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# The Relationship Between AI Tools and Their Aspects in Higher Education

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## Abstract

This study investigates the influence of AI tools, including ChatGPT and Chatbots, on higher education during the COVID-19-induced shift to online and blended learning. It employs a mixed-methods approach to assess awareness, benefits, opportunities, and challenges among educators in higher education institutions (HEIs). Findings demonstrate that heightened awareness positively impacts AI adoption, while challenges act as barriers. Benefits and opportunities are yet to be fully realized. Ethical integration is emphasized, requiring collaborative efforts to address challenges. AI possesses transformative potential in higher education.

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## Introduction

Due to the Covid-19 pandemic, educational and learning environments face various technological transformations from offline classroom learning to online learning and a blended model of learning. In response to this, the techno-skills of the academic fraternity and the learners improved a lot in terms of the usage of computers, digital gadgets, and AI tools (Rahman et al., 2021). Higher education institutions (HEIs) across the globe are gradually moving toward bringing virtual learning environments into reality. Further, in support of these developments, one of the debating and trending technologies, i.e., AI/ChatGPT/Chatbots, is imposing many opportunities and challenges to educators and learners in different aspects of higher education (Haque et al., 2022). These technologies have gained the enormous attention of academicians, researchers, regulators, and the public at large, questioning their sustainability, ethics, and integrity in the academic and research environment (Jiao et al., 2023; Aydin and Karaarslan, 2022). This article provides novel insights into the use of AI/ChatGPT/Chatbot technologies in higher education environments. An extensive and in-depth review of the literature was undertaken to assess studies that previously tackled the application of these technologies in the modern learning environment and their issues and challenges. The outcome of this article will guide experts and leaders of HEIs to develop teaching and learning policies, models, and strategies toward the application of AI/ChatGPT/Chatbot in education in a monitored way to ensure ethics and integrity.

## Method

The study used a triangulation approach of both quantitative and qualitative research designs. The data were collected with the help of structured research instruments from teachers who are teaching in HEIs. The research instrument consisted of 57 statements which were categorized into awareness (7), benefits (18), opportunities (8), and challenges (24).

A total of 350 teachers were sent a questionnaire, of which 192 responses were received, and 177 were complete; all the completed responses were considered for the analysis. The reliability of the instrument was measured with Cronbach's alpha as 0.81, which indicates that the reliability of the instrument is excellent. The majority (99%) of teachers have less than 10 years of experience, which means the majority of teachers were young and experienced AI/ChatGPT/Chatbot technology in teaching and learning environments. The data was analyzed with the help of logistic regression analysis; the analysis was based on the dependent variable dichotomous, which is whether the teachers are experienced with this technology in teaching and learning or not.

## Results

To interpret the results, the study developed the following hypotheses and tested them against the data collected.

1.  $H_0$ - Awareness of the use of AI/ChatGPT/Chatbot technology does not influence the usage of the same in higher education.  
Result- Supported
2.  $H_0$ - Benefits of AI/ChatGPT/Chatbot technology do not significantly influence the adoption of the same in higher education.  
Result – Not supported
3.  $H_0$ - Opportunities of AI/ChatGPT/Chatbot technology do not significantly influence the adoption of the same in higher education.  
Result – Not supported
4.  $H_0$ - Challenges of AI/ChatGPT/Chatbot technology do not significantly influence adoption in higher education.  
Result- Supported

The logistic regression analysis results indicated that every 1 unit of increase in awareness of AI/ChatGPT/Chatbot leads to 1.921 times the expected increase in the adoption of AI/ChatGPT/Chatbot in higher education. Further, every 1 unit of increase in the challenges of these technologies in higher education leads to a 0.814 times decrease in the adoption of AI/ChatGPT/Chatbot in higher education. Based on the Wald test, it is observed that the awareness and challenges of AI/ChatGPT/Chatbot use in higher education are statistically significant at a 5% level, which leads to the acceptance of hypotheses H1 and H4. Further, the benefits and opportunities of using these technologies in higher education are statistically insignificant. This is because the teachers at higher education may be aware of the use of these technologies and also may experience their challenges. Hence, awareness has a positive influence, whereas challenges have a negative influence on the use of these technologies in higher education.

In addition, it is observed that due to the nascent stage of these technologies used in higher education, the benefits and opportunities of such technologies are still not observed significantly. Hence, hypotheses H2 and H3 are rejected.

## Practical Implications

The nature of teaching and learning mechanisms is rapidly changing in response to the change in technological advancement in the higher education environment. The HEIs are required to formulate new policies, goals, and strategies for all learners and teachers to sustain them with AI/ChatGPT/Chatbot technologies through added skills. This makes the HEIs' education system more relevant to market needs. Many experts view that AI-based technologies are destroyers of the education system, but the outcome of this paper will serve as guidance to HEIs, academicians, researchers, regulators, and learners at large to adopt and implement AI-based technologies in a monitored way to protect ethics and integrity in the teaching and learning environment.

Further, the HEIs and other researchers need to work in a collaborative research environment to eradicate the challenges and other ethical issues involved in the use of these technologies in the education environment.

## Conclusion

AI/ChatGPT/Chatbot technologies are cutting-edge, new instruments that, while they present many chances and advantages, also present numerous difficulties for contemporary academic and research endeavors. Conceptually, it is evident that new tools quickly and carefully change the environments of learning and research.

The prior knowledge or experience of these technologies among both students and professors has a substantial impact on the level of utilization of these technologies in the academic and research fields. In academic and research settings, these tools are, nonetheless, quite new to many educators and students. As a result, there is a need to develop programs for teachers that will educate them about these technologies and help them use them ethically and honestly.

Although AI/ChatGPT/Chatbot technologies provide many advantages and prospects to the academic and research stakeholder communities, they have not been sufficiently demonstrated empirically. This could be a result of their infancy in the context of learning and research.

Additionally, these technologies present numerous difficulties for research and academia, which affects how often they are used by professors and students. By giving them a chance to contribute, regulators, software developers, and institutions of higher education can further enhance the technological and framing policies that are used to control misuse.

The study was limited in that it only included instructors and sought their feedback on the advantages, difficulties, and possibilities presented by these technologies in the educational setting. Future research might concentrate on examining how regulators, software developers, and students feel about this. Another drawback of this study is that no trials were conducted to obtain a more realistic picture of teachers' perceptions of these technologies; instead, it merely relayed the opinions of teachers.

The study suggests that to encourage the use of these technologies in education and research ethically and honestly, there is a need for the direct involvement of educational institutions and regulators in the policy-making process. The results of this study will provide a distinctive contribution to the literature in the field of cutting-edge research and teaching. Academics, researchers, regulators, and educational institutions will be able to use this research as support and direction to progress the promotion of new technologies while taking into account their numerous ethical implications.

The study's final finding is that, despite the difficulties and ethical concerns associated with using these technologies in research and education, they have the potential to significantly alter both fields.

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