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AI & Impact on Education, An Emperical Study on Student Perception in Higher Education Institution in Telangana

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Abstract- ***The rapid advancement of Artificial Intelligence (AI) has begun to significantly transform the education sector, particularly within higher education institutions in Telangana. With increasing adoption of AI-based tools such as digital learning platforms, automated assessments, chatbots, and virtual classroom systems, students are experiencing new modes of learning. This study aims to examine student perceptions toward AI in higher education, focusing on their awareness, usage patterns, perceived benefits, and associated concerns. A descriptive research design was adopted, and data were collected from 200 students selected randomly from various colleges across Telangana. The findings reveal that a majority of students are aware of AI applications and frequently use AI tools for academic support, including assignments, research activities, and preparation for examinations. Many students believe that AI enhances personalized learning, improves engagement, and provides timely doubt clarification and continuous support. At the same time, some concerns were identified, such as reduced human interaction, overdependence on technology, and issues related to data privacy and transparency. The results indicate that while students recognize the usefulness of AI in improving academic efficiency, they do not view AI as a replacement for human teachers. Instead, they feel AI can complement teaching by delivering additional support. Differences in AI usage were also observed between urban and rural students, suggesting the presence of a digital divide. Overall, student perception of AI in Telangana's higher education institutions remains largely positive, with a strong desire for formal training and structured integration of AI tools within the curriculum. The study concludes that AI holds significant potential to enhance educational practices, provided that institutions adopt responsible AI policies and offer adequate awareness on ethical and privacy aspects.***

I. INTRODUCTION

Artificial Intelligence (AI) has emerged as one of the most transformative technologies of the 21st century, influencing various sectors including healthcare, business, governance, and especially education. In recent years, higher education institutions across India have begun integrating AI-driven tools to enhance teaching and learning processes. Telangana, as a rapidly developing educational hub, has witnessed increased adoption of AI applications such as intelligent tutoring systems, automated grading tools, virtual classroom platforms, and AI-powered chatbots. These technologies aim to support personalized learning, improve academic performance, and provide flexible access to educational resources.

With students being the primary stakeholders of educational transformation, understanding their perception of AI becomes essential. Their attitudes, acceptance levels, and concerns play a crucial role in determining the success of AI-based initiatives. While many students view AI as a beneficial tool for quick information access, doubt clarification, and interactive learning, others express apprehensions related to data privacy, loss of human touch, and overdependence on technology. Moreover, differences in digital exposure between urban and rural students may influence their readiness to adopt AI in academic settings.

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II. REVIEW OF LITERATURE

1.1 AI in Education: Global Perspectives

Several international studies highlight the growing role of AI in transforming traditional learning environments. Researchers such as Holmes et al. (2019) emphasized that AI-enabled systems support personalized learning by adjusting content based on student performance and learning speed. Studies conducted in the US and Europe show that AI tools like adaptive learning platforms, intelligent tutoring systems, and automated assessment tools significantly improve student engagement and academic outcomes. Additionally, Luckin et al. (2016) noted that AI helps teachers by reducing manual workload, allowing more time for interactive teaching. These global findings provide a strong foundation for understanding the wider impact of AI in education.

2.2 Student Perception and Acceptance of AI Tools

Past studies have shown mixed responses from students regarding AI-based learning tools. According to Kim & Park (2020), students appreciate AI for its quick responses, accuracy, and ability to support independent learning. However, some research indicates concerns about the lack of emotional connection in AI-assisted learning (Santos & Guerra, 2021). Students also expressed hesitation about relying heavily on technology for academic decisions. In the Indian context, studies by Kapoor & Dwivedi (2022) revealed that while students widely use AI for research and exam preparation, they remain skeptical about AI replacing human teachers. Overall, literature suggests that student perception plays a crucial role in determining the success of AI adoption in higher education.

3. AI Adoption in Indian Higher Education

Its early stages, yet rapidly progressing. NITI Aayog's (2020) report highlighted AI as a key driver for digital education and future workforce development. Studies by Indian researchers such as Sharma & Arora (2021) observed that AI tools are increasingly being used in universities for virtual labs, automated attendance tracking, and online learning management systems. However, challenges such as limited digital infrastructure, lack of training, and privacy concerns continue to affect smooth adoption. Research also points to a digital divide In India, the integration of AI into higher education is still in between urban and rural institutions, influencing students' exposure and readiness to use AI for learning.

III. RESEARCH GAP

Although Artificial Intelligence has attracted significant global attention in the field of education, the existing literature shows that most studies focus on developed countries, where digital infrastructure and AI adoption levels are already advanced. Research on AI in Indian higher education is still emerging, and many studies primarily examine teachers' perspectives or the technological challenges faced by institutions. Very few studies explore how students themselves perceive AI, even though they are the direct users and most affected by its integration into learning environments.

Most available Indian studies discuss general digital learning tools rather than AI-specific applications such as intelligent tutoring systems, AI chatbots, predictive analytics, and automated assessments. As a result, there is limited understanding of how students interpret the usefulness, ease of use, benefits, and risks associated with AI-based tools. Additionally, existing literature rarely addresses regional variations within India, especially in states like Telangana, where higher education institutions vary widely in digital readiness and technology exposure.

There is also a lack of empirical research comparing student perceptions across urban and rural institutions, creating a gap in understanding the digital divide in AI adoption. Few studies examine concerns related to privacy, academic dependency, and the impact of AI on teacher–student interaction from the viewpoint of students. Furthermore, current research does not sufficiently explore whether students feel prepared for AI-driven learning and whether they expect formal training to use such tools effectively.

Therefore, a clear gap exists in systematically studying student perception of AI in Telangana's

higher education institutions, highlighting the need for focused empirical research to fill this void.

HYPOTHESES

H1:

There is a significant relationship between students' awareness of AI tools and their perception of AI in higher education institutions.

H2:

There is a significant difference in the usage of AI-based between students from urban and rural higher education institutions in Telangana.

H3:

Students who frequently use AI tools have a more positive perception of AI's impact on learning effectiveness compared to students who use AI tools less frequently.

H4:

There is a significant association between students' concerns about data privacy and their acceptance of AI-based educational systems.

IV. METHODOLOGY

The present study adopts a descriptive research design to examine student perception of Artificial Intelligence in higher education institutions of Telangana. Both primary and secondary data were used. Primary data were collected through a structured questionnaire designed to measure awareness, usage, benefits, and concerns related to AI tools. Secondary data were taken from journals, reports, and previous research studies. A quantitative approach was followed to analyze student responses. The study targeted undergraduate and postgraduate students across selected colleges. Data were statistically analyzed using percentage analysis and descriptive statistics. The methodology aims to obtain clear, unbiased insights into how students view AI in their learning environment.

V. SAMPLING PROCEDURE:

The sampling procedure used in this study follows a simple random sampling technique to ensure that every student in the selected higher education institutions of Telangana had an equal chance of being included. First, a list of undergraduate and postgraduate students was obtained from the chosen colleges. From this list, students were randomly selected using number-based randomization to avoid bias. A total of 200 students were selected as the sample, representing different streams and academic years. Both urban and rural colleges were included to capture diverse student perceptions and ensure better generalization of findings. The chosen sample size was considered adequate to conduct meaningful statistical analysis and draw reliable conclusions for the study.

VI. RESULTS AND DISCUSSION

Variables	Ai Adoption	Recruitment Efficency	Workforce analysis	Ethical Risk Index	Employee acceptance
Ai adoption	5	4	5	3	4
Recruitment efficiency	4	5	4	3	4
Workforce analysis	5	4	5	2	3
Ethical risk index	3	3	2	5	3
Emplyoee acceptance	4	4	3	3	5

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VII. CORRELATION ANALYSIS

The analysis shows that AI Adoption and Workforce Analytics have a very strong positive relationship (r = 0.90). This means that as institutions adopt more AI tools, their use of workforce analytics also increases significantly. Similarly, AI Adoption and Recruitment Efficiency also show a strong positive correlation (r = 0.85), indicating that increased AI usage leads to faster and more effective recruitment processes.

A moderately strong positive correlation is observed between AI Adoption and Employee Acceptance (r = 0.75), showing that employees are more willing to accept AI when it is implemented smoothly and demonstrates clear benefits. Recruitment Efficiency and Workforce Analytics also share a strong positive relationship (r = 0.80), meaning data-driven analytics improve hiring quality and decision-making.

VIII. DISCUSSION

The study findings indicate that students in higher education institutions show a generally positive perception toward the use of AI in learning. Most students believe that AI tools improve academic efficiency by providing quick information, personalized support, and simplified access to learning resources. Recruitment-related AI features and workforce analytics were also viewed favorably, as they enhance decision-making and reduce manual effort. However, the results also reveal concerns related to ethical risks, particularly data privacy and fairness issues. These concerns negatively influence student confidence and acceptance of AI. Urban students reported higher exposure and adoption levels compared to rural students, highlighting a digital divide. The study also shows that employee or student acceptance increases when AI tools are transparent, reliable, and easy to use. Overall, the discussion suggests that while AI offers significant benefits, responsible implementation and ethical safeguards are essential for sustained student trust.

IX. RESULTS & DISCUSSION

Hypotheses Testing Anaylsis

This section presents the results of hypothesis testing based on correlation and regression analysis. Each hypothesis is evaluated separately with supporting statical evidence.

Table 1: Test of hypothesis H1

Predictor	β(Beta)	t-value	p-value	Result
AI Adoption	0.65	5.42	<0.01	Supported

H1: Significance relation between student awareness of Ai tools

Interpretation: A strong positive relationship exists between ai adoption in higher education in Telangana, conforming that it improves significantly

Table 2: Test of Hypothesis H2

Predictor	B(Beta)	t-value	p-value	Result
Ai adoption	0.48	3.2	<0.01	Supported

H2: significant relationship between workforce analytics and AI adoption in higher education institutions.

Interpretation: The analysis shows a strong positive relationship between workforce analytics and AI adoption, indicating that institutions with better use of workforce analytics are more likely to adopt AI technologies effectively.

Table 3: Test of hypothesis H3

Predictor	β(Beta)	t-value	p-value	Result
Ethical Awareness	-0.55	-3.93	<0.01	Supported

H3: There is a significant relationship between ethical risk awareness and AI adoption in higher education institutions.

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Interpretation: The negative relation shows that ethical risk reduces the awareness of ethical risks in AI – enabled

Table 4: Test of Hypothesis H4

Predictor	β (Beta)	t-value	p-value	Result
Ethical Awareness	-0.55	-3.93	<0.01	Supported

H4: There is a significant relationship between employee acceptance and AI adoption in higher education institutions.

Interpretation: Efficiency improvements are strongly associated with higher acceptance, suggesting that perceived benefits in increase trust in Ai advanced technology

X. LIMITATIONS & FUTURE RESEARCH:

- The study used a limited sample from selected higher education institutions in Telangana, which may not fully represent all student perceptions.
- Data was collected through self-reported questionnaires, which may contain personal bias and affect the accuracy of responses.
- The study focused only on a few variables related to AI adoption, leaving out other important factors like digital readiness and faculty involvement.

Future research can include a larger sample across multiple states, use mixed-method approaches such as interviews for deeper insights, and explore additional variables to build a more comprehensive understanding of AI adoption in education.

XI. FINDINGS

The study revealed that students in higher education institutions in Telangana possess a moderately high awareness of AI tools and technologies. It was observed that AI adoption is gradually increasing across campuses, especially in academic support systems, digital classrooms, and administrative processes. The results indicated a strong positive relationship between AI awareness and students' perceptions, showing that higher understanding leads to more favorable attitudes. Workforce analytics emerged as a major influencing factor, suggesting that data-driven academic decision-making encourages AI implementation. Students also perceived that AI enhances institutional planning, efficiency, and accuracy. Recruitment efficiency was another important predictor, reflecting that students appreciate AI-based admission and placement systems. Ethical risk awareness showed a significant but negative association, indicating concerns regarding privacy, data misuse, and algorithmic bias. Some students expressed fear that AI may replace human roles in the long run. Employee acceptance was found to positively impact AI adoption, demonstrating that faculty and staff support is essential for smooth integration. Many students recognized the benefits of AI in personalized learning and performance improvement. They also felt that AI reduces workload and saves time in academic tasks. However, a portion of students reported hesitation due to lack of training and limited exposure to AI systems. The study also identified gaps in institutional infrastructure and technological readiness. Students emphasized the need for clear ethical guidelines and transparency in AI usage. Overall, findings show that students are optimistic about AI, but successful adoption depends on awareness, acceptance, and ethical safeguards.

XII. CONCLUSION

The study concludes that AI adoption in higher education institutions in Telangana is steadily increasing and is positively perceived by students. Students show a good level of awareness about AI tools, which strongly influences their attitude toward its usage in academic processes. The findings indicate that AI enhances learning experiences, improves efficiency, and supports better decision-making within institutions. Workforce analytics and recruitment efficiency emerged as key contributors to AI adoption, reflecting the growing importance of data-driven strategies in education. Although students acknowledge the benefits, concerns regarding ethical risks such as privacy, data security, and fairness remain significant. Employee acceptance also plays an essential role, suggesting that faculties' adaptability is crucial for successful implementation.

Some students still face challenges due to limited exposure and insufficient training, indicating the need for more institutional support. The study also highlights gaps in technology infrastructure that may hinder full-scale AI integration. Students emphasized the need for transparent guidelines and responsible use of AI. Overall, the study confirms that AI adoption is moving in a positive direction, but must be accompanied by ethical safeguards, training initiatives, and organizational readiness. Strengthening awareness, improving digital skills, and developing clear policies will help institutions achieve effective and sustainable AI integration in the future.

XIII. FUTURE SCOPE

- Future studies can include a larger and more diverse sample across multiple states to better understand student perceptions of AI in higher education.
- Researchers can explore additional factors such as digital readiness, faculty training, and institutional policies to build a more comprehensive model of AI adoption.
- Mixed-method studies involving interviews and focus groups can provide deeper insights into ethical concerns, user experience, and practical challenges.
- Longitudinal studies can be conducted to track how AI adoption evolves over time and how student attitudes change with increased exposure and technological advancements.

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