

Reimagining Higher Education in the Age of ChatGPT: A Pakistani Case Study

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Abstract

The rapid arrival of ChatGPT has unsettled long-standing practices of teaching, assessment and research in universities, yet little is known about how academics in developing-country contexts experience this change. This qualitative case study explored university teachers' perceptions of the benefits, challenges and coping strategies associated with ChatGPT in Pakistani higher education. Guided by the interpretivist paradigm and a theoretical framework combining the Technology Acceptance Model, the Unified Theory of Acceptance and Use of Technology, Diffusion of Innovations theory and the TPACK framework, the study used semi-structured, face-to-face interviews with six purposively selected social sciences teachers at a public university in Punjab, all of whom were regular users of ChatGPT. Data were analyzed through Braun and Clarke's six-phase thematic analysis with the support of NVivo. Participants valued ChatGPT for transforming educational practice, assisting academic writing and literature searching, generating research ideas, saving time, supporting English-Urdu translation and enabling global communication and collaboration. At the same time, they raised concerns about plagiarism, students' overdependence, fabricated references and inaccurate content, limited usefulness for methodology and complex research, and the erosion of traditional research and learning skills. To address these challenges, participants recommended AI literacy and ethics training, routine plagiarism checks, teachers' ability to distinguish AI-generated from human writing, clear legal and institutional frameworks for AI use, inclusive access for all learners, and the integration of AI into teaching without supplanting reasoning. The study concludes that ChatGPT can strengthen Pakistani higher education when it is adopted as a supplement to, rather than a substitute for, human thinking, supported by clear policy, teacher training and redesigned assessment.

Keywords: ChatGPT; generative artificial intelligence; higher education; academic integrity; teachers' perceptions; Pakistan.

Introduction

Higher education has always been shaped by the technologies of its age, from the printing press that made books widely available to the internet that placed vast libraries at the fingertips of students (Selwyn, 2019). All these technologies affected not only the way in which knowledge was accessed, but also how it was taught, evaluated and valued (Luckin et al., 2016). Artificial intelligence (AI) was one of these forces in the early decades of the twenty first century that appeared to offer the promise of

personalized learning, automated feedback, and intelligent tutoring, at scale, that was previously unimaginable (Zawacki-Richter et al., 2019; Chen et al., 2020). This shift was further accelerated by the introduction of ChatGPT in late 2022, shifting AI from the role of a silent partner in educational software to a conversational partner for educators and students (Kasneci et al., 2023; Rudolph et al., 2023).

Universities, as sources of knowledge, trainers of future professionals and guardians of academic standards (Crompton & Burke, 2023), play a special role in this transformation. Any technology that can write an essay, summarize literature, write code, and answer questions for an examination, thus, touches the very core of what Universities do (Cotton et al., 2024; Sullivan et al., 2023). Given the potential of ChatGPT, it is no surprise that the launch of this AI generated responses of varied enthusiasm from some institutions to total ban in others, and the debate quickly evolved to become one of the most talked about topics in educational research (Lo, 2023; Bozkurt et al., 2023). The importance of gaining insights into how teachers, who are central to teaching, do assessment and research supervision, makes this tool a current academic and practical issue (Mishra et al., 2023).

The idea that machines might think dates back to Alan Turing's (1950) famous question, "Can machines think?", and his proposal of an imitation game in which a machine's intelligence would be judged by its ability to converse indistinguishably from a human (Turing, 1950; Russell & Norvig, 2021). The term "artificial intelligence" itself was coined in the 1955 proposal for the Dartmouth Summer Research Project, which set out the ambitious aim of making machines use language, form abstractions and solve problems reserved for humans (McCarthy et al., 1955/2006). In fact, these early dreams found their way directly into the creation of ChatGPT (Floridi & Chiriatti, 2020), where natural language is being taken for granted as one of the defining features of machine intelligence.

ELIZA, one of the first conversational programs, was written by Joseph Weizenbaum in the 1960s and employed simple pattern-matching rules to act as a psychotherapist (Weizenbaum, 1966). ELIZA had no real understanding, but users often gave it human characteristics, an early sign of the human tendency to trust the seemingly fluent machine language (Weizenbaum, 1966; Bender et al., 2021). AI research experienced optimistic peaks and pangs, which were dubbed "AI winters" through the ensuing decades, and witnessed brittle, high-maintenance rule-based expert systems (Russell & Norvig, 2021; Kaplan & Haenlein, 2019). A systematic review of AI Ed research in higher education revealed that the majority of papers were authored by computer scientists and neglected to seriously consider pedagogical and ethical issues (Zawacki-Richter et al., 2019). Researchers, then, demanded further studies focusing directly on the experiences of teachers and the impact of AI on their teaching and learning on the ground (Williamson & Eynon, 2020; Popenici & Kerr, 2017). In the current study, we focus on the lived experiences of university teachers in a developing country context in response to this call. ChatGPT is an application based on a conversational interface using OpenAI's GPT family of large language models (GPT) (OpenAI, 2023; Brown et al., 2020).

The previous model GPT-3, with 175 billion parameters, demonstrated that a large language model was able to perform a new task, provided only a few examples were given in the prompt, which is called few-shot learning (Brown et al., 2020). However, philosophers of technology commented that GPT-3 generated fluent text which lacked real understanding, and that its output could be persuasive and incorrect (Floridi & Chiriatti, 2020). Launched to the public on 30 November 2022, ChatGPT has been estimated to have reached 100 million MAU in approximately two months making it one of the fastest-growing consumer applications in history (Hu, 2023). Its versatility is that it does not require any programming skills and users can just type questions in the natural language, including Urdu (Lund & Wang, 2023; Kohnke et al., 2023). Can create and modify text, paraphrase documents, provide explanations, translate between languages, develop quizzes, write and debug code (Rahman & Watanobe, 2023; Adiguzel et al., 2023).

Once released, ChatGPT was quickly embraced by Pakistani students and teachers, sometimes even without any institutional guidance (Abbas et al., 2024). Research with university students in Pakistan

revealed that increased academic workload and time pressure were correlated with increased usage of ChatGPT, and excessive usage was correlated with academic procrastination, memory loss, and reduced academic performance (Abbas et al., 2024). Pakistani engineering educator Junaid Qadir has stated that GPT-3 has a good potential to have a positive impact on personalized learning, but also highlighted the dangers of misinformation and loss of basic skills (Qadir, 2023). Pakistan is a pivotal but largely under-researched scenario in the study of ChatGPT's impact on higher education (Crompton & Burke, 2023; Abbas et al., 2024). The vast majority of the existing literature comes from high-income countries that have well-developed policies and good infrastructure for digital development, and have well-funded faculty development programmes (Moorhouse et al., 2023; Bearman et al., 2023). The results obtained from these contexts cannot be readily adopted in public universities in Pakistan, where the limited available resources, policy gaps, and cultural perspectives on teaching influence the reception of technology (UNESCO, 2023c).

Statement of the Problem

Artificial intelligence (AI) is transforming the landscape of education in so many ways. In the context of higher education, students have more access than ever to AI-powered tools like ChatGPT, alongside teachers, researchers, and educational institutions. These tools can be helpful to learn and can explain, generate ideas, help with writing, provide summary information, and help create learning materials and help students explore challenging topics. AI can also help teachers with creating teaching materials, organizing lessons, giving feedback, and assisting students with varying learning styles. AI has opened up new opportunities to enhance the quality, accessibility, and efficiency of higher education in this way. Meanwhile, the increasing adoption of AI has raised significant issues for universities. The ease of using tools like ChatGPT could lead to students relying on the AI-generated content rather than cultivating their own writing, analytical, problem-solving, and critical-thinking abilities.

The information provided by AI can also be incomplete, inaccurate, or misleading. Moreover, the utilization of AI in the creation of assignments and other academic work has led to issues with plagiarism, academic integrity, originality, authorship, and evaluation. The question now for teachers and universities is how to harness the power of AI without compromising the learning experience and academic honesty of their students. All these are special concerns in higher education within Pakistan. The use of digital technologies and tools, especially AI in the field of education and learning, is rapidly expanding in Pakistani academia, yet its adoption for teaching and learning is still in its early stages. While some students might be using ChatGPT to help with their studies, teachers or institutions may not be aware of, accepting or adequately prepared for the appropriate use of ChatGPT. Additionally, there could be variations in access to technology, digital skills, institutional guidance, and awareness of responsible use of AI. If not properly defined institutional processes and supported by good instruction, students and teachers can use AI in various ways that leads to uncertainty regarding the educational value and potential risks. Although the rise of AI and ChatGPT has sparked conversations, it is essential to grasp how these advancements are felt and understood in Pakistani higher education. While much of the conversation about AI is about its broad positives and negatives, little is said about its actual experiences, concerns, opportunities and challenges in the local education system – for students and teachers.

The adoption and use of AI might be affected by the institutional structure, educational practices, technological conditions and academic expectations of Pakistani universities. Hence, the problem statement of this study is the little awareness of the role of artificial intelligence, especially ChatGPT in the transformation of higher education in the context of Pakistan and how the opportunities provided by using AI can be balanced with the educational, ethical, and academic challenges that may arise. The exploration of how AI can assist teaching and learning without compromising academic integrity, enabling critical thinking and active involvement of teaching and learning is needed. The current study aims to explore the growing significance of Artificial Intelligence (AI) in higher education from a Pakistani context and offers recommendations for the role of the Higher Education Institutions (HEIs) in addressing the evolving educational landscape driven by AI.

Significance of the Study

The present study is significant for students, teachers, university administrators, and policy makers because artificial intelligence is rapidly becoming part of teaching, learning, assessment, and academic work in higher education. For students, the study will provide insights into the potential of AI tools like ChatGPT for enhancing educational outcomes, including clarifying complex concepts, generating ideas, enhancing writing, aiding in research, and offering immediate learning support, while also highlighting potential drawbacks, such as dependence on AI, information accuracy, a lack of creative thinking, and plagiarism. For teachers, the study can offer insights into the potential of embedding AI in teaching and learning to create learning materials, activities for the class, provide feedback, and address students' learning needs, and can help teachers understand the difficulties of using AI to generate assignments, assessments, students' plagiarism, and keeping students' thinking independent. The insights for university administrators could serve as a foundation for establishing institutional policies and resources for the proper application of AI, such as teacher training programs, awareness campaigns for students, acceptable assessment methods, digital tools, and the implementation of systems to uphold academic integrity. The study could be valuable for policy makers in creating policies and guidelines on AI literacy, ethical use of AI, academic integrity, assessment, data privacy, teacher professional development, and integrating new technologies in Pakistani higher education. In conclusion, the study could help to develop a better understanding of the potential benefits of AI for Pakistani universities, as well as the challenges they face in using it effectively.

Research objectives

Following were the research objectives of this study:

1. To explore the potential benefits perceived/understood by the academics.
2. To explore the challenges/barriers raised by the Chat GPT for academics.
3. To investigate the ways that academics may adopt to tend to coup up with the emerging challenges raised by Chat GPT.

Research Questions

Based on the above objectives, the study sought to answer the following research questions:

1. What are the potential benefits perceived/understood by the academics?
2. What are the challenges/barriers raised by the Chat GPT for academics?
3. What are the ways that academics may adopt to tend to coup up with the emerging challenges raised by Chat GPT?

Literature Review

This section reviews the theoretical and empirical literature related to the use of ChatGPT and artificial intelligence in higher education, with particular attention to the perceptions, experiences, opportunities, and challenges faced by academics. The literature discusses how ChatGPT is being used to support teaching, learning, assessment, academic writing, research, and other university activities. It also highlights concerns related to academic integrity, accuracy of AI-generated information, overdependence on technology, privacy, ethical use, and the changing role of teachers in the AI-supported learning environment.

Artificial Intelligence in Education

AI can be described as the study and design of systems that perceive their environment and act to accomplish a goal and includes tasks that are typically associated with human intelligence (Russell & Norvig, 2021). AI can be defined more precisely as the capability of external data to be interpreted correctly and to learn to interpret it; and the ability to use the learnings to attain specific objectives by

adapting flexibly in response to the data (Kaplan & Haenlein, 2019). In the educational context, AI is the use of these powers to assist the learner, the teacher and the educational institution (Luckin et al., 2016; Holmes et al., 2019). Luckin et al. (2016) identify three types of AIED: tools for the learner (e.g., intelligent tutors), tools for the teacher (e.g., automated assessment and feedback) and tools for the system (e.g., support for institutional decision making). Holmes et al. (2019) similarly describe AIED as encompassing adaptive learning systems, dialogue-based tutors, exploratory learning environments, automatic writing evaluation and learning network orchestrators. The unique aspect of ChatGPT is that it spans across these categories: it has become a tutor for students, an assistant for teachers, and a tool that can transform institutional practices (Kasneci et al., 2023; Su & Yang, 2023).

Evolution of AI Applications in Higher Education

Prior to the advent of generative AI, AI in higher education focused on four key areas: profiling and prediction, assessment and evaluation, adaptive systems and personalization, and intelligent tutoring systems (Zawacki-Richter et al., 2019). Student information was utilized in profiling and prediction systems to predict for dropout risk and for admissions decisions (Zawacki-Richter et al., 2019). Essay scores were given by automated assessment systems and feedback was provided by them, and the performance of learners was used as input to the adaptive systems to aid in system adaptation to the learners' performance (Chen et al., 2020). Based on the review of the development of AI in education, Chen et al. (2020) summarized that AI has progressed from computers to Web-based and online intelligent educational systems, and, finally, to embodied systems, such as humanoid robots and chatbots. They noted that these systems enhanced the efficiency of the administration and personalized teaching, but also stressed to pay attention to pedagogy and ethics (Popenici & Kerr, 2017). Although the educational chatbots existed for years before the arrival of ChatGPT, most of the previous ones were rule-based or retrieval-based, providing scripted answers to the users in limited domains (Tlili et al., 2023; Weizenbaum, 1966). The extent of their flexibility was limited, and their educational value limited to answering frequently asked questions and providing simple practice (Tlili et al., 2023). The latest surge in interest around generative chatbots following the launch of ChatGPT can be attributed to the shift towards LLMs and their ability to handle a much wider variety of tasks than previously possible (Lo, 2023; Adiguzel et al., 2023).

Learning Theories and ChatGPT

Constructivism and Social Constructivism

Constructivist learning theory assumes that learning is an active process where learners construct their knowledge based on their own experience, reflection and interaction with others (Vygotsky, 1978; Merriam & Tisdell, 2016). Vygotsky's (1978) social constructivism focuses on the need for social interaction in learning and the ability of the learner to accomplish more in the presence of a more knowledgeable other within the ZPD. ChatGPT can be seen as a new form of "more knowledgeable other" that scaffolds the learning process via dialogue without the understanding and accountability of a human teacher (Su & Yang, 2023; Bender et al., 2021). Constructivists see the utility of ChatGPT as either a tool to help learners engage in active meaning-making or to avoid it (Kasneci et al., 2023; Rudolph et al., 2023). Use of ChatGPT to create questions for knowledge construction, test knowledge, or critique explanations helps in the construction of knowledge (Mollick & Mollick, 2023). When it is employed by students to create completed products of learning without involvement, it is challenging to the very processes in which knowledge is built (Cotton et al., 2024).

Connectivism and Learning in Networks

Connectivism, proposed by Siemens (2005), argues that in the digital age learning resides in networks of people, information sources and technologies, and that the capacity to know where to find knowledge is as important as knowing itself. From this perspective, ChatGPT is a powerful node in learners' knowledge networks that can connect them rapidly to information and ideas (Bozkurt et al., 2023).

However, connectivism also emphasizes the ability to evaluate the currency and accuracy of information, a skill that is essential when AI outputs may be inaccurate (Ji et al., 2023).

Cognitive Offloading and Higher-Order Thinking

There is evidence of cognitive offloading (Risko & Gilbert, 2016) and that external means of offloading cognitive loads can free up resources for high-level processes. Offloading, however, is not a substitute for the cognitive processes required for learning, and can actually hinder memory and skill development (Sparrow et al., 2011; Gerlich, 2025). Anderson and Krathwohl (2001) have expanded Bloom's taxonomy by separating lower order processes (remembering and understanding) from the higher order processes (analyzing, evaluating and creating). These theories propose that ChatGPT could be best suited to handle repetitive tasks, such as grammar correction or formatting, enabling students to focus on analysis and creation (Risko & Gilbert, 2016; Noy & Zhang, 2023). However, it can be detrimental when it supports higher order processes that learners need to do (Anderson & Krathwohl 2001; Bai et al., 2023). This is one of the reasons for the participants in the present study to appreciate the efficiency of ChatGPT while also expressing concerns regarding students' reliance (Abbas et al., 2024; Kasneci et al., 2023)

Theoretical Framework of the Study

The theoretical framework of this study draws on four complementary theories: the Technology Acceptance Model (TAM), the Unified Theory of Acceptance and Use of Technology (UTAUT), Diffusion of Innovations theory and the Technological Pedagogical Content Knowledge (TPACK) framework, interpreted through a constructivist view of learning (Davis, 1989; Venkatesh et al., 2003; Rogers, 2003; Mishra & Koehler, 2006). Together, these theories explain why academics perceive certain benefits, why they experience particular challenges and how they may develop coping strategies (Teo, 2011; Mishra et al., 2023). Figure 2.1 presents the theoretical framework.

Technology Acceptance Model (TAM)

The Technology Acceptance Model, developed by Davis (1989), proposes that two beliefs determine users' acceptance of a technology: perceived usefulness, the degree to which a person believes that using a system will enhance job performance, and perceived ease of use, the degree to which using the system will be free of effort. TAM has been widely applied in educational research to explain teachers' and students' adoption of technology (Teo, 2011; Strzelecki, 2024). Teo (2011) found that perceived usefulness and attitudes toward technology were significant predictors of teachers' intention to use technology. In this study, TAM helps to explain the benefits identified under Objective 1 (Davis, 1989). Participants' descriptions of ChatGPT as helping with documentation, refining writing, saving time and supporting literature searches reflect high perceived usefulness, while its natural language interface reflects high perceived ease of use (Davis, 1989; Lund & Wang, 2023). At the same time, concerns about inaccuracy and limited usefulness for complex research indicate boundaries to perceived usefulness, linking TAM to Objective 2 (Farrokhnia et al., 2024; Sallam, 2023).

Unified Theory of Acceptance and Use of Technology (UTAUT)

UTAUT was developed by Venkatesh et al. (2003), who combined eight previously existing models, with four determinants of technology use: performance expectancy, effort expectancy, social influence, and facilitating conditions. The two constructs of performance expectancy and effort expectancy are similar to TAM's perceived usefulness and ease of use, respectively, and the two constructs of social influence and facilitating conditions are similar to TAM's perceived expectations of important others and perceived technical and organizational infrastructure to use, respectively (Venkatesh et al., 2003). UTAUT has been used in the context of ChatGPT adoption, with the outcomes showing that performance expectancy and habit were strong predictors of using ChatGPT (Strzelecki, 2024). The UTAUT model is more suitable to understand the Pakistani context (Venkatesh et al., 2003; Abbas et

al., 2024). Social influence is clear in participants' observation that students are using ChatGPT and that students are "motivating teachers" to use ChatGPT, as it influences teachers' behaviour (Venkatesh et al., 2003; Strzelecki, 2024).

Diffusion of Innovations Theory

Rogers' (2003) Diffusion of Innovations theory explains how new ideas and technologies spread through social systems over time. Rogers (2003) identifies five attributes that influence the rate of adoption: relative advantage, compatibility, complexity, trialability and observability. He also identifies the categories of adopters from innovators and the early adopters, to the early majority, the late majority and the laggards. The diffusion theory is useful in understanding the rapid diffusion of ChatGPT in universities (Rogers, 2003; Hu, 2023). It is beneficial in terms of the time saved, simplicity of application, ease of testing, and the high visibility of results, all of which tend to encourage swift acceptance (Rogers, 2003; Lund & Wang, 2023). However, this does not align with academic values of originality and integrity, which is why there are ethical concerns and calls for regulation in this study (; Cotton et al., 2024). The social sciences departments included in this study were described as early adopters of new technologies, which is consistent with Rogers' adopter categories (Rogers, 2003).

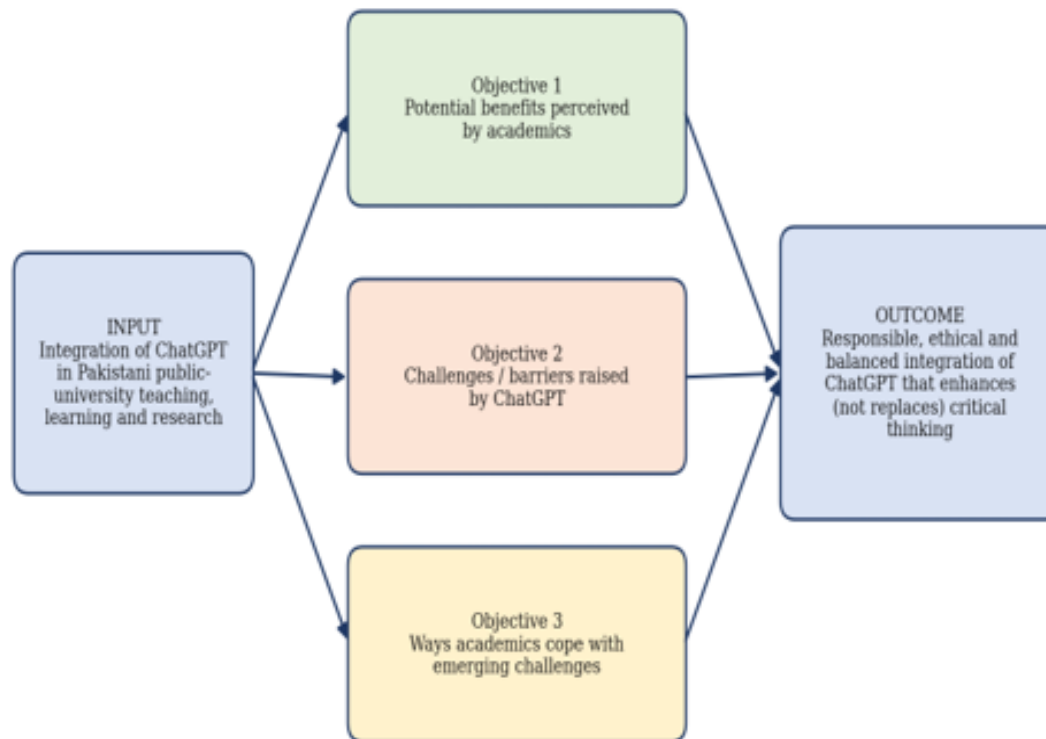
TPACK Framework and Constructivist Pedagogy

The TPACK framework proposed by Mishra and Koehler (2006) describes the knowledge teachers need to integrate technology effectively: the intersection of technological, pedagogical and content knowledge. To integrate technology effectively in education, one must have an understanding of the interaction between technology, pedagogy and content, and not simply use technology as an education adjunct, as per Koehler and Mishra (2009). In response, Mishra et al. (2023) argue that the field of generative AI introduces a new dimension to TPACK: the need for teachers to recognize AI as a player in knowledge creation and to ground their understanding of AI in a broader landscape of its application. TPACK offers a lens on how to understand Objective 3, focusing on the ability of teachers to differentiate between AI-generated and human writing, and on using AI in teaching without substituting for reasoning (Mishra et al., 2023; Mishra & Koehler, 2006). TPACK proposes that educators need to plan learning experiences that involve students in active knowledge construction (as outlined by the constructivist learning theory, Vygotsky, 1978) while using ChatGPT as a support tool. TPACK also proposes that teachers should plan for learning experiences that allow students to be active constructivists of knowledge (Vygotsky, 1978) while also using ChatGPT as a support tool. This alignment aligns with the study's perspective of AI being a tool to support, not supplant, the act of thinking (Kasneci et al., 2023; Selwyn, 2019).

The four theories complement one another. TAM and UTAUT explain individual teachers' perceptions of usefulness, ease of use, social influence and facilitating conditions, while Diffusion of Innovations explains how adoption spreads through the university as a social system. TPACK and constructivism explain the pedagogical knowledge teachers need to turn adoption into meaningful learning. Together, they provide a coherent foundation for understanding academics' perceptions of the benefits, challenges and coping strategies associated with ChatGPT.

Conceptual Framework of the Study

A conceptual framework is a visual or narrative representation of the key concepts in a study and the presumed relationships among them. Because this study is qualitative and interpretivist, the conceptual frameworks are not tested as causal models but are used to organize the inquiry and to represent the understanding that will be emerged from the data.



Research Methodology

This section describes the research paradigm, design, setting, participants, instrumentation, trustworthiness, data collection procedures and data analysis used in the study

Research Paradigm and Design

This study was qualitative in nature and was guided by the interpretivist paradigm. The interpretivist paradigm was appropriate because the study sought to understand teachers' subjective perceptions and lived experiences of ChatGPT rather than to measure variables or test hypotheses. The research design of this study was case study. Yin (2018) defines a case study as an empirical method that investigates a contemporary phenomenon in depth and within its real-world context, especially when the boundaries between phenomenon and context are not clearly evident. The use of ChatGPT by university teachers is a contemporary phenomenon that cannot be separated from its institutional, cultural and policy context, making the case study design particularly suitable.

Setting and Participants

A public university in Punjab was selected as the setting because the study was concerned specifically with public university teachers, and the researcher's affiliation with the university facilitated face-to-face access to participants. Within the university, the social sciences departments, including sociology, psychology and education, were chosen because these disciplines study human behaviour, social trends and ethical conduct, and are therefore well positioned to reflect on the broader effects of AI in learning institutions. These departments were also among the early adopters of new technologies, offering multiple angles from which to examine ChatGPT's influence on teaching, learning, academic integrity and communication (Crompton & Burke, 2023).

Participants were selected through purposive sampling and the inclusion criterion was that each participant had to be a university teacher in the social sciences who was a regular user of ChatGPT;

teachers who had not used ChatGPT were excluded. Selection also considered diversity in academic discipline, years of teaching experience and familiarity with ChatGPT, so that a range of perspectives would be represented. Six university teachers (lecturers, assistant professors and professors) were interviewed, four male and two female, and were assigned codes T1 to T6 to protect their anonymity (BERA, 2018; Saunders et al., 2018). A sample of six is consistent with qualitative case study research, where depth of understanding is prioritized over statistical generalization, and where data from a small, homogeneous group can reach meaningful thematic saturation. Table 1 presents the participants' profile.

Table 1: Profile of the Participants

Sr. No.	Participant Code	Gender	ChatGPT User	Interviewed by Researcher
1	T1	Male	Yes (regular)	Yes (face-to-face)
2	T2	Female	Yes (regular)	Yes (face-to-face)
3	T3	Male	Yes (regular)	Yes (face-to-face)
4	T4	Female	Yes (regular)	Yes (face-to-face)
5	T5	Male	Yes (regular)	Yes (face-to-face)
6	T6	Male	Yes (regular)	Yes (face-to-face)

Instrumentation

Semi-structured, face-to-face interviews were used as the research instrument because they were the most appropriate means of achieving the study's objectives concerning the prospects and challenges of ChatGPT. Interviews allow the researcher to obtain participants' own perspectives on their experiences and to generate knowledge about a phenomenon from the people who live it. Semi-structured interviews offer the flexibility to probe participants' perceptions in their own language while still ensuring that all participants address the same core topics (Cohen et al., 2018; Creswell, 2012).

An interview guide was developed on the basis of the research objectives, research questions and the literature review, following the phases recommended for semi-structured interview guides (Kallio et al., 2016). The guide contained three sections aligned with the objectives: (a) perceived benefits of ChatGPT in teaching, research and administrative work; (b) challenges and barriers experienced or observed; and (c) strategies, policies and practices for coping with these challenges. Each section included main questions and follow-up probes such as "Could you give an example?" and "How did students respond?".

Because an interview is a social encounter rather than simply a data collection exercise, face-to-face interviews were preferred so that non-verbal cues such as tone, hesitation and emphasis could inform interpretation (Cohen et al., 2018). Face-to-face interaction also helped to build rapport and trust, enabling participants to discuss sensitive issues such as student misconduct openly and allowing the researcher to identify the underlying reasons for participants' views (Brinkmann & Kvale, 2015; Merriam & Tisdell, 2016).

Trustworthiness of the Instrument

The criteria of trustworthiness in qualitative research were applied from Lincoln and Guba (1985), which include credibility, dependability, confirmability and transferability as determined by Nowell et al (2017) and Gay et al (2012). The qualitative counterparts of internal validity, reliability, objectivity, and external validity in quantitative research, are these criteria (Lincoln & Guba, 1985). The strategies used to meet each criterion are summarized below and in Table 2.

a) Credibility

Credibility was ensured by designing clear interview questions aligned with the research objectives and by reviewing the guide with two experienced researchers in education for content relevance (Kallio et

al., 2016). A pilot interview was conducted with one teacher outside the final sample to refine wording and improve the flow of the conversation. The participants were encouraged to be honest when answering the questions in the interviews and follow-up questions were added to help clarify meanings. Key points were summarized and presented to participants for their confirmation (member checking).

b) Dependability

Dependability was maintained by using the same interview guide and procedure with all participants, transcribing all interviews with audio recording and taking field notes to ensure accuracy. The decisions taken during coding and during creation of themes were recorded and a 'decision making' audit was kept in NVivo, enabling tracing of the analytic process (Nowell et al., 2017).

c) Confirmability

The researcher used a reflective journal throughout the research process to ensure that the work was confirmable, and that assumptions, reactions, analytic decisions were documented to limit personal bias. Direct quotations from the participants were used to support interpretations, which are presented in the results section for readers to evaluate the relationship between data and findings (Braun & Clarke, 2006).

d) Transferability

Transferability was strengthened by having a rich description of the setting, participants and context so that readers can decide the relevance of the findings to similar contexts. These activities added to the overall trustworthiness of the instrument and helped to establish the credibility of the study results (Gay et al., 2012; Tracy, 2010).

Table 2: Strategies Used to Ensure Trustworthiness

Criterion	Quantitative Parallel	Strategies Applied
Credibility	Internal validity	Objective-aligned questions; expert review; pilot interview; probing; member checking
Dependability	Reliability	Same interview guide and procedure; audio recording; field notes; NVivo audit trail
Confirmability	Objectivity	Reflective journal; reflexivity; findings grounded in verbatim quotations
Transferability	External validity	Thick description of setting, participants and context

Procedure for Data Collection

Only qualitative data were collected in this study, through semi-structured interviews; no quantitative data were collected (Creswell & Poth, 2018; Yin, 2018). Formal permission was obtained from the relevant departmental authorities, and participants were then approached personally at their workplaces (BERA, 2018). The purpose of the study, the voluntary nature of participation, the right to withdraw and the measures taken to protect confidentiality were explained, and informed verbal consent was obtained before each interview (BERA, 2018; Creswell, 2012).

Interviews were scheduled according to participants' availability and convenience and were conducted in person by the researcher in participants' offices or departmental meeting rooms. Each interview began with introductions and general questions to build rapport before moving to questions related to the research objectives. All interviews were audio-recorded with permission, and participants were given the choice of Urdu or English to avoid language barriers and enable them to express their views fully. Interviews lasted approximately 30 to 45 minutes.

Data Analysis and Interpretation

The data were analyzed using Braun and Clarke's (2006) six-phase thematic analysis, supported by NVivo software. Thematic analysis is a flexible method for identifying, analyzing and reporting patterns of meaning within qualitative data, and it is well suited to an interpretivist case study concerned with participants' perceptions (Braun & Clarke, 2006; Nowell et al., 2017). The six phases followed in the study are summarized in Table 3.

- **Transcription and familiarization**

The researcher listened repeatedly to each audio recording and made notes (Braun & Clarke, 2006). Interviews conducted in Urdu were first transcribed in Urdu and then translated into English, with care taken to preserve participants' meanings; interviews conducted in English were transcribed directly (Brinkmann & Kvale, 2015). NVivo's playback features, which allowed adjustment of speed and volume, assisted transcription, and the process of transcribing enabled the researcher to become deeply familiar with the data (Braun & Clarke, 2006; Saldaña, 2021).

- **Coding**

Using open coding in NVivo, the researcher identified and labelled text segments that best represented participants' views on the benefits, challenges and coping strategies related to ChatGPT (Saldaña, 2021; Braun & Clarke, 2006). Because the study focused on the prospects and challenges of ChatGPT in higher education, only data relevant to these aspects were coded (Braun & Clarke, 2006). Codes were created on a continuing basis, allowing new ideas to emerge from the data, and NVivo gathered all segments under each code in one place, enabling comparison across participants (Saldaña, 2021; Miles et al., 2014).

- **Theme development and interpretation**

Related codes were grouped into sub-themes and sub-themes into three overarching themes corresponding to the research objectives: potential benefits, challenges and barriers, and coping strategies. Themes were reviewed against the coded extracts and the full data set, refined, named and defined (Braun & Clarke, 2006). Finally, themes were interpreted in relation to the literature and the theoretical framework, and illustrative quotations were selected to represent each theme (Braun & Clarke, 2006; Merriam & Tisdell, 2016).

Table 3: Phases of Thematic Analysis Followed (Braun & Clarke, 2006)

Phase	Step	Application in this Study
1	Familiarization with data	Listening to recordings; Urdu transcription and English translation; reading and note-making.
2	Generating initial codes	Open coding of relevant segments in NVivo
3	Searching for themes	Grouping related codes into candidate sub-themes
4	Reviewing themes	Checking sub-themes against coded extracts and the whole data set
5	Defining and naming themes	Organizing sub-themes under three objective-aligned themes
6	Producing the report	Selecting vivid quotations and relating themes to literature and theory

Ethical Considerations

The study followed established ethical guidelines for educational research (BERA, 2018; Creswell, 2012). Participation was voluntary and based on informed consent, participants' identities were

protected through the use of codes (T1–T6), and audio recordings and transcripts were stored securely and used only for research purposes (BERA, 2018). Participants were assured that their views would not be linked to their names or departments in any publication (BERA, 2018; Merriam & Tisdell, 2016).

Results

In this study, thematic analysis was used to identify and interpret patterns in the qualitative data related to academics' perceptions and experiences of ChatGPT in higher education. The analysis followed the six steps proposed by Braun and Clarke (2006): familiarizing with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. This process helped the researcher organize participants' responses into meaningful themes related to the opportunities, challenges, and implications of ChatGPT in the Pakistani higher education context.

Thematic Analysis

Obj 1: Potential Benefits of ChatGPT in Higher Education

The integration of ChatGPT into higher education presents a transformative opportunity for academia. This theme focuses on how ChatGPT enhances academic processes, supports research, and improves efficiency. By analyzing the potential benefits, this section highlights how educators and students can utilize AI tools like ChatGPT to streamline their work and foster creativity. Generally, ChatGPT is viewed as a valuable asset in the academic setting. Its ability to assist with research, refine writing, and reduce administrative burdens makes it a powerful tool for academics. However, these benefits are best realized when ChatGPT is used ethically and responsibly, complementing rather than replacing human judgment and creativity.

Transform educational system

It was reflected in the responses of the participants that ChatGPT is rapidly transforming education, particularly in higher education institutions. This theme captures the participants' perceptions of how ChatGPT is revolutionizing the academic environment. The focus is on how it reshapes the learning process, making education more accessible, efficient, and interactive for students and teachers alike. One of the participants strongly emphasized the revolutionary impact of ChatGPT on education, particularly in Pakistan. As noted by the interviewee:

In Pakistan... it is revolutionizing the education system. Students are more taking advantage of this system, and they are motivating teachers to adopt it. (T2)

This narrative highlights how students are at the forefront of adopting ChatGPT and how their usage encourages teachers to integrate it into their teaching methods. This is especially important in public sector universities, where technological advancement often lags. Teachers are being compelled to embrace the tool to keep pace with student usage.

Academic Assistance

Most participants highlighted the most significant advantage of ChatGPT is its ability to enhance research output. Academics find the tool particularly useful for improving documentation and refining writing. For instance, an interviewee mentioned:

ChatGPT... helps you in documentation, refinement of writing, providing so many ideas... improving performance and productivity. (T1)

This narrative illustrates how ChatGPT contributes to academics' efficiency by helping with writing tasks and generating new ideas, ultimately leading to higher productivity. The tool's ability to handle

complex writing tasks allows researchers to focus more on content and less on the mechanics of writing. Apart from writing assistance, the application also useful in the conduct of literature search. One participant noted:

I can point to literature, state a DOI and get a full literature review done on the topic. This is a very good benefit in my case as a researcher. (T3)

Invaluable for any researcher, this capability of ChatGPT allows for a quick identification and compilation of the sources. Often involves the use of a great deal of time in collecting various materials as opposed to its analysis and synthesis as assisted by the integration of systematic reviews. The other equally crucial advantage of ChatGPT is that it can be utilized in enhancing teaching and learning processes. It helps in development of writing skills because it also gives instructions of grammar and recommended types of words to be used. As one interviewee pointed out:

It assists in checking the typed work for mistakes such as grammars, offers other better words. (T1)

This functionality is especially good for students and academic professionals who don't have English as their first language to help them produce neater, more professional work. Also, since the controlling number of administrative tasks like grading and checking assignments is now eased by Reddit, the amount of valuable time teachers can devote to teaching and students is significantly enhanced. This point was highlighted by another interviewee:

Teachers pay great attention to it), paper designing, assignment checking... those, who are using it inadmissibly, can understand the benefits. (T1)

Creativity & Idea Generation

Thus, creativity promotion and new ideas generation is another important value introduced by ChatGPT. That it is a useful tool for planning and organizing the thought process of the academic and the student in terms of sourcing research ideas and defining new fields of investigation. As one participant stated:

If a student is blank, it gives several ideas for research... is beneficial in choosing a topic. (T4).

Since ChatGPT provides starting points for a learner's research, it proves to be a valuable tool to any learner who is having issues sourcing for ideas.

Accessibility & Efficiency

The more significant part of the participants responded positively about the fact that they cannot deny that the time-saving feature of ChatGPT cannot be dismissed. Some of its features include ability to simplify work that could have taken hours in one or two minutes which can be helpful in an institution that has a tight calendar. An interviewee remarked:

It accomplishes intensive operations in minutes, in terms of time. (T1)

Moreover, helping with translation and synonym search in case the user of the program has to write an academic work in a foreign language, contributes to academic writing and research in a multicultural environment. This capability was emphasized by a participant who said:

The English – Urdu translation is one of the most valuable features as well as synonym search, search for an acronym in a few seconds. (T1)

ChatGPT holds major benefits for higher learning institutions because it can boost research production, teaching aid, creativity, time-saving, etc. These benefits, nonetheless, are most effective when the performance of ChatGPT is properly applied and not to replace human endowment and reasoning.

Enhancing Global Communication and Collaboration

A key sub-theme is how ChatGPT supports global communication and collaboration in education. Participants noted that this AI tool helps students and educators from different countries connect and share ideas easily. By breaking down language barriers and providing quick access to information, ChatGPT encourages global learning and teamwork. As one participant said:

ChatGPT makes it easier for students and teachers from around the world to communicate, even if they speak different languages. (T4)

This sub-theme highlights how ChatGPT enables international collaboration by offering translation tools and helping with communication. It allows people from different parts of the world to work together more easily, making education more connected and inclusive. Another participant added:

It helps students access global knowledge and work with others without worrying about language or communication delays. (T2)

This shows how ChatGPT builds a global academic network, making it easier for students and teachers to collaborate across borders.

Table 4: Thematic Table for Objective 1 – Potential Benefits

Theme	Sub-theme	Codes	Participants
<i>Potential Benefits of ChatGPT in Higher Education</i>	<i>Transform educational system</i>	Revolutionizing education in Pakistan; students taking advantage; students motivating teachers to adopt	<i>T2</i>
	<i>Academic assistance</i>	Documentation; refinement of writing; providing ideas; improving performance and productivity; literature search through DOI; grammar checking; better word choice; paper designing; assignment checking	<i>T1, T3</i>
	<i>Creativity & idea generation</i>	Research ideas for 'blank' students; topic selection; starting points for research	<i>T4</i>
	<i>Accessibility & efficiency</i>	Intensive work done in minutes; time saving; English–Urdu translation; synonym search; acronym search	<i>T1</i>
	<i>Enhancing global communication & collaboration</i>	Cross-language communication; access to global knowledge; collaboration without language barriers	<i>T2, T4</i>

Objective 2: Challenges of ChatGPT in Higher Education

However, it is noteworthy that with such benefits of ChatGPT, there is a number of disadvantages in higher learning entities in terms of ethical issue, quality output and technology constrains. This theme analyses the effects of the misuse of ChatGPT resulting in cheating, dependency, and misinformation. However, P9 and most participants of the study had concern about the ethical implication of using ChatGPT. Some of the challenges that people have raised include; Plagiarism, reliance of students on AI in their academic work, production of erroneous or unauthorized information. Users however

reported that while ChatGPT is very effective in providing information, it has to be used under supervision and with so much professionalism to avoid vice verses of plagiarism.

Ethical Concerns

The first ethical issue is that students can use ChatGPT to submit a whole assignment without being involved in the academic process. As one participant explained:

Students plagiarize without much more effort, using full papers written by ChatGPT...the sources cited are frequently forged. (T1)

Most of the participants highlighted that this misuse of ChatGPT causes not only plagiarism, but also an attempt to submit work containing incorrect or unreliable references and sources, therefore, an appeal to the integrity of the academic product. This issue is made worse by the ability students have to access the tool and misuse it in equal measure. The participants' response were summed up showing that there is another major concern, which is the level of dependency that may be reached where students outcomes with more juvenile elaborations rely totally on ChatGPT and reduction of the synthesis part of the brain which possesses critical evaluation and problem-solving ability. As one interviewee remarked:

The students rely on this to an extent that they become parasitic... (T1)

Describing dependence with the voice of almost all participants this leads to questioning the educational values of such an endeavor and involving students in cap Merchant said: "The worry is that students taking to using the outputs of these systems overlooking the fact that they need to be developing intellectual skills that allow them to undertake independent research." The idea of relying too much on ChatGPT can limit students' growth of key academic skills.

Inaccuracy of content

Another known limitation of ChatGPT is the fact that many of the content produced is inaccurate. Several participants expressed worries that the tool provides hypothetical or fake references to projects and thus reduce the quality of academic work. One participant highlighted this issue:

I thought the sources that ChatGPT gives out are mostly fictional or invented scenarios. (T1)

If students and educators fail to corroborate with the information that ChatGPT provides, they might adversely affect the quality of their academic work.

Technological constraints

Besides, ethical and essay related issues have been found to be coupled with special technological inefficiencies in utilizing ChatGPT, especially for complex research related operations. Even if it is very useful in simple tasks like literature review, it is not as useful in the more complex area of research. One participant pointed out:

It appears that ChatGPT is useful in research, though, in methodology or complex research work, it cannot be as much useful. (T3)

This proves that, despite the fact that ChatGPT can be helpful in providing the necessary information at the stage of choosing a topic and works in the scientific field, the additional use of this tool is not very productive when performing deep analysis or complex data processing. Various challenges, such as ethical, dependency, and quality, that ChatGPT brings to higher education need to be well addressed.

But the above listed drawbacks depict some of the major benefits when using the tool-based analysis; however, these challenges call for some raise concern when using the tool due to the following reasons.

Threat to Traditional Research Skills

The rise of ChatGPT in higher education poses a threat to the development of traditional research skills among students. Many participants shared concerns that students may rely on AI-generated content instead of learning how to conduct research effectively.

Students might ask ChatGPT for information without ever learning how to find and evaluate sources on their own. (T4)

This reliance on AI can undermine the foundational skills needed for academic success and critical thinking.

When students depend on AI for their research, they miss out on the valuable experience of analyzing data and forming their own conclusions. (T1)

This highlights the importance of preserving traditional research methods that promote deeper understanding and independent thought. Balancing the use of AI tools with a commitment to developing essential research skills is crucial for a comprehensive education.

Decline of Traditional Learning Techniques

The integration of ChatGPT in higher education raises concerns about the decline of traditional learning techniques that have been effective for generations. Many participants worry that students might rely too heavily on AI for quick answers, bypassing essential study practices.

Students often turn to ChatGPT for quick solutions instead of spending time reading and reflecting on the material. (T5)

This shift can lead to superficial understanding, as students miss the deep engagement that comes from traditional methods like reading, note-taking, and discussion.

With AI, students might not develop their own study habits, like summarizing what they learned or discussing ideas with classmates. (T6)

This emphasizes the importance of traditional learning methods, which foster critical thinking and retention of knowledge. It's essential to find a balance between using AI tools and maintaining these valuable educational practices.

Table 5: Thematic Table for Objective 2 – Challenges and Barriers

Theme	Sub-theme	Codes	Participants
<i>Challenges of ChatGPT in Higher Education</i>	<i>Ethical concerns</i>	Plagiarism with little effort; full papers written by ChatGPT; forged sources; dependency; students becoming 'parasitic'	<i>T1</i>
	<i>Inaccuracy of content</i>	Fictional sources; invented scenarios; fake references	<i>T1</i>
	<i>Technological constraints</i>	Useful in basic research; limited in methodology and complex research work	<i>T3</i>

<i>Threat to traditional research skills</i>	Not learning to find and evaluate sources; missing data analysis experience; not forming own conclusions	<i>T1, T4</i>
<i>Decline of traditional learning techniques</i>	Quick solutions instead of reading and reflecting; weak study habits; no summarizing or peer discussion	<i>T5, T6</i>

Objective 3: Copying Strategies for ChatGPT Challenges

Thus, the problem of how best to deal with the issues that have arisen due to the release of ChatGPT is relevant to educators and policymakers. This theme considers ways of controlling potential ethical issues related to the use of ChatGPT, as well as proper role of ethical training, monitoring, and educators in DLT implementation at universities. It was also stressed that more attention to students' ethical education on AI proper usage and ensuring accountability by employing methods of plagiarism and misuse check should be paid. Also, teachers need to detect the difference between AI-generated text and personal works, and thus, ChatGPT must assist in enhancing instead of eradicating crucial thinking.

Training and Awareness

Another of the most recommended problem-solving methods is the incorporation of ethical training programs aimed at enlisting students to use ChatGPT correctly. As one participant noted:

ChatGPT must be specifically taught and students must be made aware of how to use ChatGPT for appropriate purposes... Students have to be educated on appropriate use. (T2)

Such training makes the students responsible in their use of AI tools to prevent cases where the use of the AI tool replaces critical thinking and innovative work as is the case with ChatGPT. Another important measure is to use plagiarism-checking services such as Turnitin to track student's submissions that may contain AI-generated content. As one interviewee stated:

Teachers should use Turnitin for every assignment...there should be proper laws for AI use in education. (T4)

When adding to this proper guideline on use of AI, this approach goes a long way to eliminating plagiarism and helps the students make meaningful engagements on their academic tasks.

Academic's Contribution to AI Adoption

Teachers are also indispensable in making sure that chat GPT is deploying appropriately in the academic arena. They have to be in a position of differentiating between what has been generated by the AI and what has been submitted by the student. One participant mentioned:

Teachers are expected to ensure they understand the difference between an AI writing and a human writing. (T5)

The integration of active assessment in the usage of student work by teachers will help in preventing the absolute replacement of the concept of critical thinking as well as creativity by ChatGPT. Interestingly all participants discussed coping strategies in their narratives and also emphasized the role and one participant said.

There is a need to introduce in AI in teaching but not to reduce it to basically thinking. (T5)

The narrative was that teachers ought to incorporate AI into approaches tailored to treating students as reasoning individuals.

Establishing AI Usage Laws

Among the most important recommendations, derived from the participants of the survey, there is a need to create legally binding rules and legal frameworks governing the use of AI within learning systems. Such laws would provide a solution to the ethical issues that come with AI as well as plagiarism, data privacy as well as misuse of the same. As one participant mentioned:

This means that there is a need to have proper law in the utilization of Artificial Intelligence in education especially research. (T4)

This quote sums the need for the legal frameworks on core AI as calls the integration AI into the academic practices beneficial and rightful. The above laws could act as guidelines on how to apply the AI tools such as ChatGPT that would greatly limit their misuse and conserving integrity.

Supporting Inclusivity in Education

Yet another consideration that has to be addressed is the issue of Equal Opportunities and disability when it comes to AI and EdTech. Policy makers have been urged to put thinking on diversity when developing policies within the field of AI. As one participant noted:

We can conceive of policy solutions that ensure that AI tools are available to all learners inclusive of those with disabilities. (T5)

It also supports the view that through application of AI in education, all students have to equal opportunities of learning. It was established that policies should strive to improve accessibility, thus, ensuring differential utilization of AI breaks improves learners' education instead of worsening it.

Integrating AI in Teaching

A further management imperative is the deliberate assimilation of AI in learning models while still retaining human factors as a key factor in decision making. As one participant emphasized:

Here it is appropriate to emphasize that AI should be incorporated in Teaching but not be used to supplant reasoning skills. (T5)

This creates the need for policies that will promote the use of AI as an adjunct in learning. In using information technologies to support teaching, the author indicates that teachers should be trained to incorporate AI in teaching methodologies that will promote student learning without compromising on an aspect of critical thinking. AI should be interpreted as a supplement to teachers' and students' work rather than the replacement of essential cognitive activities.

The integration of AI in higher learning institution calls for very appropriate set policies and guidelines regarding Ethical utilization of AI, diversity, and incorporation of AI in teaching. Such policies should subject the use of AI tools such as ChatGPT to improve the current educational processes without eroding the employees' ability to reason and make decisions. With the regulation of the rights necessary for the legal non-exploitation of AI and the encouragement of the ethical AI application, policymakers will be able to guarantee that AI is beneficial in the academic context.

Table 6: Thematic Table for Objective 3 – Coping Strategies

Theme	Sub-theme	Codes	Participants
<i>Coping Strategies for ChatGPT Challenges</i>	<i>Training & awareness</i>	Specific teaching of ChatGPT; awareness of appropriate use; ethical education; Turnitin for every assignment	<i>T2, T4</i>
	<i>Academic's contribution to AI adoption</i>	Distinguishing AI writing from human writing; active assessment; introducing AI without reducing thinking	<i>T5</i>
	<i>Establishing AI usage laws</i>	Proper laws for AI use in education and research; legal frameworks against misuse	<i>T4</i>
	<i>Supporting inclusivity in education</i>	AI tools available to all learners; inclusion of learners with disabilities; equal opportunities	<i>T5</i>
	<i>Integrating AI in teaching</i>	AI incorporated in teaching; not supplanting reasoning skills; AI as supplement	<i>T5</i>

Findings

The findings revealed that academics viewed ChatGPT as both an educational opportunity and a source of challenges in higher education. Three major themes emerged from the data: educational opportunities, challenges and concerns, and strategies for responsible use. Under educational opportunities, participants reported that ChatGPT could save time and support teaching, learning, academic writing, research, grammar and vocabulary improvement, idea generation, and access to information. It was also considered useful for improving academic communication and making some academic tasks easier and more efficient. However, participants identified several challenges, particularly plagiarism, overdependence on AI, inaccurate information, unreliable references, and possible decline in students' critical thinking and research skills. They were concerned that students might use ChatGPT to complete assignments without developing their own understanding and academic abilities. Participants also noted that ChatGPT may have limitations in complex research tasks requiring deep analysis, methodological knowledge, and expert judgment. To address these concerns, participants emphasized the need for AI literacy and ethical training, teacher supervision, appropriate assessment practices, verification of AI-generated information, and clear institutional policies. Overall, the findings indicated that ChatGPT has considerable potential to support higher education, but its effective use requires a balanced approach that maintains human thinking, academic integrity, and responsible use of technology.

Discussion

The findings of the study showed that academics generally recognized ChatGPT as a useful tool for supporting teaching, learning, writing, research, and other academic activities. This result aligns with the previous studies that stated generative AI can be a transformative technology for higher education (Adiguzel et al., 2023; Grassini, 2023). The participants highly appreciated ChatGPT for time-saving, enhancing the writing and language, providing ideas, and assisting in routine academic work. These findings are consistent with Kasneci et al. (2023) and Rahman and Watanobe (2023) which stated that ChatGPT can help students and educators in writing, content creation, brainstorming, and learning activities. ChatGPT's usefulness can also be interpreted with the Technology Acceptance Model (TAM) which indicates that users are more likely to use a technology if they perceive it to be useful and easy to use (Davis, 1989). The findings with reference to language support particularly is relevant to the Pakistani context. Participants stated the potential of ChatGPT for grammar, vocabulary, writing and

translation. This kind of support could be useful to students and academics who communicate in English for academic purposes. This aligns with the findings of Kohnke et al. (2023), who pointed out that ChatGPT can be a valuable tool for language learning and academic writing. The participants also found ChatGPT helpful in generating ideas and fostering creativity. This is consistent with the findings of earlier studies that indicate AI can be used as a brainstorming or creative support tool (Bozkurt et al., 2023; Dwivedi et al., 2023). But the results indicate that these advantages are most pronounced when ChatGPT is used to complement, not supplant, human thinking.

However, there were significant concerns about academic integrity and excessive reliance on AI. Participants were worried about students relying on ChatGPT to create entire assignments, which they could then submit as their own. This discovery aligns with previous research showing concerns regarding plagiarism, authorship and academic dishonesty in relation to generative AI (Cotton et al., 2024; Sullivan et al., 2023). Additionally, participants thought that relying too much on ChatGPT might have a negative impact on students' creativity, critical thinking, problem-solving abilities, as well as their reading and independent research skills. This concern is in line with the research on cognitive offloading which indicates that overreliance upon external technologies can decrease engagement in some cognitive processes (Risko & Gilbert, 2016). However, the education benefit of ChatGPT is not just driven by its availability but also by the responsible and intentional usage of students. Another critical issue was the correctness of information and references created by the AI. Some participants noted that ChatGPT's responses could occasionally contain inaccuracies or misinformation. AI hallucination and AI-fabricated references have been raised as issues by previous studies, as well (Ji et al., 2023; Walters & Wilder, 2023). The discovery underscores the importance of students and educators using trusted academic resources to confirm AI-generated information. However, participants pointed out that ChatGPT might not be as well-suited for tasks involving intricate research, analysis, methodology, or expert judgment. This aligns with the findings of Farrokhnia et al. (2024), who noted that generative AI has certain areas where it needs to be more thought-provoking and understanding. Therefore, the use of ChatGPT could be more suitable for non-academic tasks and for routine academic tasks than for replacing academic expert judgment.

The findings further emphasized the importance of AI literacy, teacher involvement, and institutional guidance. Participants expressed a need for educating students and teachers about the suitable applications and limitations of AI. This aligns with Long and Magerko (2020) and Ng et al. (2021) who highlighted the need for AI literacy in the responsible engagement with AI technologies. The participants also emphasized the ongoing importance of teacher monitoring and guidance in the use of AI and the need to develop assessments that foster independent thinking skills. This aligns with the idea that AI should be used as a tool that assists teachers, and does not replace them (Mishra et al., 2023). While plagiarism and AI-detection tools can help ensure academic integrity, they should complement teacher judgment and suitable assessment practices as current AI-detection tools have their limitations (Weber-Wulff et al., 2023). In conclusion, the results suggest that ChatGPT has both opportunities and challenges in the context of higher education in Pakistan. It can be made useful if it is used as an adjunct in education instead of a replacement for the thinking of students or for the role of the teacher. The results thus advocate for a responsible and balanced incorporation of AI in education, emphasizing the importance of AI literacy, academic integrity, teacher oversight, critical thinking, and well-defined institutional guidelines. Such an approach can help Pakistani universities benefit from the opportunities offered by ChatGPT while reducing its potential negative effects on teaching, learning, and academic standards.

Conclusion

Overall, the study revealed that ChatGPT has a multifaceted but significant impact on higher learning education. ChatGPT has demonstrated the possibility of transforming a number of academic activities, the increase in productivity in research and development, and refining teaching and nurturing methodologies. Some of its advantages include helping in documentation, writing, as far as it goes in concept development and literature searching it is a handy tool for teachers and students alike. But these

advantages have limitations inclusive of ethical use, whether the service is a replacement or dependency and how good the content produced by AI is. The study also revealed that students misuse of ChatGPT leads to cheating in exams, dependency on chat GPT and reduced creativity among the students. This is so because participants also expressed worries about the authenticity of information generated by the AI. In order to overcome these challenges, the study advocated for sound coping strategies which included ethical training, efficacy in monitoring and a central responsibility of the teachers in regulating the use of AI technology in learning institutions. Besides, the study emphasizes the need for policy formulation to guide the use of AI in higher learning institutions. Specific procedures have to be set up, everyone has to be welcome and use AI as a tool that supports and supplements rational calculations. These matters mean that the policymakers must look at developing legal policies that would help support the utilization of AI tools such as ChatGPT in an ethical manner, and useful for the provision of education without violation of the integrity of education.

Recommendations

Based on the results, the following recommendations are proposed:

1. Universities should make clear policy measures in addressing the ethical use of intelligent instruments such as ChatGPT. These guidelines should help not only the students and the faculty understand how to use AI appropriately without compromising the quality of the academy. Due to ChatGPT, teacher and institutes must educate students on the ethical use of AI in academic work so that they can only use AI as a tool and not a way to shortcut their research works and critical thinking on how to use AI responsibly without compromising academic standards.
2. It is essential for teachers and institutes to encourage students on the ethical use of AI in academic work because of ChatGPT. It will help them to use AI as a supplementary tool rather than a substitute for independent research and critical thinking. Teachers should be allowed to discern which part of the writing was done by the AI or otherwise. They should embrace AI within teaching and learning in ways that help in extending creativity, enhancing critical thinking and output, and in doing so without compromising academic integrity.
3. Institutions should foster the use of AI tools specifically in the classrooms because it will lessen the workload of a teacher such as in grading and checking an assignment ChatGPT enables the teachers to spend more time with their students. Education institutions have a mandate on should adopt measures to guarantee and accommodate all students who use the AI tools such as ChatGPT regardless of their category, be it marginalized or have a disability. This may go a long way in eradicating inequalities in access to education and therefore address gaps in education effectively.

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