Teachers' Attitude toward AI-Based Teaching Tools in Higher Education: A Survey Study from Punjab

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Abstract

Artificial Intelligence (AI) has become a game-changer in the world of higher education, reshaping the way educators teach, students learn, and institutions manage their operations. In recent years, Artificial Intelligence (AI) has become a revolutionary tool in the higher education sector, revolutionizing the way teachers instruct, students learn, and institutions operate. AI-based teaching tools such as ChatGPT, virtual assistants, automated grading systems, smart content generators, and adaptive learning platforms are increasingly being integrated into educational institutions to enhance teaching effectiveness and student engagement. This current study explores the teachers' attitude towards the use of AI based teaching tools in higher education institutions in the province of Punjab. This study was a descriptive survey method and a structured questionnaire was used and distributed to 100 college and university teachers of various regions of Punjab. The study sought to delve into the level of awareness, use, perceptions, and issues educators faced with the use of AI in educational contexts. The results show that most teachers have positive attitudes towards the use of AI-supported teaching technologies, especially for the efficiency, ease of access, time-saving, and assisting academic content preparation, research, and assessment activities. The majority of the respondents were of the opinion that the use of AI tools enhances the involvement and participation of students in the classroom and supports innovative teaching-learning processes. The study also revealed some concerns on overdependence on technology, ethical concerns, risk of plagiarism, data privacy, lack of human interaction and lack of technical training. Many respondents highlighted the importance of faculty development initiatives and institutional support to effectively integrate AI tools into higher education. In conclusion, the study suggests that, while AI holds significant promise for revitalizing and modernizing educational systems, careful integration, expanding digital literacy, establishing ethical standards, and ongoing teacher development are crucial for ensuring its effectiveness and sustainability. To facilitate the sustainable growth of education, educational institutions should take strategic steps to ensure the responsible and effective use of AI technologies.

Keywords: *Artificial Intelligence, Higher Education, Teachers' Attitude, AI Tools, Digital Learning, Punjab*

Introduction:

The use of Artificial Intelligence (AI) in the field of education has fundamentally changed the way learning is conducted in the world. AI-powered pedagogical tools aim to help teachers by automating content creation, implementation of intelligent tutoring systems, grading, virtual

classrooms, and providing individualized teaching. These technologies are not only effective in improving the efficiency of teaching but also the efficiency of student learning and access. With a focused shift to digital education in the context of the National Education Policy (NEP) 2020, the use of AI-based education technologies has picked up pace in India. Digital tools are being introduced into higher education classrooms in more innovative ways and faculty members are being encouraged to use them more. AI-based applications for teaching are also booming in Punjab with a swift rise since the COVID-19 pandemic. The teachers are now utilizing tools like ChatGPT, Google Classroom, an AI presentation maker, online assessment systems, and learning management systems. Educators' attitude towards these technologies is however, very crucial in their successful implementation. The objective of the present study is to understand the perception, acceptance and challenges of teachers with the use of AI tools for teaching in Higher Educational Institutions in Punjab.

Objectives of the Study:

1. To examine teachers' awareness regarding AI-based teaching tools.
2. To study the attitude of teachers toward AI integration in education.
3. To identify the benefits perceived by educators regarding AI tools.
4. To analyse challenges faced by teachers while using AI technologies.
5. To suggest strategies for effective implementation of AI in higher education.

Review of Literature:

In recent years, educational research has shed light on the importance of AI in reshaping higher education. Research shows that AI tools can enhance personalized learning, automate repetitive tasks, and streamline educational administration. Studies in digital transformation in education indicate that digital capabilities, institutional support and perceived usefulness are important factors in teachers' adoption of technology. In recent years, a number of scholars have pointed out that positive attitudes among teachers about technology can be a predictor of adopting innovative teaching practices. Earlier studies also show that teachers are concerned about ethical issues, academic integrity, overreliance on AI tools and lack of technical training. AI research suggests that faculty development initiatives and smart policies on artificial intelligence should be implemented to ensure its balanced use in educational contexts.

Research Methodology:

- **Research Design -** The present study used descriptive survey research design to investigate the attitudes of the teachers towards AI based teaching tools in higher education institutions of Punjab. This approach, known as descriptive, was deemed appropriate to grasp teachers' perceptions, awareness, acceptance, and challenges of using AI technologies in educational practices.
- **Sample -** The survey was done with 100 teachers from different colleges and universities of Punjab. The sample consisted of respondents from various academic streams to ensure

a wide range of perspectives and experiences on the use of AI in teaching-learning processes.

- **Data Collection Tool -** Data collection was mainly carried out using a structured questionnaire. The questionnaire was designed to assess the awareness, usage, benefits, and challenges related to AI-driven teaching tools. It included closed-ended questions and opinion-based statements. Data were obtained both on-line and off-line.
- **Statistical Technique -** The data collected were analyzed by means of percentage analysis and descriptive interpretation technique. The following techniques were also employed in presenting and interpreting the results systematically for gaining a deeper understanding of teachers' attitudes towards AI-based educational technologies.

Survey Analysis and Interpretation:

The survey results indicate that overall, the attitudes of teachers towards the use of AI-based instructional tools in higher education are largely positive in Punjab. The majority of the respondents (88%) knew about AI teaching technologies, and 74% of the respondents actively used AI tools for teaching. 79% of teachers indicated positive attitudes toward the integration of AI, while 82% felt that AI technologies enhance class management and ease academic tasks, thereby improving teaching efficiency. The survey also reveals that educators value AI tools for helping them prepare for their lectures, create online exams and quizzes, develop course materials, conduct research, and engage students. AI tools like ChatGPT, Google Classroom, and presentation software have proven to be helpful resources for teachers. Also, 76% of the respondents stated their satisfaction with digital teaching tools and recognized their contribution to the improvement of accessibility and interactive learning environment. While these positive perceptions were found, there were also several concerns identified. Approximately 63% of the respondents were concerned about excessive reliance on AI technologies, and around 67% were concerned about ethical problems, plagiarism and data privacy. Many teachers also stated that overuse of automated systems could lead to less involvement of human interaction and creativity in teaching-learning processes. One of the major findings of the study was that 91% of the respondents highlighted the need of faculty development programmes and digital literacy training. Teachers feel that appropriate technical advice and institutional support are necessary for the responsible and effective use of AI in Higher Education. In summary, the survey points out the opportunities and challenges of AI-based teaching tools in the higher education sector of Punjab.

Benefits of AI-Based Teaching Tools:

AI-based teaching tools offer several advantages such as personalized learning support, time-saving through automation, improved classroom engagement, easy assessment, better research assistance, and efficient student performance tracking. These technologies help educators adopt innovative and interactive teaching methods

Problems of Teachers:

While teachers in Punjab have generally positive attitudes towards AI based teaching tools, they still have some challenges to overcome to properly use them. The researcher found that the problem of teachers not being technically trained and know about digital literacy is one of the big problems identified in the study. The familiarity of advanced applications of AI is not widespread among teachers, and as a result they are reluctant to use it with confidence in the classroom. The lack of clear direction and institutional backing even further hampers potential applications of AI tools in higher education. An additional worry for teachers is their worry of being replaced by automation. There are teachers that feel that relying heavily on AI systems will diminish the role of human teachers in the learning process. Issues like plagiarism, misuse of AI-generated content, and academic dishonesty also raise questions about the usage of AI technologies. Teachers are worried about the potential for students to use AI for tasks without learning. Security concerns and privacy issues are also emerging as issues. Teachers are concerned about protecting personal and institutional information when using online platforms and AI-powered applications. Besides, some colleges and universities have a relatively poor technological support system, particularly in the rural areas, which limits the access to and efficient use of digital teaching aids. The disparity in adoption of technology among institutions also increases inequality. Stable internet connection is also a factor that impacts the regular use of AI applied in education. All of these barriers have an impact on the successful implementation of AI technologies in higher education institutions.

Suggestions:

There are a few recommendations for enhancing the adoption and effective use of AI-powered teaching tools in higher education. Schools and colleges should provide regular faculty development programmes, workshops, and training sessions to boost teachers' digital literacy and awareness about AI technologies. Institutions should also have definite policies, ethics and principles around responsible use of AI in education. Enhanced digital infrastructure, such as internet facilities and smart classroom resources, are vital for successful AI adoption. Colleges and universities must also foster blended learning which is a combination of learning methods and internet technologies. Educators and students need to be inculcated with awareness about cybersecurity, data privacy and ethical use of AI tools. Moreover, AI literacy must be embedded within teacher education and training to equip teachers for future education transformations.

Conclusion:

AI has become an integral part of the higher education system. The study finds that teachers in Punjab are positive about AI-based teaching tools as they are helpful in enhancing teaching efficiency, productivity, and class participation. But the difficulties in implementing effectively remain with ethical issues, lack of training, dependence on technology, and poor infrastructure. To successfully integrate AI in education, it is crucial for schools to take a balanced and responsible approach, providing the right training for educators, ethical guidelines for usage, and technological infrastructure to support the implementation process. AI should be used as an educational aid to improve the teaching practice of educators, not to replace them.

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