

# Negative Effects of Integrating Chat GPT in the Higher Education System Concerning Achieving Resilience through Digitalization, Sustainability, and Sectoral Transformation

AHDB De Silva<sup>1#</sup>, RSP Ranasinghe<sup>2</sup>, and MRM Rihan<sup>3</sup>

<sup>1</sup>General Sir John Kotelawala Defence University, Sri Lanka

<sup>2</sup>General Sir John Kotelawala Defence University, Sri Lanka

<sup>3</sup>General Sir John Kotelawala Defence University, Sri Lanka

<sup>1#</sup> < 39-adc-0033@kdu.ac.lk >

**Abstract** – *The integration of Chat GPT (Generative Pre-trained Transformer) in higher education has gained significant attention due to its potential for advancing digitization, sustainability, and sectoral transformation. However, it is essential to consider the potential drawbacks associated with this integration to ensure educational resilience. This research aims to identify and evaluate the negative effects of integrating Chat GPT in the higher education system, focusing on academic quality, customization, ethical concerns, and technology dependency.*

*The study adopts a mixed-method approach, utilizing qualitative methods such as interviews and focus groups with educators, students, and stakeholders, as well as quantitative data gathered through surveys administered to a sample of higher education institutions. Preliminary research suggests that over-reliance on AI-generated information may hinder the development of critical thinking and problem-solving skills among students. Concerns also arise regarding the quality and accuracy of AI-generated content, which can compromise the acquisition of reliable knowledge. The lack of personalized and human interaction during learning may impede student engagement and social participation. Ethical issues related to biases within Chat GPT models have been raised, as they can perpetuate biased behaviors and hinder inclusion efforts. Furthermore, the integration of Chat GPT requires robust technological infrastructure, posing challenges.*

*for resource-constrained institutions and exacerbating existing digital disparities. The findings of this research can inform decision-making in higher education, enabling policymakers, educators, and stakeholders to develop strategies and guidelines that mitigate potential drawbacks while maximizing the benefits of integrating Chat GPT in the pursuit of resilience, digitalization, sustainability, and sectoral transformation.*

**Keywords** - Chat GPT (Generative Pre-trained Transformer), Higher education system, Negative effects

## I. INTRODUCTION

The future of higher education is being relentlessly pushed toward a digitally transformed and sustainable future, and it is at a critical turning point. The incorporation of cutting-edge technology, like Chat GPT, has promised to transformable improvements in administrative, teaching, and learning processes. But as the world strives for resilience through digitalization, sustainability, and sectorial transformation, it is becoming more and more important to critically assess the possibly negative effects of this technology embrace inside the revered halls of academia.

A key component of the worldwide effort to build resilience is higher education, which is frequently viewed as the breeding ground for innovation and the development of future leaders. However, as institutions hastily implement conversational agents powered by artificial intelligence, the implications for academic resilience require critical examination. Despite the fact that Chat GPT and other AI technologies present benefits for efficiency, personalization, and accessibility, their unregulated incorporation may unintentionally weaken the core principles of resilience in higher education.

Sustainability, another important goal, is inextricably tied to the technological decisions we make. If digitalization is not done carefully, it could add to the growing environmental problems, from higher energy use to more electronic trash. The higher education sector must adopt digital tools and platforms quickly in order to serve pedagogical and administrative needs. It must consider how these choices may affect sustainability.

Additionally, there is a condition attached to the promise of technological sectoral development. While Chat GPT and other AI-powered systems can improve learning outcomes and expedite processes, they also present significant hurdles. These include worries about potential job losses among university employees, concerns about data privacy, and

worries about the depletion of critical thinking abilities when students rely too heavily on AI.

This discussion aims to untangle the complex relationship between incorporating Chat GPT into higher education and the broader goals of creating resilience, sustainability, and sectoral transformation. It seeks to shine light on the shadowy corners of technology adoption, where unforeseen repercussions may lurk. In doing so, we hope to promote a more nuanced awareness of the risks associated with innovation, as well as to assist higher education institutions toward a more balanced and careful acceptance of AI technologies within the context of resilience, sustainability, and sectoral transformation.

### *I. Research Objectives and Research Questions*

**Evaluating the Effect on Pedagogical Resilience:** To examine how the incorporation of Chat GPT and other AI technologies influences the adaptability and resilience of pedagogical techniques in higher education, taking into account aspects such as student engagement, critical thinking, and the ability to respond to unexpected difficulties.

**Evaluating the Environmental Footprint:** Quantifying the environmental effects of AI integration in higher education by analyzing energy usage, carbon emissions, and electronic trash generated, and proposing sustainable ways for mitigating these impacts.

**Examining Workforce Implications:** To investigate the possible labor market disruptions caused by AI integration, such as the displacement of traditional administrative and teaching positions, and to offer ways for reducing negative employment implications in the higher education sector.

**Investigating Privacy and Ethical Issues:** With an emphasis on data security, student information protection, and the responsible use of AI-driven tools, this research will identify and assess the privacy and ethical issues that arise from the use of AI chat bots in higher education.

**Assessing Learning Outcomes:** In order to determine whether AI chat bots can help or hinder sectoral transformation, it is important to assess how they affect student learning outcomes, such as academic performance, information retention, and the development of critical thinking abilities.

**Creating Actionable Policy Recommendations:** To integrate AI technologies into higher education institutions in an efficient manner while coordinating with the objectives of resilience through digitalization, sustainability, and sectoral transformation.

**Engaging Stakeholders:** Incorporating the opinions of educators, students, administrators, and industry experts into

the research process to ensure a thorough knowledge of the diverse implications of AI integration in higher education.

**Comparative study:** Conduct a comparative study of various methods to AI integration in higher education, relying on worldwide experiences, to identify best practices and lessons learned that may influence policy and decision-making.

**Long-Term Impact Assessment:** To predict the long-term consequences of AI integration in higher education, as well as its role in accomplishing societal goals such as resilience, sustainability, and sectoral change, while taking technology breakthroughs and developing educational paradigms into account.

**Findings Dissemination:** To inform important stakeholders, policymakers, and the general public, study findings will be disseminated through scholarly papers, policy briefings, and educational forums. Educating the general public on the potential negative consequences of AI integration in higher education, with the purpose of supporting educated decision-making on this critical topic.

### *II. Research questions*

1. How does the incorporation of Chat GPT and related AI technologies affect higher education institutions' resilience in the face of unforeseen disruptions and challenges caused by digitization and external factors?
2. What are the environmental effects of the extensive usage of AI chatbots in higher education, such as energy consumption, carbon emissions, and electronic trash generation, and how can sustainability be assured while pursuing digitalization goals?
3. How does the integration of AI chatbots affect the learning outcomes of students, and how can these effects be mitigated or leveraged to enhance educational quality?
4. What are the possible labor market implications of AI chatbot adoption in the higher education sector, and how may policies be devised to manage worker displacement and job role alterations throughout sectoral transformation?
5. What are the ethical and privacy concerns with the usage of AI chatbots in higher education, and how may they be properly addressed in order to achieve responsible AI adoption that is consistent with resilience and sustainability objectives?
6. How does the deployment of AI chatbots affect student learning outcomes such as academic performance, critical thinking abilities, and information retention, and how do these effects help or hamper the broader goals of sectoral transformation in higher education?

## II. METHODOLOGY

A mixed-method approach was used, which included quantitative surveys, qualitative interviews, and document analysis. Surveys will be used to collect information about student and faculty perceptions, while interviews will provide in-depth insights. Document analysis will be used to evaluate institutional policies. For quantitative data, statistical tools will be used, and for qualitative data, theme analysis will be used. Ethical issues will take precedence, ensuring informed consent and data security. The findings will be presented, debated, and turned into concrete suggestions for higher education institutions.

## III. DISCUSSION

While the incorporation of Chat GPT and similar AI technologies in higher education holds the promise of improved efficiency and enhanced learning experiences, it also has a number of negative consequences that can stymie the sector's pursuit of resilience through digitalization, sustainability, and sectoral transformation.

**Pedagogical Resilience:** The possible deterioration of pedagogical resilience is one of the key concerns. While AI chatbots can give immediate answers and help, they may unwittingly hinder pupils' critical thinking abilities and self-reliance. Over-reliance on AI for problem-solving may impair students' capacity to adjust to unanticipated problems, which is essential for educational resilience. Educators must find a balance between using AI technologies and encouraging individual problem-solving skills.

Another important problem is the environmental impact of incorporating AI chatbots into higher education. These technologies' increasing energy usage, computational power needs, and electronic waste might jeopardize sustainability goals. To minimize these negative environmental implications, institutions must adopt green AI initiatives such as improving algorithms to reduce energy usage and recycling e-waste responsibly.

**Workforce Disruption:** The incorporation of AI chatbots raises worries about the ramifications for the workforce. Administrative and instructional assistants may lose their jobs if chatbots take over basic duties. This interruption may have an impact on job security and the livelihoods of individuals working in higher education. To solve this, strategies to upskill and reskill impacted workers, as well as establish new positions that complement AI systems, are required.

Ethical and privacy concerns arise as a result of the collecting and use of student data in AI-driven systems. It is vital to protect sensitive information and ensure openness in data utilization. Failure to address these concerns may result in mistrust among stakeholders, undermining the sector's

attempts to develop resilience and trust through digitalization.

**Learning Outcomes:** AI chatbots have a wide range of effects on student learning outcomes. While they can improve accessible and individualized learning experiences, they should not completely replace human interaction. Over-reliance on AI may stifle the development of critical thinking and problem-solving abilities, both of which are required for sectoral transformation. As a result, a precise balance of AI help and human instruction is required to provide complete educational outcomes.

Finally, the incorporation of Chat GPT in higher education has the potential to both advance and obstruct the sector's aims of resilience through digitalization, sustainability, and sectoral transformation. Institutions must be proactive in order to reap the benefits while reducing the negative repercussions. This encompasses initiatives for ethical AI governance, ecologically responsible technology adoption, and workforce adaptation. To achieve resilience in higher education, a careful balance must be struck between embracing innovation and conserving the underlying principles and skills that drive education's progress in the digital era.

## IV. RESULT

The incorporation of Chat GPT into the higher education system poses several obstacles to achieving resilience through digitization, sustainability, and sectoral transformation. While it has advantages in terms of efficiency and accessibility, the loss of critical thinking skills, increased environmental impact, potential workforce displacement, ethical and privacy concerns, and mixed effects on learning outcomes highlight the need for careful thought and proactive strategies. To fully attain resilience, higher education institutions must negotiate the incorporation of AI technologies while remaining committed to the essential ideals of education while effectively addressing the negative implications.

## V. RECOMMENDATIONS

It is critical that schools prioritize ethical principles and transparent data methods when managing the inclusion of Chat GPT and related AI technologies into higher education. The emphasis should be on developing students' critical thinking skills and creativity while establishing a balance between AI aid and human instruction. Adopting sustainable AI techniques, such as optimizing energy consumption and sustainably handling electronic trash, is also critical. Proactive strategies for upskilling and reskilling employees must be introduced to meet workforce challenges. Finally, ongoing review and adaptation of AI initiatives is critical to ensuring that higher education achieves resilience through digitalization, sustainability, and sectoral transformation while reducing negative repercussions.

## VI. CONCLUSIONS

While Chat GPT and comparable AI technologies have enormous potential for innovation and efficiency, they also have drawbacks for efforts to build resilience through digitization, sustainability, and sectoral transformation. This study has brought to light a number of crucial issues that need for thoughtful deliberation and proactive measures. From the standpoint of education, there is a danger of relying too much on AI chatbots, which could jeopardize students' ability to acquire critical thinking and problem-solving skills. For long-term educational resilience, it is crucial to strike a balance between AI help and the development of these fundamental skills. The negative effects of integrating AI on the environment, such as increased energy use and electronic waste, highlight the need for organizations to implement green AI strategies to align technology adoption with sustainability aims. Concerns about labor displacement should not be overlooked, necessitating the deployment of substantial workforce development efforts to upskill and reskill employees affected by AI-driven automation.

Addressing ethical and privacy concerns, developing ethical AI frameworks, and assuring responsible data practices are critical for fostering trust and resilience in a digitally altered educational world. In conclusion, the negative consequences of using Chat GPT in higher education are obvious, but they do not have to be insurmountable. Higher education institutions may negotiate these issues while utilizing the revolutionary potential of AI to achieve resilience, sustainability, and sectoral change in the digital age by taking a strategic and ethical approach. The road ahead will need attention, adaptation, and an unshakable commitment to education's essential ideals.

## REFERENCES

- Abdullah, M., Madain, A., & Jararweh, Y. (2022). ChatGPT: fundamentals, applications, and social impacts. In 2022 Ninth International Conference on Social Networks Analysis, Management and Security (SNAMS) (pp. 1-8). doi:10.1109/snams58071.2022.10062688.
- Deng, J., & Lin, Y. (2023). The benefits and challenges of ChatGPT: an overview. *Frontiers in Computational Intelligence Systems*, 2, 4465. doi:10.54097/fcis.v2i2.4465.
- Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, 3, 275-285. <https://doi.org/10.1016/j.susoc.2022.05.004>
- Lecler, A., Duron, L., & Soyer, P. (2023). Revolutionizing radiology with GPT-based models: Current applications, future possibilities and limitations of ChatGPT. *Diagnostic and Interventional Imaging*. <https://doi.org/10.1016/j.diii.2023.02.003>
- Lo, C.K. (2023). What Is the Impact of ChatGPT on Education? *A Rapid Review of Literature, Education Sciences*, 13, p. 410. Available at: 10.3390/educsci13040410
- Mollick, E. (2022). ChatGPT Is a Tipping Point for AI. *Harvard Business Review*.
- Mucharraz y Cano, Y., Francesco Venuti, F., & Herrera Martinez, R. (2023, February 1). ChatGPT and AI Text Generators: Should Academia Adapt or Resist? *Harvard Business School Publishing*.
- Nunes, D., Primi, R., Pires, R., Lotufo, R., & Nogueira, R. (2023). Evaluating GPT-3.5 and GPT-4 Models on Brazilian University Admission Exams. *arXiv preprint arXiv:2303.17003*.
- Roosevelt, K. (2023). Don't Ban ChatGPT in Schools. *Teach With It*. *The New York Times*.
- Saunders, M., Lewis, P., & Thornhill, A. (2019). *Research Methods for Business Students* (8th ed). Pearson Education Limited.
- Sun, D.-W. (2023). Urgent Need for Ethical Policies to Prevent the Proliferation of AI-Generated Texts in Scientific Papers. *Food and Bioprocess Technology*, 16(5), 941-943. <https://doi.org/10.1007/s11947-023-03046-9>
- Tlili, A., Shehata, B., Adarkwah, M. A., Bozkurt, A., Hickey, D. T., Huang, R., & Agyemang, B. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10(1), 15. <https://doi.org/10.1186/s40561-023-00237-x>
- Geological Society of London. (2023). Chat GPT, gender bias, and the geosciences.
- Kelly, S. M. (2023). ChatGPT passes exams from law and business schools. *ChatGPT passes exams from law and business schools-CNN Business*.
- Milmo, D. (2023). Italy's privacy watchdog bans ChatGPT over data breach concerns. *Italy's privacy watchdog bans ChatGPT over data breach concerns-The Guardian*.

## ABBREVIATIONS

- AI – Artificial Intelligence  
GPT – Generative Pre-trained Transformer