Can AI Help? An Examination of its Use in the Indian Undergraduate Classroom

Tina Jose[1*]

[1]Assistant Professor, Dept. of English
St. Stephen's College. Uzhavoor, Kottayam
Kerala, India
tinaannrebecca@gmail.com*

Abstract. Once the hyped word was virtual reality – that is before AI became a possibility. AI has become a keyword in the past few years reaching out into almost every possible field. In the field of pedagogy too, AI seems to have become an intrinsic part. One would imagine this is the last thing possible but in reality this is truth – AI has found its way into becoming a central part of education. Almost every other day one may see whatsapp groups spawning lectures and workshops related to AI. One must finally accept that AI is here to stay and for a while at least. Many teachers today turn to AI tools like ChatGPT for everyday solutions like answers and powerpoints, and sometimes even research. When AI becomes a norm in the staffroom, it begets the question: is the technology being used so frequently in so many places and at so many levels, actually becoming a tool of use or of harm? Is it actually aiding us or impeding us? Thus, is AI actually useful to the Indian UG classroom? This is the question this paper will dwell upon in the coming pages.

Keywords: AI, classroom, teaching aid.

1. Introduction

Artificial Intelligence (AI) has rapidly emerged as one of the most transformative technologies of the twenty-first century, reshaping industries, economies, and societies at large. In recent years, its integration into education has provoked both optimism and apprehension. The Indian higher education system, particularly at the undergraduate (UG) level, has begun to grapple with the promises and perils of AI in pedagogy. While advocates highlight its potential to democratize access, personalize instruction, and automate administrative burdens, critics warn against its ethical, cognitive, and social costs. This paper seeks to critically examine the relevance and impact of AI in the Indian undergraduate classroom, contextualizing its rise within broader debates about the future of teaching, learning, and academic integrity. AI is not a new concept, though its mainstream prominence is relatively recent. The term was first coined in 1956 during the Dartmouth Conference, where researchers envisioned machines capable of simulating human intelligence (Russell & Norvig, 2016). Decades of research have since oscillated between optimism and skepticism, marked by bursts of progress and "AI winters." However, the launch of large-scale machine learning systems and generative AI tools such as OpenAI's ChatGPT in 2022 has pushed the technology into everyday life at an unprecedented pace (Zhang & Dafoe, 2019). According to Stanford's AI Index Report (2023), AI adoption in education saw a sharp rise during and after the COVID-19 pandemic, with institutions worldwide experimenting with adaptive learning platforms, automated grading, and virtual tutors (Perkins, 2023).

In India, the conversation around AI in education intersects with broader systemic challenges: mass enrollment, uneven teacher-student ratios, infrastructural gaps, and questions of access and equity. The All India Survey on Higher Education (AISHE, 2022) reported that India has over 14 million undergraduate students spread across thousands of colleges, many of which face resource constraints. AI-driven tools are thus often positioned as potential equalizers, capable of bridging disparities in teaching quality and learning support. For example, AI-based platforms can provide adaptive learning pathways tailored to diverse learners, enabling students in remote or underfunded colleges to access resources comparable to those in elite institutions (Kumar & Sharma, 2023). Yet, the very promise of democratization is undercut by concerns about the digital divide, algorithmic bias, and over-reliance on automated systems.

Globally, scholars have emphasized both the pedagogical opportunities and the risks of AI. Selwyn (2019) notes that AI can "reconfigure what it means to teach and learn," introducing a shift from teacher-led instruction to machine-mediated interaction. Adaptive systems like the Carnegie Learning or ALEKS, such as, analyse student performance in real time to deliver customized lessons (Luckin et al., 2016). Similarly, chatbots have been deployed in universities to answer student queries, while automated essay scoring promises to reduce faculty workload (Holmes et al., 2019). At the same time, researchers

P. Sharma et al. (eds.), *Proceedings of the International Conference on Artificial Intelligence in Management for Business and Industrial Growth (AIMBIG 2025)*, Advances in Economics, Business and Management Research 355,
https://doi.org/10.2991/978-94-6463-898-1_16

were cautious against the erosion of humanistic values in the field of education. Williamson and Eynon (2020) had an argument that the field of AI in education reflects broader channels of datafication, where learning is decreased into its measurable metrics, often at the cost of critical thinking and innovation.

For the nation of India, the issue is especially acute given its unique socio-cultural and institutional landscape. As Singh (2021) observes, that higher education in the Indian subcontinent is characterized by a "paradox of expansion without quality," where intense growth in the student numbers has not always been matched with scholarly innovation. In this context, AI tools can indeed alleviate some structural pressures, such as large class sizes and administrative burdens. For example, automated grading systems like Gradescope have been tested in Indian universities to handle mass evaluations (Verma & Mehta, 2023). Similarly, AI-powered translation tools can aid students from non-English backgrounds, fostering inclusivity in linguistically diverse classrooms. However, there is also the danger of "technological solutionism," where complex pedagogical and social problems are expected to be solved through technology alone (Morozov, 2014).

The COVID-19 pandemic accelerated the adoption of digital technologies in Indian classrooms, serving as a trial ground for AI integration. During nationwide lockdowns, universities pivoted to online learning through Zoom, Google Meet, and Learning Management Systems (LMS), which exposed both opportunities and gaps (Mishra et al., 2020). On the one hand, students experienced increased flexibility, interactive resources, and gamified learning. On the other, issues of inequity became starkly visible, with students from rural areas lacking stable internet access or devices (Choudhury & Pattnaik, 2020). AI tools have significantly emerged as the supplements to overcome these issues: attendance-tracking systems, automated presence, AI tutors which provide explanations outside class, and predictive analytics that flagged at-risk students. Yet, the dependence on technological aspects has also raised concerns about the issues such as surveillance, privacy, and the dequalification of teachers.

An important figure of literature critiques the indiscriminate embrace of AI in the classrooms. For example, the recent studies have highlighted the risk of academic misconduct that has been facilitated by generative AI tools. Cotton et al. (2023) found that students who were increasingly relying upon these chatbots for essay generation, raising questions about plagiarism and the erosion of authenticity of learning. Similarly, Dergaa et al. (2024) have cautioned that this overexposure to AI-integrating tasks could demolish creative and intellectual skills such as problem-solving and decision-making, with potential long-term neurological effects. These concerns resonate strongly in India, where academic integrity is already a serious issue due to widespread reliance on rote learning and coaching institutes (Pathak, 2019).

The ethical and policy implications of AI adoption in Indian higher education also merit scrutiny. The National Education Policy (NEP, 2020) emphasizes technology-driven pedagogy and digital literacy as key pillars of reform. While this provides a supportive framework, there is still limited regulation of AI-specific risks such as data privacy, algorithmic transparency, and teacher displacement. As Gates (2023) provocatively suggested, AI could replace large sections of the teaching workforce in the near future. For a country like India, where higher education is also a major source of employment, such predictions raise anxieties of large-scale displacement and the dehumanization of classrooms. At a deeper philosophical level, the debate touches upon what education itself is meant to achieve. If the classroom is reduced to efficiency, speed, and quantifiable outcomes, AI fits well into the paradigm. But if education is understood as a humanistic endeavour; nurturing empathy, dialogue, and critical citizenship; then the irreplaceable role of the teacher becomes evident (Biesta, 2015). This tension is particularly relevant in the Indian undergraduate classroom, where students are at a formative stage of intellectual and ethical development.

Thus, the central question remains: is AI a pedagogical aid that enhances the Indian undergraduate classroom, or a disruptive force that undermines its human core? Addressing this requires not only cataloguing its advantages and disadvantages but also situating them within India's socio-economic context, pedagogical traditions, and policy frameworks. This paper, therefore, undertakes a critical examination of AI in Indian UG classrooms, with the aim of identifying a balanced pathway that leverages technological affordances while safeguarding educational values.

2. Literature Review

Artificial Intelligence in education has generated an expansive body of scholarship over the past two decades, spanning fields of computer science, cognitive psychology, pedagogy, and ethics. The literature

can be broadly divided into four strands: (a) global studies on AI's role in reconfiguring pedagogy, (b) research on its application and challenges within Indian higher education, (c) theoretical frameworks shaping debates on its pedagogical value, and (d) critical perspectives on risks, ethics, and policy. Reviewing these strands provides a foundation for understanding the implications of AI in the Indian undergraduate (UG) classroom.

Global Perspectives on AI in Education

Globally, AI's role in transforming teaching and learning has been studied extensively. There is strong argument that AI in education can "unleash intelligence" by providing individualized instruction that adapts to student needs. Adaptive learning systems such as ALEKS and Carnegie Learning have demonstrated improvements in student performance by tailoring tasks to learner profiles (VanLehn, 2011). Holmes, Bialik, and Fadel (2019) similarly emphasize AI's potential to personalize learning at scale, automate feedback, and support differentiated instruction. Automated assessment has been another prominent theme. Balfour (2013) notes that automated essay scoring systems, while controversial, have shown high reliability in large-scale testing environments. AI-supported formative assessments provide real-time analytics to track student progress, enabling instructors to adjust pedagogy accordingly (Sergis & Sampson, 2017). Chatbots, as highlighted by Pérez-Marín and Pascual-Nieto (2021), have been deployed in universities worldwide to respond to student queries, reducing administrative burdens on faculty. However, these global developments are not without critique. Selwyn (2019) contends that the enthusiasm surrounding AI in education risks overshadowing critical discussions of pedagogy, equity, and teacher agency. Williamson and Eynon (2020) highlight the trend of "datafication," whereby learning is reduced to measurable metrics, potentially neglecting broader educational goals such as critical thinking and ethical reasoning. Similarly, Knox (2020) argues that AI in education is not merely a technological intervention but also a political and cultural phenomenon that embeds assumptions about efficiency and productivity.

AI in the Indian Higher Education Context

While global research offers valuable insights, the Indian context presents unique challenges and opportunities. India's higher education sector, characterized by massification, linguistic diversity, and infrastructural inequities, shapes the ways AI can be adopted and resisted. Studies suggest that AI tools are beginning to make inroads in Indian universities. Sharma and Kaur (2021) report on pilot projects where AI-driven learning platforms were used to support students in engineering and computer science programs, leading to improved engagement. Verma and Mehta (2023) highlight the use of automated grading tools like Gradescope in handling large student cohorts, reducing faculty workload during examinations. Similarly, AI-enabled translation systems have been leveraged to support non-English-speaking students, making learning more inclusive in multilingual classrooms (Kumar & Sharma, 2023). However, barriers to adoption remain substantial. According to Choudhury and Pattnaik (2020), the pandemic revealed the digital divide in Indian higher education, where students from rural areas often lacked reliable internet access and devices. Even when AI tools are available, inequities in digital literacy create uneven outcomes (Das & Sharma, 2022). Moreover, Pathak (2019) argues that India's pedagogical culture, heavily reliant on rote learning and exam-oriented instruction, often conflicts with the exploratory and interactive models that AI platforms assume. Another dimension is policy. The National Education Policy (NEP, 2020) explicitly encourages the use of digital technologies, including AI, to improve learning outcomes and access. The AI for All initiative launched by the Government of India in collaboration with Intel reflects a push to mainstream AI literacy at all levels of education (NITI Aayog, 2021). Yet, the regulatory framework for addressing concerns such as data privacy, bias, and ethical usage remains underdeveloped.

Pedagogical Frameworks and Theoretical Approaches

Several pedagogical frameworks help situate AI in education. Constructivist approaches, which emphasize learner-centered interaction and problem-solving, align closely with adaptive AI systems that tailor tasks based on student inputs (Piaget, 1970; Bruner, 1996). Studies show that AI-enabled gamification platforms can foster active learning, consistent with constructivist principles (Hamari et al., 2016). From a socio-cultural perspective, Vygotsky's (1978) concept of the "zone of proximal development" has been applied to AI tutors that scaffold student learning just beyond their current capabilities (Holmes et al., 2019). AI-driven virtual assistants, by providing instant support, arguably extend the boundaries of the classroom, enabling continuous learning outside traditional settings. At the same time, critical pedagogy, as articulated by Freire (1970), raises questions about AI's implications for

dialogue, agency, and empowerment. If AI platforms reduce education to data-driven instruction, the relational and emancipatory dimensions of pedagogy risk being diminished. Biesta (2015) warns against the "age of measurement," where quantifiable outputs eclipse the ethical and democratic purposes of education. In the Indian UG classroom, where education often intersects with aspirations of social mobility and identity formation, these theoretical tensions acquire added significance.

Risks and Ethical Concerns

The literature also emphasizes the risks associated with AI in classrooms. Academic integrity is one of the most pressing concerns. Cotton et al. (2023) show that generative AI systems like ChatGPT facilitate plagiarism, undermining authentic assessment. This has sparked debates on whether traditional assessment methods are sustainable in an era of AI (Akgun & Greenhow, 2022). Cognitive risks have also been highlighted. Dergaa et al. (2024) argue that excessive reliance on AI tools could impair decision-making and problem-solving abilities, leading to cognitive atrophy. These concerns resonate with studies suggesting that constant exposure to digital technologies may alter attention spans and critical thinking skills (Carr, 2010). Privacy and data security constitute another area of concern. Williamson (2021) points to the dangers of surveillance embedded in AI-driven learning platforms, where student data is continuously collected, analyzed, and potentially commodified. In India, where data protection regulations are still evolving, such risks are amplified (Bhatia, 2021). Finally, the question of teacher displacement looms large. Gates (2023) predicted that AI could replace large segments of the teaching workforce in the coming decade. While such claims may be overstated, there is growing concern that the role of the teacher will be reduced to that of a facilitator rather than an intellectual guide. As Selwyn (2019) insists, the central issue is not whether AI can replace teachers, but what kind of teaching and learning we wish to preserve in the digital age.

Policy and Future Directions

Policy frameworks around the world have begun to address the educational implications of AI. The European Commission (2020) advocates for "trustworthy AI" that is transparent, accountable, and human-centered. In the United States, the Department of Education (2023) recommends balancing innovation with ethical safeguards. India's NEP (2020) signals intent but remains vague on operational mechanisms for AI governance. Scholars argue for AI literacy as a critical component of teacher training and student preparation (Walter, 2024). Without such literacy, both educators and learners risk becoming passive consumers rather than informed users of AI technologies.The future trajectory of AI in education will depend on how these tensions are navigated. If used responsibly, AI can alleviate some of the systemic pressures in Indian higher education, such as teacher shortages, large class sizes, and linguistic diversity. But if adopted uncritically, it may exacerbate inequalities, compromise integrity, and diminish the humanistic ethos of education.

3. Methodology and Conceptual Framework

This paper adopts a **conceptual and analytical approach** rather than an empirical one. The aim is not to measure the effectiveness of a specific AI intervention in classrooms but to critically examine the broader role of Artificial Intelligence in Indian undergraduate education. Conceptual research of this kind seeks to clarify definitions, synthesize existing literature, identify gaps, and build theoretical insights that can inform practice and policy (Jaakkola, 2020). Given the novelty of AI in higher education—particularly in the Indian context—such a framework is crucial to organize scattered findings, reconcile contradictions, and highlight pathways for responsible adoption.

The methodological orientation of this paper is grounded in **qualitative document analysis** (Bowen, 2009). Sources include:

1. **Scholarly literature**: peer-reviewed articles, books, and systematic reviews on AI in education, both international and Indian.
2. **Policy documents**: the National Education Policy (NEP, 2020), NITI Aayog's *AI for All* (2021), and related government initiatives on AI literacy and smart classrooms.
3. **Institutional reports**: publications from UNESCO, OECD, and the U.S. Department of Education on AI in pedagogy.
4. **Media and think tank contributions**: credible articles from Forbes, The Hindu, and Education World, which reflect ongoing debates and public perceptions.

By triangulating across these sources, the study synthesizes academic rigor with policy relevance and practical realities.

Conceptual Anchors: To guide the analysis, the paper draws upon three conceptual anchors: pedagogical theory**,** critical digital studies**, and** policy analysis**.**

1. **Pedagogical Theory**
    - Constructivism (Piaget, 1970; Bruner, 1996) informs how adaptive AI systems can support learner-centered, inquiry-based approaches.
    - Vygotskian socio-cultural theory (1978) helps interpret AI tutors and chatbots as scaffolds within the "zone of proximal development."
    - Critical pedagogy (Freire, 1970) reminds us to question whether AI systems empower learners or reinforce passivity and surveillance.
2. **Critical Digital Studies**
    - Selwyn (2019) and Knox (2020) argue that AI in education is not neutral but reflects wider socio-political priorities like efficiency, datafication, and privatization.
    - Williamson (2021) situates AI as part of the "datafication of education," urging attention to algorithmic bias, surveillance, and equity.
    - This framework is especially pertinent to India, where socio-economic disparities could be amplified by unequal access to AI tools.
3. **Policy Analysis**
    - The NEP (2020) sets a reformist tone by emphasizing digital literacy and personalized learning, but it is silent on regulating AI-specific risks.
    - International guidelines, such as UNESCO's (2021) principles of human-centered AI, provide benchmarks for ethical integration.
    - Comparing India's trajectory with global norms highlights gaps and opportunities in regulatory preparedness.

Analytical Approach

The study employs a **thematic synthesis** (Thomas & Harden, 2008), which involves coding the literature and policy documents into recurring themes, then interpreting their interconnections. The following themes serve as analytical categories:

1. **Promise of AI in pedagogy** – personalization, efficiency, inclusivity.
2. **Risks and unintended consequences** – plagiarism, cognitive effects, teacher displacement.
3. **Equity and access** – digital divide, language inclusivity, affordability.
4. **Ethical and policy dimensions** – privacy, surveillance, accountability.
5. **Future trajectories** – balanced integration, AI literacy, regulatory frameworks.

These categories provide structure to the analysis and ensure that findings are not anecdotal but systematically derived from multiple sources.

Justification for Methodology

A conceptual framework was chosen for three reasons:

1. **Nascent field**: AI in Indian undergraduate education is a relatively new area with few longitudinal or large-scale studies. Conceptual synthesis is essential to consolidate scattered knowledge.
2. **Policy relevance**: Since India is actively revising its higher education frameworks, theoretical insights can influence real-world decisions before large-scale empirical data accumulates.
3. **Ethical stakes**: Empirical research often focuses on effectiveness (e.g., exam scores), while conceptual work can interrogate deeper issues of ethics, human development, and equity.

Limitations of the Approach

While conceptual analysis offers breadth and theoretical richness, it has limitations. First, it lacks the empirical grounding of classroom observations, surveys, or experiments, which may provide granular insights into student and teacher experiences. Second, reliance on secondary data means findings are contingent on the quality and availability of prior studies. Finally, thematic synthesis is interpretive, which can introduce researcher bias. Nevertheless, by transparently engaging with multiple perspectives, this study mitigates such risks and contributes a rigorous foundation for future empirical work.

4. Conceptual Framework Model

Synthesizing the above, the paper employs a **three-tier conceptual model** to examine AI in Indian UG classrooms:

1. **Micro-level (Pedagogical Interaction)** – How AI shapes teacher-student dynamics, learning styles, and assessment practices.
2. **Meso-level (Institutional Practices)** – How universities and colleges deploy AI tools for administration, inclusion, and efficiency.
3. **Macro-level (Policy and Society)** – How government policies, cultural values, and ethical debates influence AI adoption.

This model allows the paper to move fluidly between classroom-level practices, institutional implementation, and national/global policy contexts, ensuring a comprehensive analysis.

Ethical Considerations

Although the paper does not involve human subjects, ethical reflection remains central. The analysis foregrounds three questions:

- **Equity**: Who benefits from AI in Indian classrooms, and who is left behind?
- **Autonomy**: Does AI enhance student agency, or does it automate decision-making in ways that diminish critical thinking?
- **Accountability**: Who is responsible when AI systems fail—teachers, institutions, or technology providers?

Engaging with these ethical dimensions ensures that the analysis does not merely catalog advantages and disadvantages but interrogates the deeper values at stake.

In sum, this paper adopts a **conceptual, document-based, and thematically synthesized methodology** informed by pedagogical theory, critical digital studies, and policy analysis. This framework is well-suited to explore the complex role of AI in Indian undergraduate education, where empirical evidence remains limited but policy and practice are rapidly evolving. By situating AI within interconnected micro, meso, and macro levels, the analysis provides a comprehensive lens to assess both opportunities and risks.

5. Findings and Discussion

The integration of Artificial Intelligence (AI) into higher education is neither a purely technological nor a purely pedagogical shift; it is simultaneously social, cultural, and political. Drawing on the conceptual framework outlined earlier, this section presents a thematic analysis of AI in the Indian undergraduate (UG) classroom. The findings are organized across five dimensions:

1. pedagogical promise,
2. institutional and infrastructural realities,
3. risks and unintended consequences,
4. ethical and policy concerns, and
5. future trajectories.

Personalization and Adaptive Learning

One of the strongest arguments in favor of AI in classrooms is its capacity to deliver **personalized instruction**. Adaptive platforms such as Carnegie Learning and ALEKS have shown globally that AI can tailor tasks to individual learner needs (VanLehn, 2011). In the Indian UG context, this potential is especially significant given the diversity of learners in terms of linguistic background, prior preparation, and socioeconomic status. AI-driven learning management systems can identify patterns in student performance and recommend targeted remedial resources (Luckin et al., 2016).

For example, engineering and computer science programs in India have experimented with AI platforms that provide real-time coding feedback, enabling students to learn iteratively without waiting for instructor input (Sharma & Kaur, 2021). This aligns with constructivist theories of learning (Bruner, 1996), where students build knowledge actively with guided support.

Efficiency and Administrative Support

AI also alleviates the administrative burden on teachers. Automated grading systems such as Gradescope reduce the time required to evaluate large cohorts, a pressing issue in India where UG classes often exceed 100 students per section (Verma & Mehta, 2023). AI-based attendance trackers and plagiarism detectors similarly streamline routine tasks, freeing faculty to focus on higher-order instruction.

Such efficiencies have implications for student experience as well. By reducing turnaround time for feedback, AI tools enhance formative assessment cycles (Sergis & Sampson, 2017). This may contribute to deeper learning, as students can adjust their approaches based on near real-time evaluation.

Inclusivity and Accessibility
AI offers potential for **inclusive education**, particularly in a country as diverse as India. Translation tools such as Google Translate and AI-based note-taking software help non-native English speakers access course content. Similarly, tools like JAWS assist visually impaired learners, and speech-to-text applications support those with hearing difficulties. In rural and underserved areas, AI-enabled distance education platforms make higher education more accessible, echoing the NEP's (2020) call for equitable access.
The alignment of AI tools with **Universal Design for Learning (UDL)** principles; multiple means of representation, expression, and engagement suggests a strong pedagogical rationale for their use (see Meyer, Rose, & Gordon, 2014).

The Digital Divide
Despite the promise, India's uneven digital infrastructure presents challenges. Choudhury and Pattnaik (2020) highlight that students in rural areas often lack stable internet connectivity, making sustained AI-based learning infeasible. Even when devices are available, disparities in digital literacy create uneven experiences (Das & Sharma, 2022). This digital divide risks reproducing existing inequalities in higher education, where elite urban institutions can adopt cutting-edge tools while rural colleges remain resource-constrained.

Teacher Readiness and Professional Development
The success of AI in classrooms depends not only on the availability of tools but also on the **capacity of educators** to integrate them effectively. Studies show that many Indian faculty members are hesitant or underprepared to adopt AI technologies, often due to lack of training or fear of redundancy (Singh, 2021). AI literacy among teachers is critical; without it, the risk is that tools will be underutilized or misapplied. Walter (2024) argues for embedding AI literacy into teacher education programs as a prerequisite for meaningful adoption.

Institutional Policy and Procurement
Institutions also face challenges in deciding **which AI tools to adopt**. Many rely on commercial platforms with opaque algorithms, raising questions about data ownership and long-term sustainability (Williamson, 2021). Furthermore, the cost of licensing advanced AI software is prohibitive for many public universities, creating dependency on free but potentially less secure tools.

Academic Integrity
Perhaps the most widely discussed risk is academic misconduct facilitated by generative AI. Cotton et al. (2023) show that students increasingly use ChatGPT to produce essays or assignments, blurring the line between legitimate assistance and plagiarism. In India, where assessment remains heavily exam- and essay-oriented, this raises urgent concerns about fairness and authenticity. Current plagiarism detection software struggles to identify AI-generated text, leaving faculty uncertain about enforcement.
This problem has sparked debate about the sustainability of traditional assessment models. Some scholars argue for a shift toward oral defenses, project-based evaluations, and critical reflection essays that are harder to outsource to AI (Akgun & Greenhow, 2022). However, implementing such changes at scale in India's mass higher education system poses significant logistical challenges.

Cognitive and Psychological Effects
Another concern is the **overreliance on AI for cognitive tasks**. Dergaa et al. (2024) warn that continuous use of AI chatbots for problem-solving could impair decision-making and reasoning abilities. Carr (2010) similarly argues that constant digital mediation may reduce attention spans and critical thinking. In the UG classroom, this risk is acute, as students are in a formative stage of intellectual development. The fear is that AI tools may encourage surface learning and shortcut-seeking rather than deep engagement with material.

Social Isolation and Reduced Interaction
AI-based learning, while efficient, risks reducing **human interaction** in classrooms. Selwyn (2019) cautions that overuse of automated systems could transform education into an individualized, transactional process, undermining collaborative and dialogical aspects. In India, where peer networks often provide crucial support for first-generation learners, the erosion of social interaction could exacerbate feelings of isolation and alienation.

Data Privacy and Surveillance
AI platforms rely on large-scale data collection, raising questions about privacy and consent. Williamson (2021) notes that educational data is often commodified by private corporations, creating risks of misuse. In India, where data protection laws remain in flux, student information may be vulnerable to exploitation (Bhatia, 2021). Surveillance is another concern: AI-enabled proctoring systems, increasingly used for online exams, have been criticized for invasive monitoring and algorithmic bias.

Teacher Displacement and Professional Identity
A recurring fear is that AI may displace teachers altogether. Gates (2023) suggested that AI could replace large sections of the teaching workforce within a decade. While this prediction may be overstated, the **redefinition of teacher roles** is undeniable. From being content deliverers, teachers may increasingly become facilitators or supervisors. While this could free them to focus on mentoring, it also risks devaluing their expertise and authority. The Indian UG context, where faculty already struggle with low pay and high workloads, makes this issue particularly sensitive.

Policy Preparedness
The NEP (2020) highlights the role of digital technologies in expanding access but does not explicitly address AI's risks. The NITI Aayog (2021) *AI for All* strategy provides a roadmap for AI literacy but lacks specific guidelines for higher education governance. By contrast, UNESCO's (2021) *Recommendation on the Ethics of AI* emphasizes transparency, accountability, and human-centered design. The absence of robust policy in India risks ad hoc adoption and unregulated growth, which could lead to long-term problems.

Toward Balanced Integration
Most scholars argue that the goal should not be to replace teachers with AI but to use AI as an **augmentative tool** (Holmes et al., 2019). The challenge for Indian UG classrooms is to design hybrid pedagogical models where AI handles routine tasks while teachers retain authority over higher-order functions such as mentoring, critical dialogue, and ethical guidance.

AI Literacy for Students and Faculty
Developing **AI literacy** is crucial. Walter (2024) emphasizes that both students and educators must be trained not only in how to use AI but also in how to critically evaluate its outputs. This includes understanding bias, questioning accuracy, and reflecting on ethical implications. Embedding AI literacy in curricula could empower students to engage responsibly rather than passively with technology.

Policy and Regulatory Safeguards
Future policy needs to address AI in higher education explicitly. This includes frameworks for data protection, algorithmic transparency, and guidelines for fair use in assessment. International best practices, such as the EU's emphasis on "trustworthy AI" (European Commission, 2020), could serve as models. In India, collaboration between universities, government agencies, and private developers will be essential to establish standards that protect students and faculty alike.

Reconceptualizing Assessment
Finally, AI compels a fundamental rethinking of **assessment models**. Traditional exams and essays may no longer be sufficient markers of learning in an AI-saturated environment. Instead, experiential learning, oral examinations, collaborative projects, and portfolios could become more central. While such reforms are challenging in India's scale-driven system, pilot programs could pave the way for gradual transformation.

The findings reveal that AI in Indian UG classrooms presents a dual reality: immense potential for enhancing pedagogy, inclusivity, and efficiency, alongside significant risks of inequity, misconduct, cognitive erosion, and ethical lapses. The outcome depends less on the technology itself and more on **how it is adopted, regulated, and integrated**. A balanced approach—grounded in pedagogical values, critical awareness, and policy safeguards—can ensure that AI enhances rather than undermines the human core of education.

References

1. AISHE. (2022). *All India Survey on Higher Education 2021–22*. Ministry of Education, Government of India.
2. Balfour, S. P. (2013). Assessing writing in MOOCs: Automated essay scoring and calibrated peer review. *Research & Practice in Assessment*, 8, 40–48.
3. Bhatia, G. (2021). Data protection and privacy in Indian higher education. *Economic & Political Weekly*, 56(32), 25–29.
4. Biesta, G. (2015). *Good Education in an Age of Measurement: Ethics, Politics, Democracy*. Routledge.
5. Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, 9(2), 27–40.
6. Bruner, J. (1996). *The Culture of Education*. Harvard University Press.
7. Carr, N. (2010). *The Shallows: What the Internet Is Doing to Our Brains*. W. W. Norton.
8. Choudhury, S., & Pattnaik, S. (2020). Emerging themes in e-learning: A review from the COVID-19 pandemic. *Journal of Educational Technology Systems*, 49(1), 5–22.
9. Cotton, D. R. E., Cotton, P. A., & Shipway, J. R. (2023). ChatGPT, AI and the future of assessment in higher education. *Innovations in Education and Teaching International*, 60(2), 1–13.
10. Das, M., & Sharma, P. (2022). Digital literacy and inequality in Indian universities. *Asian Journal of Distance Education*, 17(1), 55–69.
11. Dergaa, I., et al. (2024). From tools to threats: A reflection on the impact of artificial-intelligence chatbots on cognitive health. *Frontiers in Psychology*, 15, 11020077.
12. Freire, P. (1970). *Pedagogy of the Oppressed*. Herder & Herder.
13. Gates, B. (2023). *The Age of AI Has Begun*. Gates Notes.
14. Hamari, J., Shernoff, D., Rowe, E., et al. (2016). Challenging games help students learn: An empirical study on engagement, flow and immersion. *Computers in Human Behavior*, 54, 170–179.
15. Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.
16. Jaakkola, E. (2020). Designing conceptual articles: Four approaches. *AMS Review*, 10(1-2), 18–26.
17. Knox, J. (2020). Artificial intelligence and education in China. *Learning, Media and Technology*, 45(3), 298–311.
18. Kumar, R., & Sharma, V. (2023). AI in Indian classrooms: Promise and perils. *Indian Journal of Educational Technology*, 41(2), 77–93.
19. Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal Design for Learning: Theory and Practice*. CAST Professional Publishing.
20. Mishra, L., Gupta, T., & Shree, A. (2020). Online teaching-learning in higher education during lockdown period of COVID-19 pandemic. *International Journal of Educational Research Open*, 1, 100012.
21. Morozov, E. (2014). *To Save Everything, Click Here: The Folly of Technological Solutionism*. PublicAffairs.
22. NEP. (2020). *National Education Policy 2020*. Ministry of Education, Government of India.
23. NITI Aayog. (2021). *AI for All: India's National Strategy on Artificial Intelligence*. Government of India.
24. Pérez-Marín, D., & Pascual-Nieto, I. (2021). Conversational agents in education: A review. *IEEE Transactions on Learning Technologies*, 14(5), 560–573.
25. Perkins, R. (2023). *AI Index Report 2023*. Stanford University.
26. Piaget, J. (1970). *Science of Education and the Psychology of the Child*. Viking.
27. Russell, S., & Norvig, P. (2016). *Artificial Intelligence: A Modern Approach* (3rd ed.). Pearson.
28. Selwyn, N. (2019). *Should Robots Replace Teachers? AI and the Future of Education*. Polity.
29. Sergis, S., & Sampson, D. G. (2017). Teaching and learning analytics: A systematic literature review. *Educational Technology & Society*, 20(3), 104–119.
30. Sharma, A., & Kaur, P. (2021). Adoption of AI learning platforms in Indian engineering education. *International Journal of Emerging Technologies in Learning*, 16(12), 45–57.
31. Singh, A. (2021). Higher education in India: Expansion, paradox, and challenges. *Economic and Political Weekly*, 56(12), 42–50.
32. Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research. *BMC Medical Research Methodology*, 8(45), 1–10.
33. UNESCO. (2021). *Recommendation on the Ethics of Artificial Intelligence*. UNESCO Publishing.
34. VanLehn, K. (2011). The relative effectiveness of human tutoring, intelligent tutoring systems, and other tutoring systems. *Educational Psychologist*, 46(4), 197–221.
35. Verma, S., & Mehta, R. (2023). Automated grading in Indian universities: Potentials and pitfalls. *Journal of Higher Education Policy and Management*, 45(4), 321–337.
36. Vygotsky, L. S. (1978). *Mind in Society: The Development of Higher Psychological Processes*. Harvard University Press.

37. Walter, Y. (2024). Embracing AI literacy in higher education. *International Journal of Educational Technology in Higher Education*, 21(1), 48–63.
38. Williamson, B. (2021). The datafication of education: Critical questions for AI and learning analytics. *Learning, Media and Technology*, 46(3), 303–316.
39. Williamson, B., & Eynon, R. (2020). AI in education: The importance of policy-making. *Learning, Media and Technology*, 45(2), 141–154.
40. Zhang, B., & Dafoe, A. (2019). Artificial intelligence: American attitudes and trends. *Oxford University Future of Humanity Institute*.