



Teachers' Perceptions of ChatGPT in Transforming Pedagogical Practices in Higher Education: A Case Study of District Hyderabad, Sindh, Pakistan

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ABSTRACT

Chatgpt is a well-known AI tool which facilitates students' engagement, evaluation, content creation, and institutional planning. This study examines the higher education teachers' perception of chatgpt in transforming pedagogical practices in colleges of District Hyderabad. Teachers' perception on using Chatgpt in their teaching and contribution to pedagogical change in districts like Sukkur and Jamshoro was the subject of earlier research in Sindh; there is however limited empirical research focusing colleges in District Hyderabad, Sindh. A Mixed method research design was employed for this research. Data was collected from N=60 college teachers working in both private and public colleges through structured questionnaire based on likert scale and semi-structured interviews. The responses were analyzed using descriptive statistics to know the teachers' perception towards Chatgpt. The findings indicate that most teachers perceive chatgpt as supportive teaching tool and creative solution that improves teaching effectiveness and promotes learner- centered instruction, showing its high perceived usefulness. However, responses regarding comfort in using Chatgpt in classroom revealed disagreement, indicating low perceived ease of use, while actual use of tool in daily teaching was found to be neutral, showing moderate adoption. In addition, some concerns related to insufficient professional training, limited institutional support, and issues of academic credibility over dependence using ChatGPT were also identified. Evidence suggests that (TAM) technology acceptance model serves as a powerful predictive framework for ChatGPT acceptance in higher education. Consequently, the study highlights that targeted training programs and practical guidance are mandatory to help improve teachers' confidence and integration of AI tools in teaching in Hyderabad, Sindh and provides insights for policymakers and educational institutions.

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1. Introduction

Artificial Intelligence (AI) is emerging as a part of the higher education sector, which provides many opportunities and completely revolutionizes the educational landscape (Essien C. T., 2020; Kuka, 2022). Scholars have been investigating the affordances of Artificial Intelligence in the higher education landscape, where AI-mediated tools are progressively integrated to optimize pedagogical strategies, student learning outcomes, and administrative efficiency. Among these innovations, ChatGPT is an AI-driven language model. According to Ray (2023) ChatGPT has its root in the natural Language Processing (NLP) which aims to facilitate Natural Language Processing (NLP), enabling computational systems to decode, interpret, and generate human-like linguistic output. The improved version of GPT-4 model, GPT-5, which officially launched in early August 2025. With advanced reasoning larger context native multimodal (text, image, and video). It assists in different fields, helps teachers and students in multiple task; it is also common among journalist, researchers and writers. Research and development of AI is an essential part to higher education and as higher education institutions strive to adopt technology enhanced pedagogical approaches, understanding teachers' perceptions and acceptance of such tools has become a critical area of research. It is accepted already that AI can change the way we live our lives and the world around us more than any other technology ever did and does it both in a positive and negative way (Dignum, 2023). In order to comprehend this effect to the fullest extent, universities need to measure the acceptance of AI tools such as ChatGPT by teachers in transforming pedagogical practice in higher education. Pakistan's higher education sector is gradually embracing digit transformation; however, the integration of AI-based tool remains uneven and underexplored. Hyderabad District, a major educational hub in Sindh, hosts numerous public and private universities that provide to a diverse student population.

Regardless of its academic importance, limited research has examined how college teachers in this district understand and use of Chatgpt in their didactics. Existing studies conducted in district such as sukkur and Jamshoro have underlined teaching methods, instructional strategies, educational techniques, and didactics and intention to use Chatgpt, yet those findings cannot generalized to Hyderabad without proper specific investigation. The research success lies in the involvement of college teachers and their teaching strategies, their perception attitude and their acceptance to use such tool and adopt it meaningfully. Although ChatGPT can reduce the amount of work, there is concern that it is going to impact the role of a teacher in some way. Some of the concerns include the fear of being replaced or perceived as being inferior to the automated tools, especially in content-rich fields (Montenegro-Rueda et al., 2023). According to one of the teachers, ChatGPT could be a helpful tool that teacher and educators use to remember what they should include in their curriculum by providing them with an outline (Tlili, 2023). To systematically examine teachers' acceptance of ChatGPT, this study is grounded in the Technology Acceptance Model (TAM), which focuses on helping users learn and consistently use new tools, based on perceived usefulness and perceived ease of use. This study investigates that the college teachers' perception of Chatgpt, and its role in transforming didactics in colleges across district Hyderabad. By applying mixed-method approach, this present research seeks to bridge the gap within the advanced field of AI teaching and learning while delivering practical suggestions for institutional management and instructional enhancement.

1.1. Research Objectives

1. To analyze higher education teachers' perceptions of ChatGPT as a pedagogical tool in universities of District Hyderabad.
2. To examine the role of ChatGPT in transforming pedagogical practices in higher education.

3. To examine teachers' acceptance of ChatGPT using the Technology Acceptance Model (TAM).
4. To evaluate the equilibrium between the functional utilities and the systemic drawbacks of deploying ChatGPT within the higher education landscape.
5. To explore how the role of institutional policies can be used to inform the proper and ethical use of ChatGPT

1.2. Research Questions

1. What are higher education teachers' perceptions of ChatGPT in colleges of District Hyderabad?
2. How does ChatGPT contribute to the transformation of pedagogical practices in higher education?
3. How do perceived usefulness and perceived ease of use influence teachers' acceptance of ChatGPT?
4. What challenges and concerns do teachers face in integrating ChatGPT into their teaching?
5. What institutional strategies and professional development initiatives are required for the effective and ethical use of ChatGPT in higher education?

2. Theoretical Framework: Technology Acceptance Model (TAM)

This study adopts the *Technology Acceptance Model (TAM)* as its theoretical framework to examine teachers' acceptance and use of ChatGPT in higher education. Originally proposed by Davis (1989), the *Technology Acceptance Model (TAM)* explains that technology adoption depends on two main factors. First, users must believe the tool is useful for their work. Second, they must feel that the tool is simple and easy to operate. *Perceived usefulness (PU)* is the area where teacher feels that Chatgpt can improve their work and this tool helps them teach, make lesson plan, grade the student. *Perceived Ease of use (PEOU)* is the area where teachers find Chatgpt easier to learn the tools, understand its functions and use their daily teaching tasks. According to Technology acceptance model (TAM), these two areas shape user's attitude towards the technology. This attitude decides their intention to use it and finally leads the way to the actual use of tool in their work. The present study suggests teachers attitude towards Chatgpt which is formulated by their experiences, institutional support, professional training and ethical norms related to AI usage. By applying Technology acceptance model (TAM) model, the study provides systematic frameworks to understand how college teachers in district Hyderabad accept and use Chatgpt (generative- pre trained transformer) in their didactics and what are the factors of acceptance and teaching integration. This model also helps to understand the gaps to adopt and suggest professional development initiatives which are aimed at promoting Chagpt and its effective use in higher education.

3. Literature Review

Gpt (generative pre-trained transformer) has the potential to revolutionized education by providing students valuable input in their learning, improving their language, writing skill and it also saves time-consuming task for teachers (Apata & Kwok, 2025). The excessive use of Gpt (generative-pre-trained transformer) in higher educations like colleges and universities has become an important topic for the researchers which leads them to understand its transformation in educational learning and its acceptance and challenges in academic setting. However, it is important to understand that Gpt should be used as tool to support learning, not as a replacement for human teachers (Velibor Bozic) *Teachers' opinion on Gpt (generative pre-trained transformer) in colleges*: some of the studies indicate mixed opinion of using Gpt in colleges and universities. According to the view of Apata and Kwok (2025) teachers and students expressed a mixed opinion on GPT accuracy, reliability and role in teaching and learning, major attention is given to ethical consideration and pedagogical transformation. Research conducted in Pakistani context reflects positive attitude towards the use and acceptance of Gpt (generative pre-trained transformer). They (Balqees, syed, and ullah 2024)

reported that Pakistani higher education stakeholder find Chatgpt as best source of learning and improving language learning. However, these positive attitudes should be balanced with caution to use and ethical consideration, replacement of human teacher has always been the central themes to be researched. The lack of universally accepted policy concern with misuse and over-dependence have been stressed repeatedly, the educational managements are still finding the way to overcome its negative impact on its norms (Apata & Kwok, 2025).

Technology Acceptance and ChatGPT: according to Davis, 1989 Technology acceptance model (TAM) is the primary determinants to understand the use of Chatgpt, so the Technology acceptance model (TAM) has been applied to know how students and teachers adopt new educational technology. Several empirical studies have used (TAM) as the framework to understand AI adoption of perceived ease of use which significantly influences users' willingness to use Chatgpt that ultimately leads them to overcome barriers and facilitate them with the instructional experimentation (Cheung & Vogel, 2013). To understand learners intention to adopt Chatgpt, Shah (2024) applied Technology acceptance model (TAM) in Sindh, that has suggested in their study as an effective model to capture adoption behavior in local context, nevertheless, the study primarily focused on students rather than the educators. Similarly, Shazad, XU, and Javed (2024) have suggested the new idea to Technology acceptance model (TAM) that smart people think the AI as perceived intelligence and trust its use, their study suggest that students are more likely to trust its technology if they are aware of its use and they want to use it for their academic purpose.

Challenges and limitations: Chatgpt has many potential to support education, but there is some challenges and limitation that need to be considered.

Biases and inaccuracies: if the training data contain biases and inaccuracies; the result that Gpt generate may contain these biases and accuracies.

Dependence of technology: excessive use of Ghatgpt may increase risk of lack of critical thinking and problem solving skill.

Ethical concern: the use of Chatgpt highlighted ethical consideration on data privacy and security along with its potential misuse or abuse of technology.

Technical requirements: there is challenge for some schools, colleges' teachers and students, the lack of Internet resources, and access to computing and technical infrastructure to use chatgpt.

Need for training and support: teachers and students need proper training and support to use Gpt effectively in the classroom, which may require investment and resources. It is mandatory to address these challenges and limitation in order to make sure that the use of Chatgpt technology in education is ethical, effective and equitable.

Localized findings: localized findings are limited in Pakistani context while the international research provides the valuable insights into Chatgpt acceptance. The research conducted in Sindh and other region like district Sukkur and Jamshoro by Balqees (2024) emphasize the importance of local empirical data to know the perception and willingness among Pakistani educators. These localized findings suggest institutional support and professional training, which highlighted the gap that this study aims to investigate Hyderabad's higher educational institutions. The literature recommends that the use of Chatgpt is widely recognized and promising educational tool. Its acceptance in higher education is formulated by teachers' perceived usefulness and ease of use, ethical consideration and educational support and pedagogical implications. The technology acceptance model (TAM) remains dominant model for understanding behavioral acceptance

of the teachers to use AI tool like Gpt (*generative pre-dominant transformer*). However, some of the scholars suggested that there is need to understand the ethical and contextual dimensions and Chatgpt's impact on educational environment.

4. Research Methodology

This study used mixed method research design to know the perception and willingness to use Chatgpt of the teachers of higher education, working in public and private colleges in district Hyderabad. By applying both qualitative and quantitative data, the research achieved triangulation strength to overall reliability and validity of the result (Creswell & Creswell 2018). Quantitative data measured the teachers' attitude and acceptance of using Chatgpt in classroom while qualitative data provides clear insights of their personal experiences and recommendation for classroom integration.

4.1. Participants

The participants for his study were college teachers working in public and private institution within the Hyderabad district of Sindh, Pakistan. Purposive sampling is used, 60 college teachers from both public and private colleges were selected. For proficient data, participants were required to have basic familiarity with the use of Chatgpt and its didactics in the classroom. This sample size was chosen to get wide variety of perspectives and remaining data is manageable for qualitative analysis.

4.2. Data collection

The data was collected by two tools. Quantitative questionnaire based on technology acceptance model (TAM) was used to assess teachers' perceptions, 5 point likert- scale adopted from Cheung and Vogel (2013); Davis (1989). Semi- structured interviews were conducted to better understand practical challenges and experiences of teachers about the use and acceptance of Chatgpt. These interviews provide detailed information that the questionnaire alone could not capture.

Table 1: shows the process of data collection

Response	Score	Frequency	Fx (frequency score)
Strongly agree (SA)	5	20	35
Agree (A)	4	20	35
Neutral (N)	3	5	15
Disagree (D)	2	10	5
Strongly disagree (SD)	1	5	5

Total respondents N=60

MEAN CALCULATION

Total FX= 220

Mean calculation

Mean= fx/N

Mean= 220 divide 60

Mean= 3.67

SD (STANDARD DEVIATION) = 1.31

Table 2: Interpretation Scale (LIKERT)

MEAN	SCORE	MEANING
4.21	5.00	STRONGLY AGREE
3.41	4.20	AGREE
2.61	3.40	NEUTRAL
1.81	2.60	DISAGREE
1.00	1.80	SRTONGLY DISAGREE

Interpretation of the result: MEAN= 3.67

According to the scale: 3.67 falls in 3.41-4.20 agree

The data collection process shows that most of the teachers agree to use chatgpt as strong tool for their teaching. This shows generally positive perception among teachers regarding the chatgpt.

4.3. Ethical consideration

The data collection process followed the ethical approval, the participants were asked for the consent and gave them choice they can stop at any stage if they want. Only data was used for research purpose, we protected their privacy by removing their name from the report.

4.4. Data Analysis and Result

Quantitative data was analyzed through mean and SD (standard deviation) to know how teachers view and accept the technology. N=15 teachers were interviewed for the qualitative data they were age of 30 to 36 and 43 to 47 having experience of 11 to 20 years in colleges of private and public institutions. Furthermore a correlation analysis were used to understand how *perceived usefulness (PU)* and *perceived ease of use (PEOU)* which is contacted to teachers *'Behavioral intentions (BI)* to use gpt (generative pre- trained transformer) in their teaching.

Table 3: shows the descriptive statistics of teachers' perceptions of chatgpt (N=60)

Statement	Mean	SD	Interpretation
1.chatgpt makes my teaching effective	4.25	0.83	Strongly agree
2.chatgpt helps me focus more	3.90	0.89	Agree
3.chatgpt is a helpful tool for planning my lesson	3.57	0.73	Agree
4.Chatgpt make it easier and faster to create teaching material	4.50	0.50	Strongly agree
5. I feel comfortable using Chatgpt in my classroom	2.00	0	Disagree
6. I don't use Chatgpt in my teaching and daily life work	3.11	0.99	Neutral

The responses of 60 college teachers were analyzed regarding the use of Chatgpt using *mean scores and standard deviation* to understand their perceived usefulness, ease of use, and behavioral intention to use the tool. The first statement, "chatgpt makes my teaching more effective", indicating that teachers are strongly agree having *mean score 4.25(SD=0.83)*. "Chatgpt helps me focus more on the students' needs", *the mean score 3.90(SD=0.89)* Shows that teachers agree that chatgpt help in assisting students according to their needs. For the third statement, "chatgpt is a helpful tool for planning my lesson," *the mean 3.75(SD=0.73)* indicating positive attitude of using chatgpt for lesson planning. "Chatgpt makes it easier and faster to create teaching material" indicating strongly agree, highest *mean of 4.50(SD=0.50)* which suggest that most teachers found Chatgpt is useful for teaching material. Nevertheless, the statement "I feel comfortable using Chatgpt in my classroom scored *mean of 2.00(SD= 0)* indicating disagreement, which show that yet teachers see its benefits but some may feel hesitant or uncomfortable connecting it in real classroom settings. Lastly, "I don't use Chatgpt in teaching and daily work", *the mean score 3.11(SD= 0.99)*, shows neutral result, it indicates moderate variation in teachers actual use of chagpt in their daily life. The analysis reveals that teachers specifically agree or strongly agree on the use and acceptance of chatgpt for teaching, lesson planning, and creating materials but there is some hesitant who don't use chatgpt for classroom learning because they think that it stops critical thinking.

5. Discussion

This research applied Davis (1989) technology acceptance model (TAM). The participants were 60 teachers from public and private colleges in Hyderabad, Sindh where Technology acceptance model (TAM) were analyzed with perceived usefulness (PU) and Perceived Ease of Use (PEOU), and Behavioral Intention to Use (BI).

5.1. Perceived Usefulness (PU)

- 1) ChatGPT makes my teaching more effective (*Mean* = 4.25, *SD* = 0.83)
- 2) ChatGPT helps me focus more on students' needs (*Mean* = 3.90, *SD* = 0.89)
- 3) ChatGPT is a helpful tool for lesson planning (*Mean* = 3.57, *SD* = 0.73)
- 4) ChatGPT makes it easier and faster to create teaching material (*Mean* = 4.50, *SD* = 0.50)

The first four questions were used to understand perceived usefulness. The result indicates that teachers in Hyderabad generally agree or strongly agree that chatgpt enhances teaching effectiveness, lesson planning, and material development. It proves that Technology acceptance model, perceived usefulness is helpful to know the behavioral intention of teachers and it recognize the practical benefits of Chatgpt for improving teaching quality and efficiency. The low SD (Standard deviation) in question 4(0.50) shows that teachers are more likely to use chatgpt in creating teaching materials.

5.2. Perceived Ease of Use (PEOU)

The question "I feel comfortable using chatgpt in my classroom" (*mean*= 2.00, *SD*= 0) shows perceived ease of use. The mean indicates disagreement, they experience discomfort or lack of confidence using chatgpt in classroom practice even though teachers in Hyderabad find chatgpt as useful. The SD of zero shows constant perception of discomfort this indicates that training and familiarity with AI tool may be limited. As Technology acceptance model (TAM) suggest this is useful tool but low perceived ease of use can hinder adoption.

5.3. Behavioral Intention to use (BI)

"I don't use chatgpt in my teaching and in daily work." this question assessed current use of behavioral intention having *mean*=3.11, *SD*=0.99. Mean fall in the neutral range, shows moderate option; Teachers value chatgpt but do not consistently use it. Technology acceptance model explains this factors: high perceived usefulness encourages positive attitudes but low Perceived ease of use may reduce the actual intention to use chatgpt. Which has shown in findings among Hyderabad teachers

5.4. The findings from college teachers in Hyderabad, Sindh show that:

1. Teachers value ChatGPT for enhanced teaching efficiency (high PU).
2. Teachers feel hesitant or uncomfortable using it in classrooms (low PEOU).
3. As a result, actual usage is moderate (neutral BI).
4. This pattern supports TAM: Perceived Usefulness drives positive attitude, but low Perceived Ease of Use limits behavioral intention.

5.5. Implications

1. Professional development programs could focus on training and hands-on practice to increase ease of use.
2. Adoption of AI tools like ChatGPT depends not only on perceived usefulness, but also on teacher comfort, familiarity, and support, especially in local contexts like Hyderabad, Sindh.

6. Conclusion

This research explored the perception of teachers in Hyderabad, Sindh about the use of chatgpt in teaching and learning. This study used the Technology acceptance model (TAM) which has focused on three key factors: Perceived usefulness, perceived Ease of Use, and Behavioral Intention to use. The findings of this study has show teachers positive attitude to use chatgpt in educational practices, the results show high mean scores related to the statements of improving teaching effectiveness, helping in lesson planning, and making teaching materials faster and easier. These findings suggest that teachers see chatgpt as

effective tool which supports instructional activities. This assumes that technology acceptance model (TAM) perceives a technology as useful and they are more likely to develop a positive attitude towards its readiness. The study also revealed that teachers expressed discomfort in using chatgpt directly in the classroom, as shown in lower mean score for the statement related to classroom usage. Teachers know the benefits of chatgpt but they lack confidence, training and familiarity with this AI tools to use and adopt in their teaching practices. So the Technology acceptance model (TAM) perceived ease of use plays important role in accepting whether teacher will actually adopt a technology.

Furthermore, a moderate level of actual use, indicated in behavioral intention, shows that teachers are still in early stages of adopting AI tool in their teaching. The variant responses suggest that some teachers have started exploring chatpt while others still remain uncertain about its practical application in education. The study concluded that Chatgpt is implicit tool for teaching, particularly in lesson planning, material development and improving instructional effectiveness. Nevertheless, its success requires greater awareness, training and institutional support for teachers to integrate it in the classrooms. This research offers professional development opportunities and guidance on the educational use of AI tools to enhance teachers' confidence and increase the practical use of chatgpt in teaching. The results highlight that teachers in Hyderabad Sindh perceive chatgpt as a valuable educational technology, it needs improvement in perceived ease of use and teachers readiness to use chatgpt in more effective and wider manner in the classroom.

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