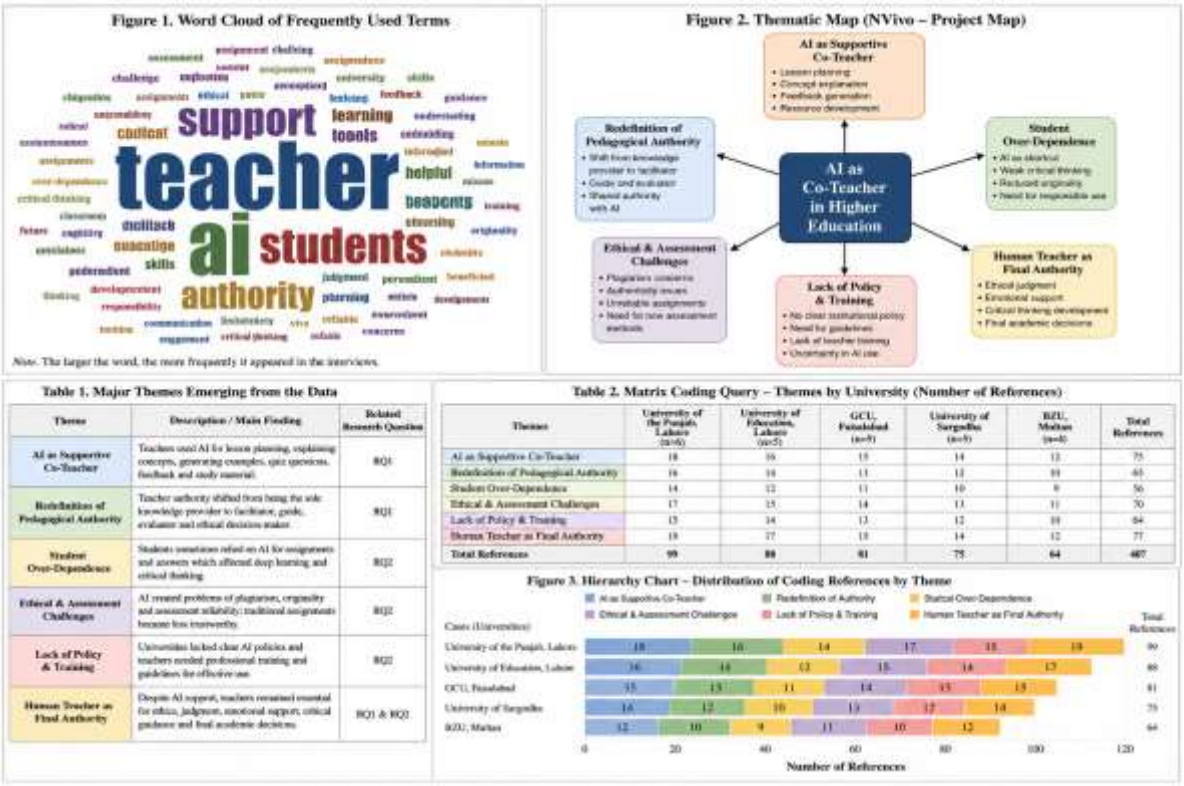


Figure 1. NVivo-style visual presentation of word cloud, thematic map, major themes, matrix coding query, and hierarchy chart based on teachers' interview responses.

Table 2
Word Cloud Summary of Frequently Repeated Ideas

Frequently Repeated Words	Meaning in the Study
AI	Central technology discussed by participants
Teacher	Main human actor in pedagogical authority
Students	Main users and learners affected by AI
Support	AI was viewed as an academic support tool
Authority	Teacher control and classroom decision-making
Feedback	AI-assisted academic response and improvement
Assessment	Concern about evaluating real student learning
Ethics	Academic honesty and responsible AI use
Dependence	Risk of students relying too much on AI
Policy and training	Need for institutional rules and professional development

Overall Findings

In conclusion, the results suggested that AI was transforming the role of pedagogy in universities and reshaping the dynamics among teachers, students, and knowledge. While AI was aiding teaching and learning, it also led to some challenges regarding students' dependency, assessment reliability, academic integrity, and institutional policy. It was concluded that pedagogical power was not being lost but rather it was being transferred. The role of the teachers was shifting from the sole source of knowledge to the facilitators, ethical guides, evaluators and decision makers. Thus, it is necessary to incorporate AI into higher education with definite guidelines, teacher training, ethical usage, and modifications to the assessment system.

12. Discussion

Results of the study showed that there was no perception that AI was a substitution for the University of teachers, instead, it was known as a supportive co-teacher which can help in teaching and learning practices. Teachers in selected public sector universities of Punjab, Pakistan, recognized the value of AI in lesson planning, explaining complex ideas, providing feedback, and developing content material and supporting students. This is in line with recent studies that have found that generative AI can enhance

teaching efficiency, offer valuable academic support and help with personalized learning when appropriately supervised by humans (Chan & Hu, 2023; Niloy et al., 2025).

Another finding of the study was that AI was not only transforming educational power dynamics but also empowering them. Teachers were seen as a source of knowledge, guidance, evaluation and decision making in the classroom traditionally. The growing access of AI tools, however, enabled the students to selfsolve for explanations, summary, examples and academic guidance. This meant that the role of the teacher became more pedagogical, ethical and judgmental, instead of one of knowledge control. This finding is evidence to the perspective that AI can help human teachers, but human teachers' professional role is important in building up the critical thinking, emotional understanding, and personal development of students (Hussain & Bhatti, 2024; Chan & Tsi, 2024).

Another significant discovery was about the over-dependency of AI by students. Teachers indicated that the fear with AI is that some students may use it as a shortcut for assignments, presentations in school, and written work, without learning and understanding. This is important in the context of Punjab's higher education system as a large number of students already find it difficult to write academically, have research skills and are able to think critically on their own. So, if not harnessed carefully, the use of AI may exacerbate issues of originality, reflective thinking, and meaningful learning. The same issue has been put forward in recent studies on AI in higher education where researchers argued that AI should be employed as a learning aid to support the student instead of replacing their own thinking (Hussain et al., 2025; Chan & Hu, 2023; Baek et al., 2024).

The results also showed that AI had generated significant problems with regard to ethics and assessment. Traditional assignments were becoming unreliable, as it was difficult to identify whether students had written the assignment by themselves or generated it using AI tools, teachers reported. This raised issues of plagiarism, academic honesty, originality and authenticity of students' work. These are indications that universities' assessment methods should be changed, and it is suggested that viva voce, writing in class, reflective educational tasks, presentations, practical's and oral defense should all be included. These changes in assessment could enable teachers to assess students' understanding, instead of just their written outcomes.

Another critical problem that came out was the non-existence of institutional policy and teacher training. AI was used informally by the teachers and students, but Universities have not given clear guidelines regarding the acceptable and unacceptable use of AI. This conclusion is well supported by McDonald et al. (2025) which revealed that while universities were developing policies and guidelines for generative AI, there are still multiple roles to be played by teachers in the redesign of learning pedagogy and the handling of the challenges of generative AI. Hence, it is recommended that HEIs in Punjab need to establish clear policies of using AI, guidelines for academic integrity and professional training for teachers.

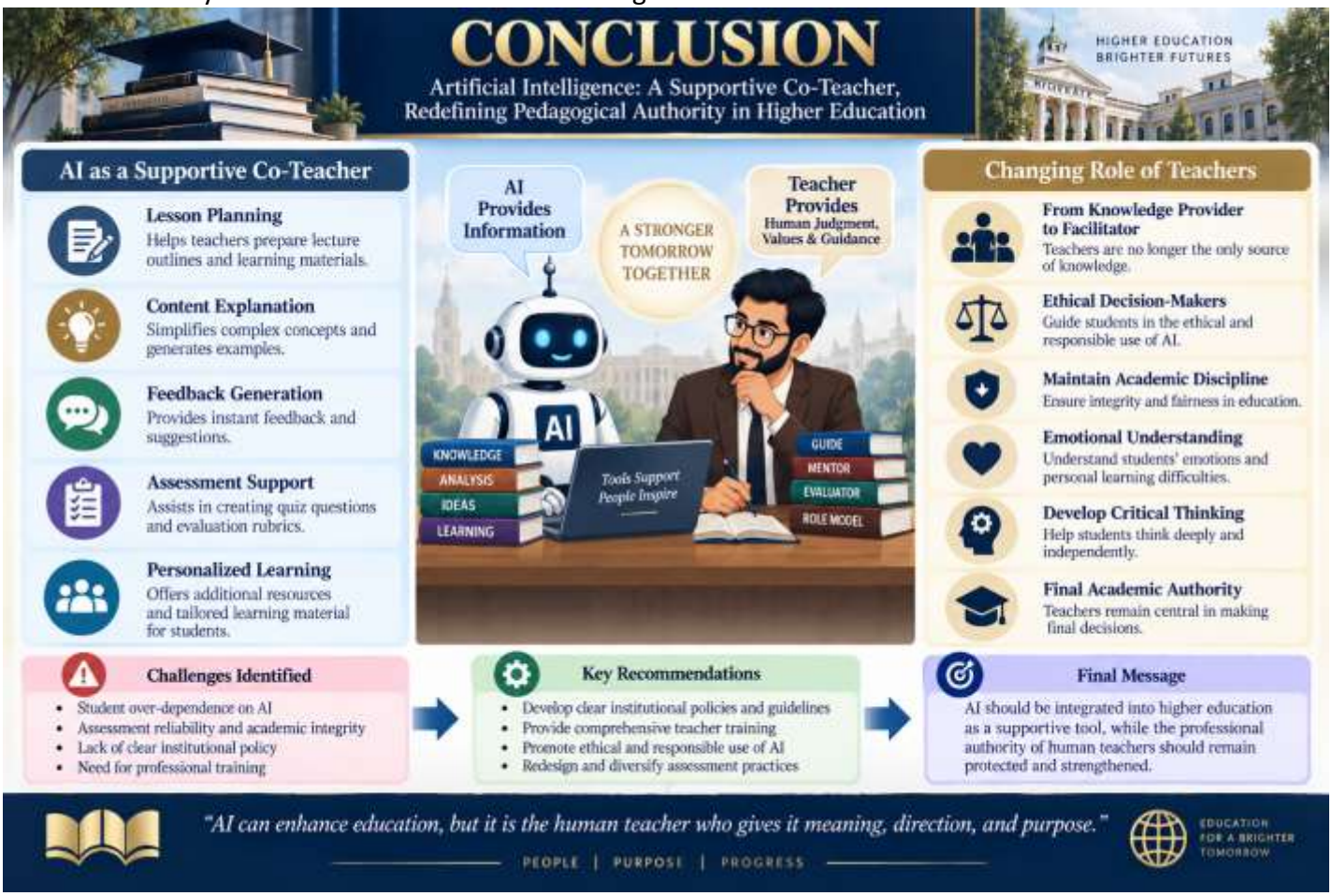
The results can also be analyzed in the light of Actor-Network Theory. This theoretical view sees how practice is influenced through the interplay of human and non-human actors in the field of education. In this research, teachers, students, AI tools, digital platforms, university policies and assessment systems, and classroom practices constituted a single educational network. This network saw the introduction of AI as a non-human actor shaping access to knowledge, production of feedback and negotiation of

authority. The findings, however, indicated that the human teacher remained the ultimate decision-maker as ethical considerations, emotional support, and a thorough understanding of the context and the students' learning progress could not be completely delegated to AI.

In summary, AI as a co-teacher brought about a paradigm shift in Higher Education. It brought new opportunities for the teaching and learning support, personalized learning, and feedback, but it also emerged some problems with student dependence, academic integrity, assessment reliability, and institutional policies. The use of AI in the context of Punjab, Pakistan should be balanced, where AI is a tool to assist the teacher, not to replace the authority of the teacher.

13. Conclusion

The research led to a conclusion that AI had been slowly challenging the pedagogical authority in Higher Education especially in the selected public universities of Punjab, Pakistan. The results indicated that AI was seen as a co-teacher, and not a substitute for a human teacher. It facilitated teachers in lesson planning, explanation of content, generation of feedback, assessment support, and personalized learning. It was also discovered that the role of teachers, as a source of knowledge, was transformed into facilitator, guide, evaluator and moral decision maker with the help of AI. The teachers still played a vital role in academic discipline, emotional understanding, critical thinking, moral guidance and ultimate academic judgment. The findings in the study also showed that the successful implementation of AI in higher education needs clear policies, teacher training, ethical considerations, and a reevaluation of the assessment system. Hence AI should be used as an ancillary tool to support teaching and learning and the authority of human teachers should be safeguarded and enhanced.



14. Recommendations

The study's results suggest that universities need to establish policies and guidelines regarding the ethical and responsible use of AI in education. Clear guidelines on acceptable and unacceptable use of AI in assignments, assessment, research tasks and class activities should be provided. It was also suggested that teacher training should be planned to enhance teachers' awareness of the pros and cons of AI tools in education and their ethical issues.

The use of AI as a co-teacher in the lesson planning, feedback, personalized learning and academic support process should be encouraged for university teachers as a supportive role, while the decision of final academic scores should be under human supervision. Measures to minimize the misuse of AI should also be implemented in assessment methods. Viva voce, written assignments (classroom based), presentation, reflective tasks, practical activities, and oral defense should be used for support to traditional written assignments. Students should also be directed on the responsible usage of AI, enabling them to utilize AI to support their learning process and not as a short-cut.

Moreover, AI's role in higher education in Punjab should foster a balanced learning environment, where AI tools enhance teaching and learning while preserving the professionalism and integrity of educators, and the human-centric nature of education.

15. Limitations of the Study

The study was conducted on selected public sector universities of Punjab, Pakistan only; thus the results can't be generalized to all universities of the country. The study adopted a qualitative research approach with a semi-structured interview, relevant to this research the study findings would be based on the perceptions and experiences from the selected University Teachers. Only teachers from education, social sciences and humanities departments were included and not teachers in science, engineering or medical or technology related departments. Another constraint of the study was that it focused on teachers' perceptions of AI as a co-teacher and was limited in considering the students' perceptions in detail. An expanded sample, the inclusion of private universities, incorporation of student's opinions and quantitative data are possible future studies to broaden the understanding of AI in higher education and pedagogical authority.

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