

AI Awareness in Student Pursuing Higher Studies in Nimar Region of MP

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Abstract

The evolution of Artificial Intelligence (AI) has accelerated rapidly over the past decade, moving from experimental applications to the widespread adoption of generative AI technologies. India has emerged as the world's second-largest AI user market (Wiggers, 2026), with recent estimates reporting more than 100 million weekly ChatGPT users. Despite this growth, overall AI penetration across the Indian population remains limited, indicating substantial scope for expansion. Adoption trends in Tier-2 cities further suggest that AI usage is gradually extending beyond metropolitan centers. The growing integration of AI into business, education, and public systems has the potential to enhance productivity, stimulate innovation, and strengthen India's broader economic ecosystem.

Against this backdrop, the present exploratory study examines AI adoption and early usage patterns among higher education students in the Nimar region of Madhya Pradesh. The study is based on a survey of 100 students drawn from various higher educational institutions across the region. The Nimar region comprises several predominantly agrarian districts, where a significant proportion of the workforce is engaged in agriculture and allied economic activities.

Key Words: Artificial Intelligence, AI Competency, Nimar, Students Pursuing Higher Studies

1. Introduction

Artificial Intelligence (AI) models enable real-time responses to user queries and assist in solving complex problems across multiple domains. However, the accuracy and reliability of AI-generated outputs may vary depending on the quality of training data, model architecture, and the manner in which user prompts are framed. While these systems significantly reduce the effort and time required to access information and generate solutions, concerns regarding factual accuracy, bias, and reliability continue to persist.

Despite these limitations, the adoption of AI technologies has expanded rapidly across the world, with India emerging as a significant growth market for generative AI usage. Recognizing the transformative potential of AI, governments and educational institutions in India have introduced policies and initiatives aimed at promoting AI awareness, digital skills, and workforce readiness. These initiatives seek to improve productivity, enhance innovation, and generate long-term economic benefits through wider technological adoption.

Several studies and industry reports suggest that AI technologies are expected to contribute trillions of dollars to global economic output in the coming decades. Countries and institutions that successfully integrate AI across education, governance, and economic systems are likely to derive significant productivity and innovation advantages. In this context, developing AI awareness and digital competencies among youth and the broader workforce has become an important policy and societal objective.

Higher education students represent an important demographic for examining AI adoption due to their increasing dependence on digital technologies for learning, research, and information access. However, limited empirical evidence exists regarding AI adoption patterns among students in semi-urban and agrarian regions of India. The present study seeks to address this gap through an exploratory survey conducted among higher education students in the Nimar region of Madhya Pradesh.

The Nimar region, situated in the southwestern part of the Indian state of Madhya Pradesh, comprises predominantly agrarian districts including Khargone, Khandwa, Barwani, and Burhanpur. The socio-economic profile of the region is characterized by dependence on agriculture, semi-urban settlement patterns, and evolving access to digital infrastructure and higher education. These characteristics make the region a relevant setting for studying emerging trends in AI adoption and usage among higher education students.

The principal focus of the present study is the usage of Generative Artificial Intelligence (Generative AI). Generative AI refers to a subset of artificial intelligence that employs machine learning and deep learning models to generate new content, including text, images, audio, and code, based on patterns learned from training data (Cornell University Center for Teaching Innovation, n.d.)

2. Review of Literature

2.1 Growth of Generative AI

The adoption of Generative Artificial Intelligence (Generative AI) has expanded rapidly across the world in recent years. Several industry reports indicate increasing levels of AI integration across individuals, businesses, and public institutions. According to reports published by Microsoft and other industry researchers, countries such as the United Arab Emirates have reported exceptionally high levels of AI adoption among their population (Microsoft, 2026; Tilawat, 2026). Similar trends are being observed across multiple countries and regional economic blocs, reflecting the accelerating global diffusion of AI technologies.

The growing commercial relevance of Generative AI has also increased demand for AI-related skills across industries. Organizations are increasingly utilizing AI systems for content generation, data analysis, automation, and decision support. In particular, multimodal AI applications and cross-model integration, which combine different forms of data such as text, images, audio, and structured information, are gaining importance in commercial and enterprise environments (Stanford Institute for Human-Centered Artificial Intelligence, 2025).

In addition to consumer adoption, Generative AI usage among large enterprises has also increased significantly, particularly in sectors requiring advanced compliance, cybersecurity, and data governance mechanisms. Surveys conducted among Chief Information Officers (CIOs) and technology leaders indicate that organizations are at varying stages of integrating AI technologies into operational workflows and long-term business growth strategies (Microsoft, 2026; International Monetary Fund, 2024).

India has also emerged as one of the fastest-growing markets for Generative AI adoption. Reports published by OpenAI, Zinnov, and independent technology publications indicate rapid growth in AI usage across the country, including among students, professionals, and enterprises (OpenAI, 2026; Wiggers, 2026; Zinnov & OpenAI, 2026). This expanding adoption landscape highlights the growing importance of understanding AI awareness and usage patterns among higher education students in emerging and semi-urban regions of India.

2.2 AI in Higher Education

Artificial Intelligence-focused departments, programs, and specialized courses have increasingly been introduced across Indian universities and higher educational institutions. These academic offerings include degree, diploma, and certification programs enabled through evolving regulatory and institutional frameworks. The expansion of such programs reflects the growing recognition of AI as a strategically important technological domain (NITI Aayog, 2018).

However, the integration of AI awareness and practical AI usage across non-technical and interdisciplinary academic streams remains comparatively limited. Existing educational efforts are largely concentrated within engineering, computer science, and technology-oriented disciplines, while broader student populations across other fields of study have received relatively less structured exposure to AI technologies (Stanford Institute for Human-Centered Artificial Intelligence, 2025).

Furthermore, limited large-scale empirical research is currently available regarding AI awareness, adoption patterns, and practical utilization among students outside specialized technical domains, particularly in semi-urban and agrarian regions of India. In the absence of broader AI literacy and institutional enablement across diverse educational streams, disparities in AI readiness and digital competencies may emerge among sections of the student population (International Monetary Fund, 2024).

Higher education students increasingly depend on digital technologies for learning, research, information access, and academic productivity. As Generative AI tools become more accessible, understanding student adoption patterns, awareness levels, and practical usage behavior has become important for educational institutions and policymakers.

These gaps highlight the importance of examining AI adoption patterns among higher education students across varied socio-economic and regional contexts.

2.3 Challenges and Risks

Despite the rapid growth of Generative Artificial Intelligence (Generative AI), several concerns have emerged regarding the reliability, ethical implications, and governance of these technologies. AI systems are capable of generating inaccurate, misleading, or fabricated information, commonly referred to as “hallucinations,” due to limitations in training data, probabilistic prediction mechanisms, and contextual interpretation (Stanford Institute for Human-Centered Artificial Intelligence, 2025). Consequently, the accuracy and reliability of AI-generated outputs continue to remain important concerns across educational, professional, and institutional settings.

In addition to concerns regarding erroneous outputs, researchers and technology organizations have highlighted risks associated with adversarial behavior, cybersecurity vulnerabilities, privacy breaches, and unintended system actions in advanced AI environments. The increasing integration of AI systems into enterprise and educational workflows has therefore intensified discussions surrounding responsible AI governance, transparency, accountability, and human oversight (International Monetary Fund, 2024).

The growing accessibility of Generative AI tools has also created significant challenges within higher education. The ease with which AI systems can generate assignments, summaries, and written responses has increased concerns related to plagiarism, academic integrity, overdependence on automated systems, and misuse of AI-generated content. Educational institutions are increasingly examining mechanisms for ethical AI usage, responsible disclosure, and academic policy adaptation in response to these emerging challenges (Cornell University Center for Teaching Innovation, n.d.).

2.4 AI adoption in India

The Government of India and various educational and institutional stakeholders recognized the strategic importance of Artificial Intelligence (AI) at an early stage and introduced policy initiatives aimed at strengthening AI adoption, research, and digital capability development. Policy frameworks such as the National Strategy for Artificial Intelligence (AIForAll) emphasized the role of AI in economic growth, workforce development, governance, healthcare, agriculture, and education (NITI Aayog, 2018).

In recent years, India has also increased investments in AI research, indigenous model development, and innovation ecosystems. Public and private sector initiatives supporting India-specific AI models and multilingual AI systems have expanded significantly, reflecting efforts toward technological self-reliance and localized AI capability development. Reports published by OpenAI, Microsoft, and Zinnov indicate that India has emerged as one of the fastest-growing markets for AI adoption globally (Microsoft, 2026; OpenAI, 2026; Zinnov & OpenAI, 2026).

The rapid growth of AI technologies has also accelerated organizational transformation across India's technology and financial sectors. Large Indian enterprises have increasingly adopted AI-enabled systems for automation, analytics, customer interaction, workflow optimization, and decision support. Financial institutions such as Bajaj Finance have publicly highlighted the growing role of AI-driven systems in customer service, lending workflows, analytics, and operational efficiency, reflecting the broader integration of AI technologies within India's commercial ecosystem. Technology companies and enterprises are simultaneously investing in workforce upskilling and AI capability development to adapt to changing technological requirements and competitive pressures (International Monetary Fund, 2024).

Despite this progress, several challenges continue to affect large-scale AI adoption in India. Educational institutions, enterprises, and regional ecosystems often face constraints related to infrastructure investment, availability of skilled professionals, digital readiness, and institutional capacity for managing advanced AI technologies. These disparities may become more visible in semi-urban and agrarian regions where access to advanced digital infrastructure and specialized training opportunities remains comparatively limited.

2.5 Research Gap

Existing research on AI adoption and its associated challenges remains largely concentrated on metropolitan institutions and technologically advanced regions. Comparatively limited empirical research has examined AI adoption patterns among students in semi-urban and agrarian regions such as the Nimar region of Madhya Pradesh. As India continues to expand its digital and AI-driven economic ecosystem, broader inclusion of students and communities from emerging regional and agrarian centers will become increasingly important for equitable technological participation and workforce readiness. The present exploratory study represents an initial effort toward understanding AI awareness, adoption patterns, and usage behavior among higher education students in such regional contexts.

3. Research Methodology

3.1 Research Objective

The primary objective of the present study is to conduct an exploratory analysis of Generative Artificial Intelligence (Generative AI) adoption among higher education students in the Nimar region of Madhya Pradesh.

3.2 Research Methodology

The present study adopts an exploratory and descriptive research design to examine awareness, adoption patterns, and usage behavior related to Generative Artificial Intelligence (Generative AI) among higher education students, including undergraduate (UG), postgraduate (PG), and doctoral (PhD) students in the Nimar region of Madhya Pradesh.

3.2.1 Sampling Design

Primary data for the study was collected through a structured questionnaire administered among 100 students drawn from multiple higher educational institutions across the region. The study utilized a non-probability convenience sampling approach due to accessibility considerations and the exploratory nature of the research.

The questionnaire consisted of demographic variables, Likert-scale items, and multiple-response questions designed to examine AI awareness, adoption behavior, usage patterns, and perceived challenges associated with Generative AI tools

3.2.2 Statistical Tools and Testing

Descriptive statistical techniques including frequency distribution, percentage analysis, tabulation, and preliminary inferential interpretation were utilized for data analysis

3.2.3 Data Analysis and Interpretation

Responses collected through the survey were analyzed using statistical techniques, inference and results have been tabulated for easy understanding.

1. Demographic Distribution

Gender Distribution

Gender	Frequency
Female	77
Male	20

Residence Distribution

Residence Type	Frequency
Rural	51
Urban	46

Majority respondents are females while rural & Urban distribution is evenly matched.

2. Age-wise Distribution of Respondents

Age Group	Frequency	Percentage
16–20 Years	58	59.79
21–25 Years	28	28.87
26–30 Years	5	5.15
31–40 Years	4	4.12
Above 40 Years	2	2.06

The age distribution indicates that the majority of respondents belonged to the younger higher education demographic, reflecting the concentration of AI adoption among digitally active student populations.

3. AI Tools Usage

The following table presents the most frequently used Generative AI tools reported by higher education students surveyed in the Nimar region of Madhya Pradesh.

Rank	AI Platform	Frequency
1	ChatGPT	54
2	ChatGPTClaude / Perplexity / Gemini	17
3	ChatGPTClaude / Perplexity / GeminiCopilot / CodeWhisperer / Gemini CodeDeepSeek / DeepSeek-CoderGrammarly / DeepL / AI-based translation tools / AI DALL·E / Midjourney / Image Generation Tools /	5
4	Claude / Perplexity / Gemini	3
5	ChatGPTClaude / Perplexity / GeminiGrammarly / DeepL / AI-based translation tools / AI	3
6	ChatGPTClaude / Perplexity / GeminiCopilot / CodeWhisperer / Gemini CodeDeepSeek / DeepSeek-CoderGrammarly / DeepL / AI-based translation tools / AI	3
7	ChatGPTClaude / Perplexity / Gemini/ Copilot / CodeWhisperer / Gemini Code	2
8	Google	1

- ChatGPT emerged as the dominant Generative AI platform among respondents.
- Google Gemini and Microsoft Copilot also demonstrated measurable adoption among students.
- The findings indicate that students primarily rely on globally accessible AI platforms for academic and informational purposes.

4. Sources Through Which Students Learned AI Tools

The following table presents the primary sources through which respondents reported learning and developing familiarity with Generative AI tools.

Learning Source	Frequency
Self-taught	52
Online tutorials or social media	11
Self-taught + Online tutorials or social media	6
University course / workshop	6
From peers or friends	6
Self-taught + University course/workshop + Peers/friends + Online tutorials/social media	4
Self-taught + Peers/friends + Online tutorials/social media	4
Self-taught + Peers/friends	3
Self-taught + Peers/friends + Online tutorials/social media + Workplace exposure	1
University course/workshop + Peers/friends + Online tutorials/social media	1

Peers/friends + Online tutorials/social media	1
University course/workshop + Online tutorials/social media	1
Self-taught (single additional response)	1

The findings indicate that self-learning emerged as the dominant mode through which students acquired familiarity with AI tools. Online tutorials, social media platforms, peer learning, and institutional exposure through university workshops also contributed to AI literacy development among respondents.

The data further suggests that students frequently relied on multiple learning channels simultaneously, reflecting an informal and blended approach toward acquiring Generative AI skills. The distribution further suggests growing exposure to multiple AI ecosystems among higher education students in semi-urban educational settings

3.2.4 Limitations of the Study

The study is limited by its exploratory nature, relatively small sample size, and regional concentration within the Nimar region of Madhya Pradesh. Consequently, the findings may not be fully generalizable across broader student populations in India.

4. Key Findings

- The study analyzed responses from 97 higher education students from the Nimar region of Madhya Pradesh.
- The average awareness score regarding the functioning of Generative AI was 2.57 on a 5-point scale, indicating moderate to high awareness among respondents.
- The average score for academic usage of AI tools was 3.18, suggesting frequent use of AI tools for educational purposes.
- Respondents also reported encountering misinformation or inaccurate AI-generated outputs, with an average score of 2.24.
- Students reported using AI tools for idea generation, content writing, summarization, problem solving, and academic assistance.
- The findings suggest that AI adoption is no longer limited to metropolitan regions and is increasingly visible among students in semi-urban and agrarian educational ecosystems.

Observational Inferences

- AI awareness among students in the Nimar region appears to be significantly influenced by self-learning, peer learning, and digital platforms such as social media and online tutorials.
- Generative AI tools such as ChatGPT were among the most commonly used platforms reported by respondents.
- Students demonstrated practical awareness regarding the benefits as well as risks associated with AI usage, including misinformation and plagiarism concerns.

The responses indicate growing integration of AI tools into academic workflows even in non-metropolitan educational settings

5. Conclusion

The findings of the present exploratory study indicate that Generative AI adoption is increasingly visible among higher education students in semi-urban and agrarian educational ecosystems of Nimar region of Madhya-Pradesh. The study highlights the growing importance of AI literacy, digital readiness, and institutional support mechanisms in enabling equitable technological participation across emerging regional centers in India.

6. Future scope of study

Future research may expand the sample size, incorporate comparative regional analysis, and utilize advanced statistical techniques to further examine evolving AI adoption behavior among students.

7. Societal benefit of study

The findings of this study will guide the academic institutions and other Organization to take right steps to enhance the awareness of students about AI and adoption of AI based technology among new generations.

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