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REVIEW PAPER

Perspectives on Generative AI in Higher Education: A Systematic Review of Students' Perceptions, Adoption, Ethical Concerns, and Pedagogical Implications

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ABSTRACT

In higher education there is a sea change with the introduction and adoption of Generative Artificial Intelligence (GenAI). The GenAI has immensely transformed the teaching-learning and academic evaluation in higher education. Although, in this entire process, the students remain central context of adoption, co-operation and pedagogical usage of GenAI. There are rising body of research on students' perception, attitude and intention of GenAI in higher education, however, scholarly research work in this area is uneven, in terms of theoretical frameworks, methodological approaches across discipline. This Systematic review work will comprise of 120 research paper published between 2018 to 2025 provide students perception, attitude, AI adoption, ethical aspects. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) principles was used to identity, screened and thematic analysis. The findings of this PRISMA analysis showed altogether five clusters -(a) students attitude and perceptions (b) AI technology adoption and students behaviours (c) students self- pace learning and its outcome (d) ethical aspects and students academic integrity (e) academic institutional and pedagogical implications. The findings show that GenAI is a supportive academic interface, but doesn't replacement of the human cognition, however there is a concern of ethical use and anxiety and also uncertainly of its acceptability under scrutiny of academicians. This review ultimately provides insights about GenAI in higher education's acceptance theory, learning theory and ethical concern. This paper ultimately provide a dossier to the planner, policy maker, educators to frame policy for equitable, responsible and pedagogical integration of GenAI in higher education for making learning as joyfully events.

HIGHLIGHTS

- Students possess positive attitude towards GenAI, and it drives by its ease of use, usefulness, and trust.
- Use of GenAI creates ethical concerns and its responsible use.
- GenAI shows its immense pedagogical potentiality in self-regulated and autonomous learning.

Keywords: Generative artificial intelligence, ChatGPT, higher education, student perceptions, academic integrity, systematic review

Advent of Artificial intelligence had re-organized the higher education ecosystem through the introduction of personalize learning and tutoring system, adaptive learning platform, automated evaluation System and also learning analytics. In recent time GenAI viz. Chatgpt, Gemini, Deepseek are easily producing prompt based text, image, multimedia attuned to learners need (Gupta, 2024), it also effortlessly create explanations,

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summarizing, programming code and even reflective response, this ultimately transform traditional learning and evaluation system more learners oriented (Jiayu, 2023; Joseph Mithli *et al.* 2024). The GenAI had prompted academic institutions to change role to develop eco-system for adoption of AI in higher education for academic and administrative automation and also provide timely feedback to learners. However universities are become more responsible in ethical use and misuse, privacy and safeguarding to protect over-reliance on AI that may compromise academic standard (Jiand Liu, 2024). Hence, academician, administrator, policymakers are grappled with developing strategies and policy framework that expedite the use of AI, however, safeguard the academic quality and integrity(Joseph Mithi *et al.* 2029).Although the early research on AI in higher education addresses to institutional efficiency enhancement, student personalized learning, predicting student performance (Baichuan, 2024; Recalde Drouet *et al.* 2024) and student engagement and outcomes (Pandya, 2024), however different scholar shows their concerns about content accuracy, data privacy and pedagogical principles to guide AI integration (Maity and Deroy, 2024). In nutshell, scholar opined that GenAI had create opportunity as well as challenges in its adoption in higher education. The scholarly used Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT) and also self-regulated learning theory. Yet, the results disperse and there is limited Synergy of pedagogical dimensions with perceptual, ethical and behavioural aspects. But this study address this sort coming by conducting systematic review work overtly by placing students perspectives in the Centre of GenAI with special emphasis to perceptions, ethical concerns, and pedagogical implications. This review is in search of following dimensions:—

1. Students perceptions and attitude towards Generative AI (GenAI)
2. Students acceptance and behavioural intentions on GenAI
3. Learning outcome ad self regulated learning
4. Ethical aspects and academic integrity

By synthesizing 120 research paper/evidences this review gives a solid knowledge base to inform practices, theory and policy in AI –enable higher education.

METHODOLOGY

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was adopted in this study. The PRISMA 2020 guidelines were followed for study selection. An initial data set/record of 1486 was obtained from differences sources viz. Web of Science, ERIC, Scopus, IEEE Xplore, Google Scholar, Science Direct. A total 312 duplicate records removed. Again 873 records were discarded due to fail to match relevance to higher education, GenAI or absence of student centric relevancy.

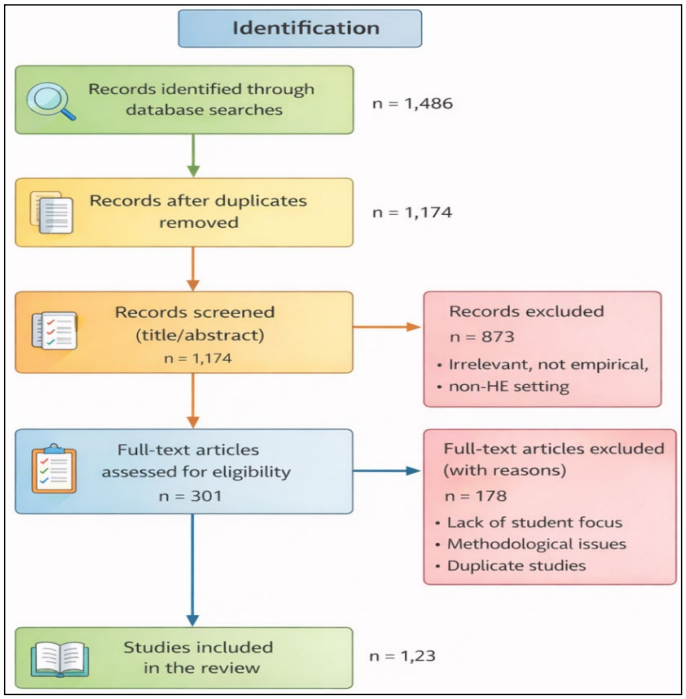

Fig. 1: PRISMA flow diagram summarizing the identification, screening, eligibility, and inclusion stages of the review process

A total of 301 articles were reviewed and evaluated for eligibility. Out of these, 178 studies were excluded due to one or more of the following reasons: studies centred on K–12 education (n = 46), studies with an emphasis on purely technical/system-design (n = 58), studies absent of empirical evidence or that did not review evidence (n

= 41), and studies that did not sufficiently concentrate on student perceptions/experiences (n = 33). In the end, 123 studies were identified and included for the qualitative synthesis.

Thematic synthesis was the most appropriate for the study. Findings were analyzed and coded and then grouped inductively and iteratively into higher-order themes. This facilitated the integration of disparate quantitative, qualitative, and mixed method evidence into one coherent analytical framework.

RESULTS AND DISCUSSION

Student Perceptions and Attitudes toward Generative AI

Across the Studies, it is noted that student generally affirmed positive attitude towards GenAI tools in higher education, considering it as useful tool for generation idea, bring clarity on complex concepts, supportive language; even native language and also efficient use of time. Although, enthusiasm was mostly influenced by improbability regarding suitable use, particularly in assessed work. Perceptions varied by discipline with students of engineering, computer, agriculture sciences and social sciences reporting higher surety compared to those in humanities and teacher education.

Acceptance and Behavioural Intentions

Acceptance and behavioural intentions of GenAI in higher education depicted of usefulness and ease of use it. The perceived usefulness on GenAI in higher education helped in save time, improvement of work quality, learning enhancement and productivity increase. However, perceived ease of use indicated that Gen AI is simple to operate, need limited technical knowledge and also user friendly. In addition, perceived risk, trust and institutional support acted as additional factors, expanding traditional TAM based explanations. Acceptance of GenAI in higher education is framed by assessment cultures and educational norms.

Learning Outcomes and Self-Regulated Learning

Students are using GenAI as cognitive scaffold, rather than shortcut to learning tool. GenAI assisted learners in iterative revision, feedback and personalized learning platform. However, concerned was shown on cognitive offloading and cognitive thinking among GenAI students prolong usage.

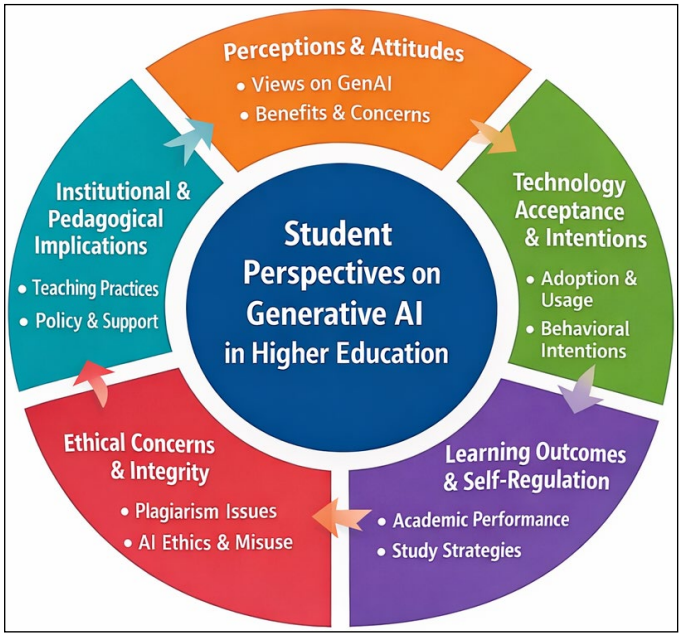

Fig. 2: Student perspectives on Generative AI in Higher Education

Ethics and Academic Integrity

In the literature, the dominant theme was noted ethical concern in the use of GenAI in higher education by students. The students showed their concern regarding authorship, plagiarism, fairness and surveillance. Students sometimes find it difficult to distinguish between acceptable support vs unethical substitution. Students consider it ethical when GenAI assisted pedagogy acted as a learning aid for clarifying concepts, organizing thought, possible direction for developing assignment. GenAI acceptable support pave to primary thinker and writer, wherein they submit GenAI content/text as their own without citing AI as a source considering unethical substitution.

Institutional and pedagogical implications

Reviews also reveal that most of the institution has not specific guideline on GenAI usage leading to

inconsistency and confusion in its adoption. Learners emphasize for AI literacy education, apparent assessment design, and pedagogical integration of GenIA in higher education rather than its prohibition.

RECOMMENDATIONS

Recommendation for Educators

Academic institutions should integrate GenAI in learning process through reflective tasks (i.e., drawing meaningful insights, guided activities and ensuring formative evaluation) and also overt discussion of it ethical use.

Recommendations for academic institutions

Academic institutions should overcome dilemma in GenAI introduction, rather student centric AI policy, AI literacy, supportive faculty development programme must be introduce. Institute should avoid blanket bans of GenAi in higher education, rather flexible framework should be developed for its wide adoption.

Fig. 3

Recommendation for future research

To examine learning impacts of GenAI adoption future studies should follow longitudinal and experimental research design. The variation due to region, income, gender divide, and discipline specific pedagogical module should be adopted. As the area is new, efforts should be made for developing grounded theory in GenAI adoption in higher education.

CONCLUSION

This review examines over 120 empirical studies and synthesizes the perspectives of higher education students on the perception, adoption, learning and ethical impacts, and pedagogy of generative artificial intelligence (GenAI). Students mainly view GenAI as a beneficial academic assistive tool and supportive technology that increases efficiency, learning personalization, and self-regulated learning. It was also observed that the adoption of GenAI was shaped by context, perceived usefulness, and ease of use, however, academic integrity, overreliance, data privacy, fairness, and use concern are still relevant. Furthermore, the learning outcome impacts form use of GenAI are as complex as the positive and negative impacts of the pedagogy, assessment, and student metacognitive engagement. Overall, the findings show that GenAI student user experiences are complex, showing innovative potential and ethical use challenges.

Based on the insights gained from the literature review, there is a need to engage in an iterative process that draws on the work of educators, institutions, and researchers collaboratively. Educators need to incorporate GenAI into learning activities through guided use, reflective practice, and formative assessment, and, in doing so, address ethical attribution and responsible use. At the institutional level, the development of student-centred policies, initiatives to build AI literacy, and ongoing professional development for faculty are needed to shift from a more restrictive approach toward a more meaningful pedagogical integration. In addition, longitudinal and experimental research, activities that include less-represented areas and disciplines, and studies that extend beyond the technology acceptance model to include learning theories and socio-cultural perspectives are needed. Overall, this review offers a comprehensive, student-centred contribution to theory, policy, and practice, indicating a way forward for the integration of generative AI in higher education that is sustainable and ethically responsible.

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