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Generative AI in Higher Education:

Adoption, Non-Adoption and Student Perspectives Across India's North Eastern States

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Generative AI in Higher Education

Adoption, Non-Adoption and Student Perspectives Across India's North Eastern States

Prepared by

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We also acknowledge the support extended by the participating higher education institutions, faculty members and local coordinators who facilitated the successful implementation of the study across the region. Their cooperation was instrumental in ensuring broad participation and meaningful engagement throughout the research process.

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It is our hope that the findings and recommendations presented in this report contribute to informed policy dialogue and support universities, policymakers, educators and technology providers in fostering the responsible, ethical and inclusive integration of Generative Artificial Intelligence within India's higher education ecosystem. By strengthening AI literacy, promoting responsible innovation and ensuring equitable access to emerging technologies, we believe higher education can play a pivotal role in preparing students for the opportunities and challenges of an AI-driven future.

Executive Summary

Generative Artificial Intelligence (GenAI) is rapidly reshaping higher education by transforming how students learn, access information, solve problems and develop academic skills. Tools such as ChatGPT, Google Gemini, Microsoft Copilot and Claude have become increasingly integrated into students' academic journeys, enabling more personalised, efficient and interactive learning experiences. However, despite the rapid growth of these technologies, adoption among students remains uneven. While many learners actively incorporate GenAI into their studies, others remain hesitant due to ethical concerns, institutional restrictions, limited awareness, digital literacy gaps and infrastructural constraints. Understanding both adoption and non-adoption behaviours has therefore become critical for designing policies that promote responsible and inclusive AI integration within higher education.

Against this backdrop, this study presents one of the first comprehensive qualitative assessments of undergraduate students' perceptions of Generative AI across all eight North Eastern States of India—Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The study engaged 800 undergraduate students through semi-structured in-depth interviews, comprising an equal representation of GenAI users and non-users. By comparing the experiences of both groups, the research moves beyond understanding patterns of technology adoption and explores the behavioural, institutional and contextual factors that influence students' decisions to embrace or avoid Generative AI in higher education.

The findings reveal that students who actively use GenAI primarily perceive it as an academic support tool that enhances conceptual understanding, improves productivity, strengthens academic writing, facilitates personalised learning and develops digital competencies relevant to future careers. Students also highlighted

its ability to support technical problem-solving, reduce language barriers, encourage independent learning and provide a competitive advantage in an increasingly digital educational environment. Collectively, these findings indicate that students increasingly view GenAI not as a substitute for education but as a complementary learning companion capable of enhancing both academic performance and lifelong learning.

Conversely, the study identifies several factors contributing to non-adoption. Concerns surrounding academic integrity emerged as one of the most significant barriers, accompanied by uncertainty regarding appropriate AI use within educational settings. Limited awareness of the broader educational applications of GenAI, institutional discouragement, inadequate digital literacy, language challenges, infrastructure limitations and privacy concerns further constrained adoption. Many students also questioned the relevance of GenAI within examination systems that continue to emphasise memorisation and traditional assessment practices. These findings demonstrate that non-adoption is influenced by a combination of behavioural, institutional and structural factors rather than resistance to technology alone.

To provide a deeper conceptual understanding of these behavioural patterns, the study develops a Behavioural Reasoning Theory (BRT) framework for GenAI adoption in higher education. The framework illustrates that students' adoption decisions are shaped by the interaction of positive motivations—including learning support, productivity and skill development—and perceived barriers such as ethical concerns, institutional norms, digital readiness and infrastructure. By examining both "reasons for" and "reasons against" adoption, the framework offers a more comprehensive explanation of student behaviour and provides an evidence-based foundation for future research and policy development.

The study highlights that successful integration of Generative AI requires more than simply providing access to technology. Responsible adoption depends upon institutional preparedness, AI literacy, faculty readiness, ethical governance and equitable digital infrastructure. Accordingly, the report recommends the development of a national framework for responsible AI use in higher education, the formulation of institutional AI policies and comprehensive faculty capacity-building programmes. A central recommendation emerging from the research is the introduction of a mandatory undergraduate course on "Artificial Intelligence (AI) Literacy and Responsible Use of AI." Such a course would equip students with practical competencies in prompt engineering, ethical AI use, academic integrity, fact verification, privacy, cybersecurity, AI bias and responsible human-AI collaboration, ensuring that graduates are prepared to use AI critically, responsibly and professionally.

The report also proposes a phased roadmap for responsible AI integration within higher education. The roadmap begins with awareness creation and policy development, followed by capacity building through AI literacy programmes and faculty training. It subsequently recommends embedding AI across curricula, redesigning assessments to emphasise higher-order cognitive skills and establishing continuous governance mechanisms to ensure responsible, adaptive and sustainable AI adoption. This phased approach provides a practical pathway for higher education institutions seeking to integrate Generative AI while preserving academic integrity and educational quality.

As India accelerates its transition towards an AI-driven knowledge economy, the future of higher education will depend not on whether students use Generative AI, but on how effectively institutions enable them to use it responsibly. By strengthening AI literacy, promoting ethical governance, modernising curricula and

ensuring equitable access, higher education institutions can harness the transformative potential of Generative AI while safeguarding the core values of education. The findings of this study offer an evidence-based foundation for policymakers, universities and technology providers to develop learner-centred strategies that ensure Generative AI contributes to more inclusive, innovative and future-ready higher education across the North Eastern States and beyond.

1. Introduction

The emergence of Generative Artificial Intelligence (GenAI) marks one of the most significant technological transformations in higher education since the advent of the internet. Unlike previous digital technologies, GenAI enables students to interact with intelligent systems capable of generating text, code, images, data analyses and research summaries in real time. Tools such as ChatGPT, Gemini, Claude and Microsoft Copilot have fundamentally altered how students search for information, solve problems, prepare assignments, learn programming, develop presentations and engage with academic content. As these technologies become increasingly accessible through smartphones and laptops, higher education institutions across the world are witnessing a rapid shift from traditional information retrieval towards AI-assisted learning.

The pace of adoption has been unprecedented. The Organisation for Economic Co-operation and Development (OECD) notes that Generative AI is reshaping education at a speed rarely witnessed with previous educational technologies because many of these tools are freely available, intuitive to use and largely adopted outside formal institutional control[1]. The challenge for universities is therefore no longer whether students will use GenAI, but rather how its use can be guided responsibly to improve learning outcomes while preserving academic integrity.

Recognising this transformation, UNESCO has identified Artificial Intelligence (AI) as a strategic priority for achieving inclusive, equitable and high-quality education. Its global guidance emphasises that AI should complement, not replace, human learning, while encouraging governments and educational institutions to establish ethical frameworks, build AI literacy and

[1] https://www.oecd.org/en/publications/oecd-digital-education-outlook-2026_062a7394-en.html

ensure that learners develop the critical thinking skills necessary for responsible use of these technologies[2].

India has emerged as one of the world's fastest-growing digital economies and is uniquely positioned to benefit from AI-enabled education. Rapid expansion of internet connectivity, affordable smartphones, Digital India initiatives and the National Education Policy (NEP) 2020 have accelerated the digital transformation of higher education. More recently, institutions have begun integrating AI into teaching, learning and administrative processes. According to the FICCI-EY AI Adoption Survey 2025, approximately 57% of Indian higher education institutions have already established an AI policy, while many others are actively developing institutional frameworks for responsible AI adoption[3]. The report further notes that the national conversation has shifted from whether AI should be adopted to how it can be implemented strategically, ethically and inclusively.

At the same time, the rapid expansion of GenAI has generated an important paradox. While many students increasingly rely on AI to enhance productivity, improve writing, simplify complex concepts and support research, a significant proportion remain reluctant to adopt these technologies. Their hesitation may arise from concerns over academic honesty, reliability of AI-generated information, privacy, lack of digital skills, institutional restrictions or uncertainty regarding the educational value of AI-assisted learning. Consequently, higher education is witnessing the coexistence of two distinct student populations, those who actively integrate GenAI into their academic journey and those who deliberately choose not to use it.

[2] https://www.unesco.org/en/digital-education/artificial-intelligence
[3] https://www.ey.com/en_in/insights/education/harnessing-ai-in-higher-education-opportunities-and-the-road-ahead

Understanding this divergence has become increasingly important for policymakers and educational institutions. Existing studies predominantly examine patterns of AI adoption among users, with comparatively limited attention given to students who intentionally avoid GenAI. As a result, there remains insufficient evidence regarding the motivations, perceptions and barriers that shape non-adoption, particularly within diverse socio-economic and geographical contexts. This evidence gap is especially pronounced in India's North Eastern Region, where higher education institutions operate across varied cultural, linguistic, infrastructural and digital environments.

The North Eastern States represent one of India's most strategically important yet under-researched educational landscapes. Comprising Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura, the region is characterised by rich cultural diversity, varying levels of digital infrastructure and rapidly expanding higher education ecosystems. While internet penetration and smartphone access have improved considerably in recent years, differences in connectivity, institutional capacity, digital literacy and socio-economic conditions may influence how undergraduate students perceive and utilise emerging AI technologies. Despite growing national attention towards AI adoption, empirical evidence from this region remains extremely limited.

Against this backdrop, the present study seeks to provide one of the first comprehensive comparative assessments of GenAI adoption among undergraduate students across all eight North Eastern States of India. Drawing upon a mixed-method research design, the study compares students who actively use GenAI for educational purposes with those who do not, enabling a deeper understanding of both adoption and non-adoption behaviours.

Ultimately, the findings aim to inform universities, policymakers, technology developers and other stakeholders on how Generative AI can be integrated into higher education in a manner that is responsible, equitable and pedagogically meaningful. As India advances towards becoming an AI-driven knowledge economy, understanding how students engage with, or choose not to engage with GenAI will be critical in designing policies and educational strategies that ensure no learner is left behind in the next phase of digital transformation.

2. Approach and Methodology

This study adopted a qualitative research design to gain an in-depth understanding of undergraduate students' perceptions, experiences and attitudes towards the use of GenAI in higher education across the eight North Eastern States of India. The qualitative approach was chosen to move beyond measuring the prevalence of GenAI use and instead explore the underlying motivations, behavioural patterns and contextual factors that influence students' decisions to either adopt or refrain from using GenAI for educational purposes.

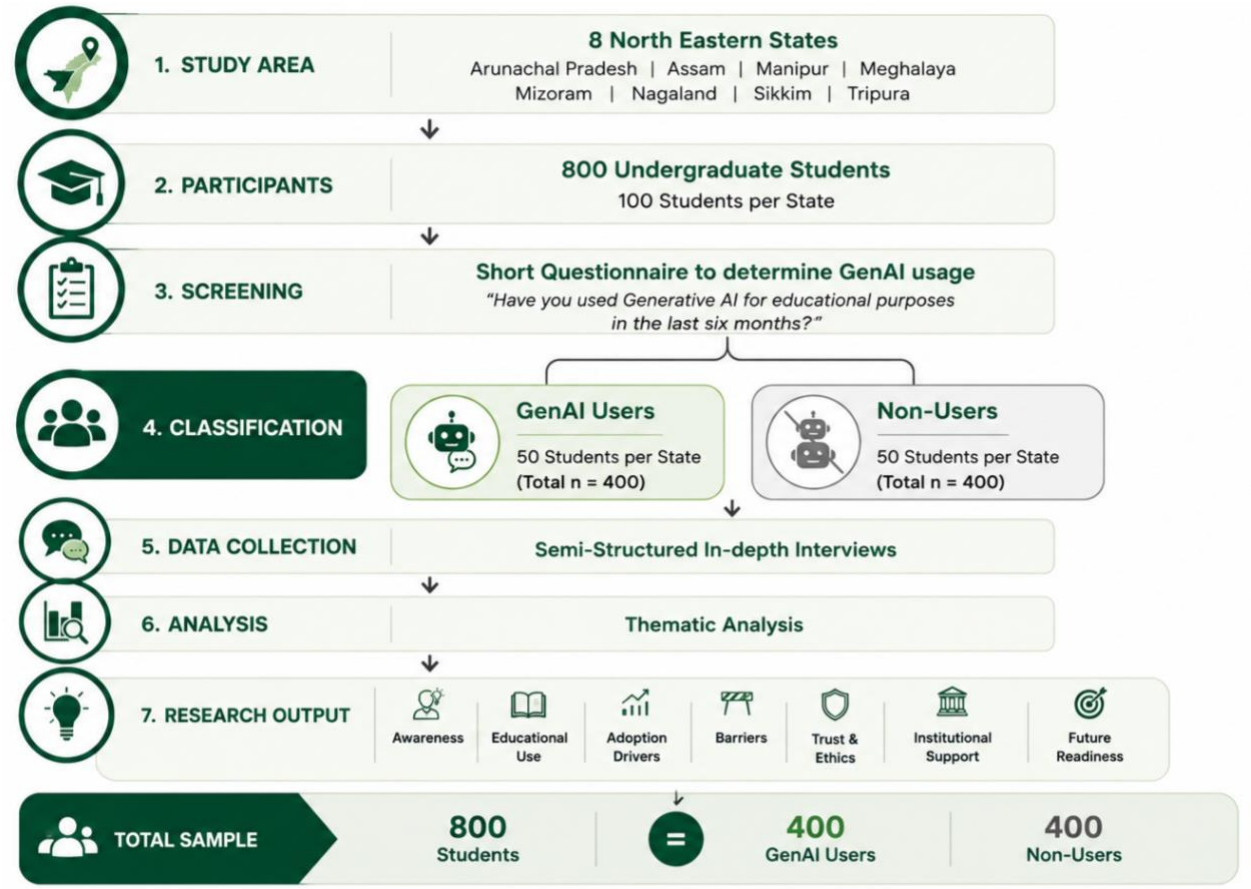
The study covered all eight North Eastern States of India—Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. A total of 800 undergraduate students participated in the study, with 100 students interviewed from each state.

A purposive sampling strategy was employed to ensure balanced representation of both students who actively use GenAI for academic purposes and those who do not. Prior to the interviews, all potential participants were administered a brief screening questionnaire to determine their GenAI usage status. Students were asked whether they had used any Generative AI tools such as ChatGPT, Google Gemini, Microsoft Copilot, Claude or similar platforms for educational purposes, including assignments, presentations, concept clarification, coding, research, note preparation or examination preparation, during the preceding six months.

Based on the screening responses, participants were classified into two categories: GenAI Users, comprising students who reported using one or more GenAI tools for academic purposes, and Non-Users, comprising students who reported never using GenAI for their educational activities. To facilitate meaningful comparative analysis, 50 GenAI Users and 50 Non-Users were purposively selected from each

state, resulting in a balanced sample of 400 users and 400 non-users across the region.

Figure 1: Approach and Methodology



Source: Generated by the Authors

Data were collected through semi-structured, in-depth interviews conducted by trained researchers using a common interview guide to ensure consistency across all eight states while allowing participants the flexibility to elaborate on their experiences and perspectives. The interviews explored a range of themes, including awareness and understanding of Generative AI, patterns of educational use, perceived benefits, reasons for adoption, barriers to use, concerns relating to

academic integrity and reliability, institutional support, ethical considerations and students' expectations regarding the future role of AI in higher education.

The interview data were subsequently analysed using thematic analysis, wherein responses were systematically coded and organised into recurring themes and sub-themes. This approach enabled the identification of common patterns, emerging insights and differences in perceptions between GenAI Users and Non-Users, while also capturing contextual variations across the eight North Eastern States.

By adopting a comparative qualitative approach, the study provides a nuanced understanding of both the opportunities and challenges associated with the integration of Generative AI in higher education. The findings offer evidence-based insights to support universities, policymakers and technology providers in designing strategies for the responsible, inclusive and effective adoption of Generative AI within higher education institutions across North East India.

3. Reasons for GenAI Adoption Among Undergraduate Students

The qualitative findings indicate that undergraduate students perceive GenAI not merely as a technological tool but as an academic companion that enhances learning, improves productivity and supports skill development. Students who actively use GenAI consistently highlighted its ability to simplify learning, reduce academic workload and enable more independent and personalised educational experiences. While the motivations varied across disciplines and institutions, ten broad themes emerged as the primary drivers of adoption.

3.1 Enhancing Academic Learning and Conceptual Understanding

The most frequently cited motivation for adopting GenAI was its ability to simplify complex academic concepts and provide immediate academic support. Students described GenAI as an accessible learning assistant capable of explaining difficult topics in a structured and easy-to-understand manner. Rather than relying solely on textbooks or classroom instruction, many students use AI-powered platforms to clarify doubts, obtain alternative explanations and reinforce their understanding of subjects before examinations. This accessibility contributed significantly to positive attitudes towards integrating GenAI into their learning processes.

3.2 Improving Efficiency and Academic Productivity

Students consistently emphasised the substantial time-saving benefits associated with GenAI. They reported using AI tools to obtain quick explanations, generate summaries, structure assignments and accelerate information gathering during research activities. By reducing the time required for routine academic tasks, GenAI allowed students to allocate greater attention to understanding concepts, preparing for examinations and engaging in higher-value learning activities. The perceived efficiency gains emerged as one of the strongest drivers encouraging continued use.

3.3 Supporting Academic Writing and Communication

Another important motivation centred on the improvement of academic writing skills. Students viewed GenAI as a valuable resource for refining grammar, enhancing vocabulary, improving sentence construction and organising written content more effectively. Several participants indicated that AI-assisted writing enabled them to prepare assignments, reports and presentations with greater confidence and professionalism while simultaneously improving their own communication abilities through continuous exposure to well-structured content.

3.4 Building Digital Competencies for the Future

Beyond immediate academic benefits, students recognised Generative AI as an emerging technology that is increasingly becoming relevant in higher education and future workplaces. Many participants perceived early adoption as an opportunity to enhance digital literacy, familiarise themselves with AI-driven technologies and prepare for careers where AI-enabled tools are expected to become commonplace. This future-oriented perspective positioned GenAI not only as a learning aid but also as a means of developing competencies required in an evolving digital economy.

3.5 Enabling Personalised and Self-Directed Learning

Students appreciated the flexibility offered by GenAI in supporting personalised learning experiences. Unlike conventional classroom settings, AI platforms allowed learners to ask unlimited questions, revisit concepts repeatedly and progress at their own pace without fear of judgement. This self-directed mode of learning was particularly valued by students who preferred independent study or required additional academic support outside formal classroom hours. The ability to receive instant, customised responses strengthened students' confidence in managing their own learning journeys.

3.6 Encouraging Learning Beyond the Classroom

Participants also highlighted that GenAI encouraged exploration beyond prescribed academic curricula. Students frequently used AI tools to understand emerging topics, explore interdisciplinary subjects and access information extending beyond classroom instruction. This expanded exposure fostered intellectual curiosity and enabled learners to pursue interests that may not have been adequately covered within their academic programmes, thereby promoting lifelong learning habits.

3.7 Facilitating Technical Skills and Problem Solving

Among students pursuing engineering, computer science and other technical disciplines, GenAI was widely regarded as a valuable problem-solving assistant. Participants reported using AI platforms for coding support, debugging programmes, understanding algorithms and solving technical problems. Rather than replacing learning, many students viewed these tools as interactive tutors that accelerated comprehension and improved their practical skills through guided explanations and iterative learning.

3.8 Reducing Language Barriers and Improving Accessibility

Language accessibility emerged as another important factor influencing adoption, particularly in a linguistically diverse region such as North East India. Students indicated that GenAI assisted them in translating academic material, understanding complex English-language resources and expressing ideas more effectively in English. This multilingual capability helped reduce linguistic barriers and improved access to educational content, particularly for students whose primary language differed from the language of instruction.

3.9 Strengthening Confidence in Independent Learning

Several participants described GenAI as a supportive and non-judgemental learning companion that encouraged independent study. The ability to receive immediate feedback, ask repeated questions and experiment with different approaches without hesitation increased students' confidence in learning autonomously. Many respondents believed that GenAI reduced anxiety associated with seeking clarification from peers or instructors while simultaneously fostering greater self-efficacy in academic problem-solving.

3.10 Peer Influence and Perceived Competitive Advantage

Finally, social influence also contributed to GenAI adoption. Students observed that AI tools were becoming increasingly common among their peers, creating both awareness and motivation to adopt similar technologies. Some participants viewed GenAI as providing a competitive academic advantage by improving productivity, enhancing assignment quality and enabling more efficient learning. The growing normalisation of AI use within student communities further reinforced intentions to adopt these technologies as part of everyday academic practice.

4. Reasons for Non-Adoption of GenAI Among Undergraduate Students

While many undergraduate students recognised the potential benefits of GenAI, the qualitative findings also revealed several factors that discourage its adoption. Students who did not use GenAI cited a combination of institutional, technological, behavioural and socio-cultural barriers that collectively influence their decision to avoid AI-enabled learning tools. These findings suggest that non-adoption is not driven by a single factor but rather by the interaction of multiple constraints that shape students' perceptions, confidence and willingness to engage with emerging technologies.

4.1 Concerns Over Academic Integrity and Fear of Misconduct

One of the most prominent reasons for non-adoption was the perception that using Generative AI constitutes academic dishonesty. Many students associated AI-generated content with plagiarism or unfair academic practices and expressed concerns that using such tools could result in disciplinary action from faculty members or educational institutions. The absence of clear institutional guidance regarding acceptable AI use has further reinforced uncertainty, leading many students to avoid GenAI altogether despite recognising its potential educational value.

4.2 Limited Awareness of Responsible AI Use

Several participants acknowledged that they possessed only a limited understanding of how GenAI could be used productively within an academic setting. Many perceived AI primarily as a tool for copying assignments rather than as a resource for concept clarification, research assistance or skill development. This limited

awareness prevented students from appreciating the broader educational applications of GenAI and contributed to negative attitudes towards its adoption.

4.3 Institutional Influence and Faculty Perceptions

The attitudes of teachers and educational institutions emerged as another significant determinant of non-adoption. Students frequently reported that faculty members discouraged the use of AI tools or explicitly advised students against relying on them for academic work. In some institutions, GenAI was viewed as a threat to originality, critical thinking and independent learning. Such institutional norms created an environment where students were reluctant to experiment with AI technologies, even when they believed these tools could support their learning.

4.4 Digital Literacy and AI Readiness

The findings also highlight that limited digital competencies remain a major barrier to GenAI adoption. Several students, particularly those from rural and semi-urban areas, indicated that they lacked sufficient knowledge and confidence to use AI platforms effectively. Many were unfamiliar with prompting techniques, evaluating AI-generated responses or integrating AI outputs into their learning processes. Consequently, low digital literacy reduced students' perceived ability to benefit from Generative AI and weakened their confidence in adopting these technologies.

4.5 Language and Accessibility Challenges

Language emerged as an important barrier, particularly in a region characterised by significant linguistic diversity. Students who were more comfortable studying in regional languages indicated that English-centric AI interfaces often limited their ability to interact effectively with Generative AI tools. Difficulties in interpreting

AI-generated responses or expressing prompts in English reduced accessibility and discouraged continued use, particularly among first-generation learners and students from non-English educational backgrounds.

4.6 Infrastructure and Digital Access Constraints

Structural barriers also influenced adoption decisions. Participants from remote and geographically challenging regions reported that inconsistent internet connectivity, unreliable network infrastructure and limited access to suitable digital devices constrained their ability to use cloud-based AI applications. Even among students interested in exploring GenAI, inadequate digital infrastructure reduced the frequency and reliability of usage, highlighting the importance of addressing broader issues of digital inclusion.

4.7 Preference for Traditional Learning Practices

The study further revealed that many students remain strongly attached to conventional methods of learning. Participants often expressed greater trust in textbooks, classroom instruction, handwritten notes and teacher-led explanations than in AI-generated responses. This preference reflects the continuing influence of examination-oriented educational systems that prioritise memorisation and prescribed curricula over exploratory and technology-assisted learning. For many students, adopting GenAI represented a departure from established study habits rather than a natural extension of their learning process.

4.8 Fear of Overdependence and Declining Critical Thinking

Another recurring concern was the possibility that excessive reliance on AI could diminish independent thinking and creativity. Students feared that frequent use of

GenAI might reduce their ability to solve problems independently, develop original ideas or strengthen analytical reasoning. Rather than viewing AI solely as a learning aid, some participants perceived it as a potential source of dependency that could weaken long-term intellectual development if used without appropriate balance.

4.9 Privacy and Data Security Concerns

Although awareness of AI technologies varied considerably, concerns regarding privacy and data security were evident across multiple institutions. Several students expressed apprehension that AI platforms might collect personal information, retain conversations or misuse uploaded academic content. Even when these concerns were based on incomplete information, they contributed to a heightened perception of risk and discouraged students from engaging with GenAI tools.

4.10 Limited Relevance to Existing Examination Systems

Finally, many participants questioned the practical value of GenAI within the current higher education assessment framework. Since university examinations continue to emphasise memorisation, written recall and textbook-based responses, students often perceived limited alignment between AI-assisted learning and examination success. Consequently, several respondents viewed GenAI as beneficial for general knowledge and exploration but less relevant for achieving higher academic performance within existing evaluation systems.

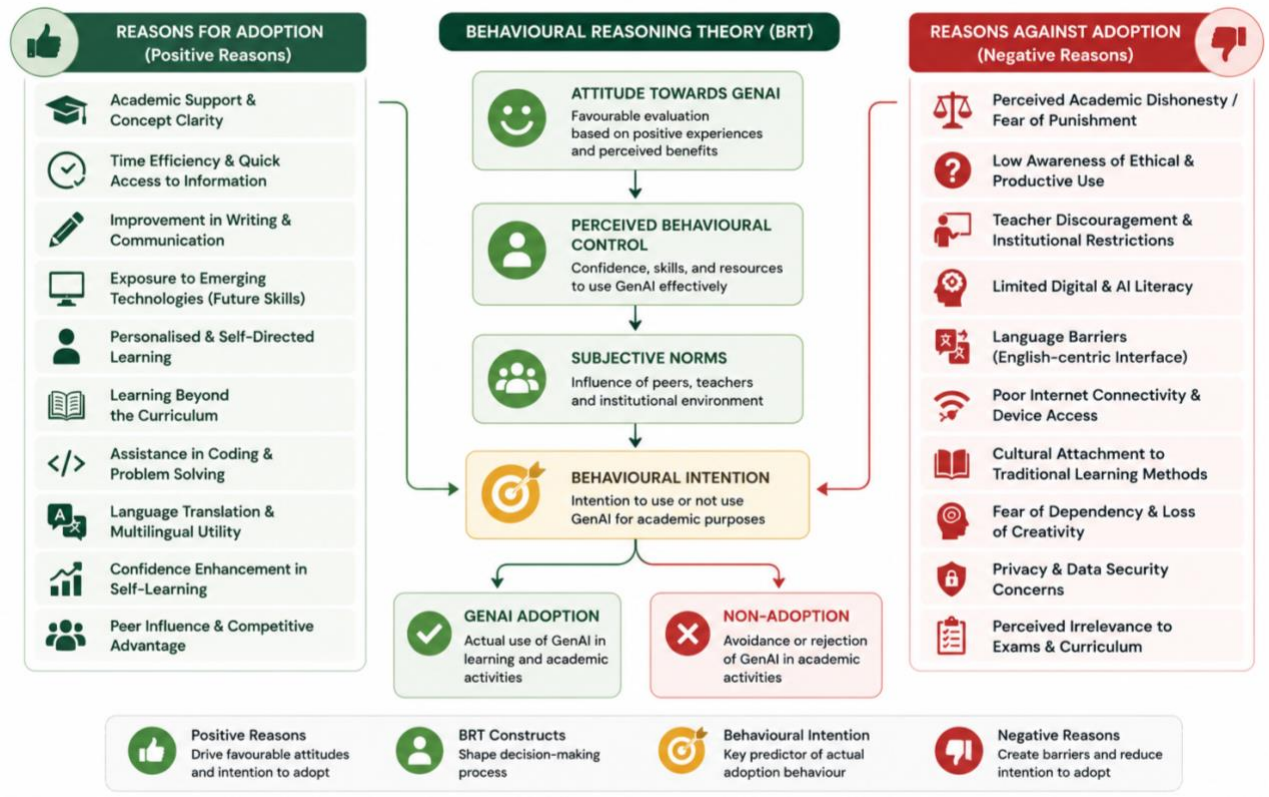
5. Behavioural Reasoning Theory (BRT) Framework for GenAI Adoption

Behavioural Reasoning Theory (BRT), proposed by Westaby (2005)[4], extends traditional behavioural theories by arguing that individuals' decisions are influenced not only by their attitudes, intentions and social influences but also by the underlying "reasons for" and "reasons against" performing a particular behaviour. These reasons provide a deeper understanding of why individuals choose to adopt or reject a behaviour by capturing the motivations, beliefs and contextual factors that shape their decision-making process. Unlike traditional adoption models, BRT explicitly recognises that positive and negative reasons coexist and collectively influence behavioural intentions.

Given that GenAI is an emerging technology in higher education, BRT provides an appropriate theoretical lens for understanding students' adoption behaviour. While some students perceive GenAI as an effective learning tool that enhances academic performance and skill development, others remain hesitant due to concerns relating to academic integrity, institutional norms, digital readiness and ethical considerations. Examining these contrasting perspectives through the BRT framework enables a more comprehensive understanding of the behavioural drivers and barriers influencing GenAI adoption among undergraduate students.

[4] Westaby, J. D. (2005). *Behavioral Reasoning Theory: Identifying New Linkages Underlying Intentions and Behavior.* Organizational Behavior and Human Decision Processes, 98(2), 97–120.

Figure 2: BRT Framework: GenAI Adoption Among Undergraduate Students



Source: Generated by the Authors

As illustrated in figure 2, positive reasons—including academic support, improved productivity, personalised learning and future skill development—contribute to favourable attitudes and strengthen students' intention to use GenAI. Conversely, concerns relating to academic integrity, institutional restrictions, limited digital literacy, infrastructure challenges and privacy risks create resistance and discourage adoption. These positive and negative reasons shape students' attitudes, perceived behavioural control and subjective norms, which ultimately influence their behavioural intention and determine whether they adopt or refrain from using Generative AI for academic purposes.

6. Implications

The findings of this study have important implications for higher education institutions, policymakers, technology developers and the broader educational ecosystem as GenAI becomes increasingly embedded within teaching and learning. Rather than indicating a simple divide between users and non-users, the study demonstrates that students' adoption decisions are shaped by a complex interaction of educational benefits, institutional norms, technological readiness, ethical concerns and contextual barriers. Consequently, the transition towards AI-enabled higher education cannot be driven solely through technological availability; it requires a holistic approach that simultaneously addresses awareness, capability development, governance and equitable access.

One of the most significant implications is the need to shift the discourse surrounding GenAI from one of restriction to one of responsible integration. The findings reveal that many students associate GenAI with academic misconduct primarily because of the absence of clear institutional guidance rather than an inherent intention to misuse the technology. This highlights the importance of developing institutional AI policies that clearly define acceptable academic practices, establish ethical boundaries and provide students and faculty with practical guidance on the responsible use of AI in teaching, learning and assessment.

The study also highlights that digital literacy must evolve beyond conventional computer skills to include AI literacy as a core competency within higher education. Students who adopted GenAI demonstrated greater confidence in independent learning, problem-solving and digital engagement, while non-users frequently cited limited awareness and insufficient technical competence as barriers. This suggests that universities should integrate structured AI literacy programmes into

undergraduate education, enabling students to develop competencies such as effective prompting, critical evaluation of AI-generated outputs, verification of information, responsible data sharing and ethical decision-making. Building these competencies will be essential for preparing graduates for increasingly AI-driven workplaces.

Another important implication concerns the evolving role of educators. The findings indicate that faculty attitudes significantly influence students' willingness to adopt GenAI. In environments where AI is discouraged without adequate discussion, students are more likely to perceive the technology as inappropriate or unethical. Conversely, faculty members who understand the educational value and limitations of GenAI can guide students towards its responsible application while continuing to promote originality, critical thinking and academic integrity. This underscores the need for targeted faculty capacity-building initiatives that equip educators to effectively integrate AI into pedagogical practice.

The findings further suggest that existing assessment systems may require gradual transformation. A considerable proportion of non-users questioned the relevance of GenAI because current examination systems continue to emphasise memorisation and textbook-based responses. As AI tools become increasingly accessible, assessment approaches should progressively place greater emphasis on analytical reasoning, problem-solving, creativity, application of knowledge and critical evaluation—skills that cannot be easily replicated through AI-generated outputs alone. Such reforms would not only preserve academic integrity but also encourage meaningful learning in an AI-enabled educational environment.

The study also reinforces the importance of ensuring equitable AI adoption across geographically diverse regions. Students from remote areas of North East India

identified infrastructure limitations, language barriers and inadequate digital access as significant constraints. These findings suggest that policies promoting AI in higher education should be accompanied by investments in digital infrastructure, improved internet connectivity, multilingual AI interfaces and affordable access to digital devices. Without addressing these structural disparities, the benefits of AI-enabled education may remain unevenly distributed across institutions and student populations.

From a technology development perspective, the findings indicate that AI platforms designed for higher education should be more inclusive and context-sensitive. Students highlighted the need for multilingual capabilities, culturally relevant educational content and interfaces that accommodate varying levels of digital literacy. Technology providers therefore have an opportunity to collaborate with educational institutions to develop AI solutions that are aligned with local curricula, regional languages and diverse learning needs, particularly in underserved regions.

The study also contributes important theoretical insights by demonstrating the applicability of Behavioural Reasoning Theory (BRT) in explaining GenAI adoption within higher education. The findings confirm that students' behavioural intentions are influenced by the coexistence of positive motivations and perceived barriers, reinforcing the proposition that technology adoption is shaped by reasoning processes rather than perceived usefulness alone. This provides a valuable conceptual foundation for future research examining AI adoption in educational settings and other emerging technology contexts.

Finally, the findings suggest that the future of AI in higher education should not be viewed as a choice between human learning and artificial intelligence. Instead, the evidence indicates that students derive the greatest value when GenAI functions as

a complementary learning partner that supports understanding, encourages exploration and enhances independent learning while preserving critical thinking, creativity and academic integrity. Building such an educational ecosystem will require coordinated efforts among governments, universities, educators, technology developers and students to ensure that Generative AI is adopted in a manner that is responsible, inclusive and aligned with the broader objectives of higher education.

7. Recommendations

The findings of this study demonstrate that while undergraduate students increasingly recognise the educational potential of GenAI, its effective integration within higher education requires coordinated action from governments, higher education institutions, regulatory bodies and technology providers. The recommendations presented below are designed to facilitate the responsible, inclusive and educationally meaningful adoption of GenAI across higher education institutions, particularly within the North Eastern States of India.

7.1 Recommendations for Policymakers

7.1.1 Develop a National Framework for Responsible AI in Higher Education

There is an urgent need for a comprehensive policy framework that provides clear guidance on the ethical and responsible use of GenAI within higher education. Such a framework should define acceptable academic use cases, establish principles for academic integrity, outline responsibilities for students and educators, and provide institutional guidance on AI-enabled teaching, assessment and research. A common policy framework would help reduce uncertainty while ensuring consistency across universities and colleges.

7.1 2 Integrate AI Literacy into the Higher Education Curriculum

The study strongly recommends the introduction of a mandatory undergraduate course on "Artificial Intelligence (AI) Literacy and Responsible Use of AI." Rather than focusing solely on the technical aspects of AI, the course should equip students with the knowledge and skills required to use AI responsibly, critically and ethically throughout their academic and professional careers.

The course may include modules on:

- Fundamentals of Artificial Intelligence and Generative AI
- Prompt Engineering and Effective AI Usage
- Responsible and Ethical Use of AI
- Academic Integrity and Plagiarism
- AI Bias, Fairness and Transparency
- Privacy, Cybersecurity and Data Protection
- Fact Verification and Critical Evaluation of AI Outputs
- AI in Research, Innovation and Professional Practice
- Legal and Regulatory Aspects of AI
- Responsible Human-AI Collaboration

Such a course would ensure that students learn how to use AI effectively rather than merely whether they should use it.

7.1.3 Promote Equitable AI Access

Governments should strengthen digital infrastructure across underserved regions by improving internet connectivity, expanding digital learning infrastructure and supporting affordable access to AI-enabled educational resources. Reducing regional disparities will be critical for ensuring equitable adoption across the North Eastern States.

7.2 Recommendations for Universities and Higher Education Institutions

7.2.1 Develop Institutional AI Policies

Universities should formulate institution-specific AI policies that clearly define acceptable and unacceptable uses of GenAI within coursework, examinations, assignments and research. Rather than imposing blanket restrictions, these policies should encourage responsible AI use while preserving academic integrity.

7.2.2 Establish AI Literacy and Capacity Building Programmes

Institutions should organise regular workshops, certificate programmes and orientation sessions to familiarise students with responsible AI practices. These programmes should focus on developing practical competencies rather than merely introducing AI tools.

Key topics should include:

- Writing effective prompts
- Evaluating AI-generated information
- Ethical AI use
- Citation of AI-assisted work
- AI-assisted research methods
- Responsible use of AI for learning

7.2.3 Upskill Faculty Members

Faculty readiness will be central to successful AI integration. Universities should invest in continuous professional development programmes that enable educators to understand AI capabilities, redesign assessments and effectively integrate AI into classroom teaching without compromising academic standards.

7.2.4 Redesign Assessment Systems

Traditional assessment methods that rely predominantly on memorisation should gradually evolve towards application-oriented learning. Institutions should increasingly incorporate:

- Case-based assignments
- Research projects
- Problem-solving exercises
- Oral presentations
- Reflective learning
- AI-assisted assignments with disclosure requirements

Such approaches would encourage students to use AI responsibly while continuing to develop higher-order cognitive skills.

7.3 Recommendations for Faculty Members

Faculty members should transition from viewing AI primarily as a threat to recognising it as a pedagogical tool that can enhance learning when used appropriately.

Educators should:

- Clearly communicate acceptable AI practices.
- Encourage students to critically evaluate AI-generated responses.
- Teach verification rather than blind acceptance.
- Promote originality alongside AI-assisted learning.

- Design assignments that require analytical thinking beyond AI-generated outputs.

Faculty should position themselves as facilitators of responsible AI adoption rather than solely as regulators of AI use.

7.4 Recommendations for Students

Students should view GenAI as a learning companion rather than a replacement for independent thinking.

They should be encouraged to:

- Use AI to understand concepts instead of copying assignments.
- Verify AI-generated information using credible academic sources.
- Acknowledge AI assistance wherever appropriate.
- Protect personal and academic data while using AI platforms.
- Develop prompting and critical thinking skills.
- Balance AI-assisted learning with independent problem-solving.

Responsible AI usage will help students maximise educational benefits while strengthening long-term analytical and professional capabilities.

7.5 Recommendations for Technology Providers

AI developers should collaborate more closely with educational institutions to design solutions that are inclusive, transparent and education-centric.

Priority areas include:

- Improved multilingual support for Indian languages.
- Region-specific educational content.

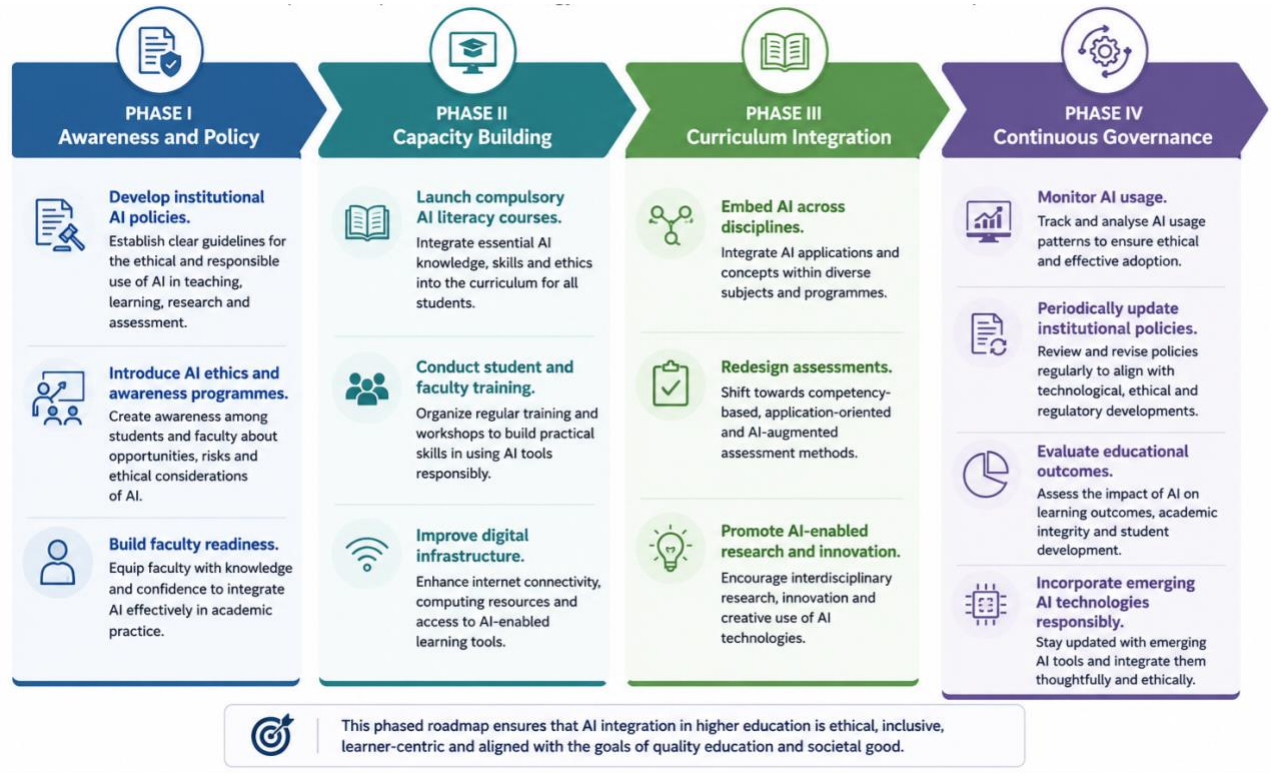
- Student-friendly privacy controls.
- Built-in academic citation support.
- Hallucination warnings and confidence indicators.
- Learning-focused interfaces rather than answer-generation alone.

Such enhancements would make Generative AI more accessible and trustworthy for diverse student populations.

8. A Roadmap for Responsible AI Integration in Higher Education

The findings of this study suggest that the successful integration of GenAI into higher education should be implemented through a phased and strategic approach. Rather than viewing AI adoption as a standalone technological initiative, institutions should embed it within broader educational reforms that strengthen governance, build digital capabilities and promote responsible innovation.

Figure 3: Roadmap for Responsible AI Integration in Higher Education



Source: Generated by the Authors

Phase I: Awareness and Policy Development should focus on establishing a strong institutional foundation for AI adoption. Universities and regulatory bodies should develop clear policies outlining the ethical and responsible use of Generative AI in teaching, learning, research and assessment. At the same time, awareness programmes should be introduced to familiarise both students and faculty with the

opportunities, limitations and ethical implications of AI. Faculty development initiatives should also be prioritised to ensure educators possess the knowledge and confidence required to integrate AI effectively into academic practice.

Phase II: Capacity Building should emphasise developing the skills necessary for responsible AI adoption. Higher education institutions should introduce compulsory AI literacy courses that equip students with practical knowledge of Generative AI, prompt engineering, academic integrity, critical evaluation of AI-generated content, privacy, cybersecurity and ethical AI use. Regular training programmes for both students and faculty should complement these curricular initiatives. Simultaneously, investments in digital infrastructure, including reliable internet connectivity, modern computing facilities and equitable access to AI-enabled learning resources, will be essential to ensure inclusive adoption across institutions.

Phase III: Curriculum Integration should focus on embedding AI meaningfully within the teaching and learning ecosystem. Rather than treating AI literacy as an isolated subject, universities should integrate AI applications across multiple disciplines, enabling students to understand how these technologies can support domain-specific learning and professional practice. Assessment methods should gradually evolve from memory-based evaluation towards problem-solving, analytical reasoning, project-based learning and research-oriented assignments that encourage responsible use of AI while preserving originality and critical thinking. Institutions should also promote AI-enabled research, innovation and interdisciplinary collaboration to prepare students for an increasingly AI-driven economy.

Phase IV: Continuous Governance and Improvement should ensure that AI adoption remains responsible, adaptive and sustainable. Universities should establish

mechanisms to periodically review institutional AI policies, monitor patterns of AI use and evaluate their impact on learning outcomes and academic integrity. As AI technologies continue to evolve rapidly, institutions must regularly update governance frameworks, curriculum content and teaching practices to reflect emerging technological developments, ethical considerations and regulatory requirements. Continuous monitoring and evidence-based policy refinement will be critical for ensuring that AI remains a tool that enhances educational quality while upholding the core values of higher education.

This phased roadmap provides a practical framework for higher education institutions to transition from ad hoc experimentation with Generative AI towards a structured, ethical and learner-centred model of AI integration. By simultaneously strengthening policy, capacity, curriculum and governance, institutions can maximise the educational benefits of Generative AI while mitigating associated risks and preparing students for the demands of an increasingly digital and AI-enabled future.

9. Conclusion

GenAI is rapidly transforming the landscape of higher education, creating new opportunities for personalised learning, enhanced academic productivity and future-ready skill development. However, as this study demonstrates, the adoption of GenAI among undergraduate students is neither uniform nor automatic. Students' decisions to embrace or avoid these technologies are shaped by a complex interplay of perceived educational benefits, ethical considerations, institutional norms, digital literacy, infrastructure and socio-cultural contexts. Understanding both adoption and non-adoption behaviours is therefore essential for developing policies and institutional strategies that support meaningful and equitable AI integration.

Drawing on qualitative insights from undergraduate students across all eight North Eastern States of India, this study provides one of the first comprehensive assessments of student perspectives on Generative AI within the region. The findings highlight that while many students view GenAI as a valuable learning companion that enhances understanding, productivity and independent learning, others remain hesitant due to concerns relating to academic integrity, inadequate awareness, limited digital readiness, institutional restrictions and unequal access to digital resources. These findings reinforce that responsible AI adoption extends beyond technological availability and depends equally on institutional preparedness, policy support, capacity building and the development of AI literacy.

The Behavioural Reasoning Theory (BRT) framework developed in this study further demonstrates that students' adoption decisions are influenced by the coexistence of enabling factors and perceived barriers. This underscores the importance of addressing both dimensions simultaneously through evidence-based interventions rather than focusing solely on promoting technology adoption.

Universities, policymakers and technology providers must therefore work collaboratively to create learning environments where Generative AI complements, rather than replaces, critical thinking, creativity and academic integrity.

As India advances towards becoming a global AI-powered knowledge economy, higher education institutions will play a pivotal role in preparing graduates who can engage with artificial intelligence responsibly and effectively. This requires moving beyond ad hoc experimentation towards structured institutional policies, AI literacy programmes, curriculum reform, faculty development and continuous governance. The recommendation to introduce a dedicated undergraduate course on AI Literacy and Responsible Use of AI represents an important step in ensuring that students develop the competencies required to use AI ethically, critically and professionally.

Ultimately, the future of higher education will not be defined by whether students use Generative AI, but by how effectively institutions enable them to use it responsibly. By fostering an ecosystem that combines innovation with ethics, accessibility with inclusion, and technological advancement with human-centred learning, higher education can harness the transformative potential of Generative AI while safeguarding the fundamental objectives of education. In doing so, institutions will not only prepare students for an AI-enabled future but also contribute to building a more resilient, equitable and knowledge-driven society.


QUANTIVE