Students' Perception Towards Artificial Intelligence in Higher Education in India

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ABSTRACT

This research examines students' perceptions of Artificial Intelligence (AI) in higher education in India. Data was collected from 100 students from different fields from engineering, management and science and used a quantitative research study design. A structured questionnaire used with a five-point Likert scale evaluated categories including Awareness, Perception, Perceived Benefits, Implementation, Adoption, and Challenges. Partial Least Squares Structural Equation Modeling (PLS-SEM) was used to explore the data. The result of the measurement model confirmed construct reliability and validity. The structural model's findings showed that high awareness of students predicts perception ,perception strongly predicts implementation, and implementation significantly predicts adoption. Perception and challenges , on the other hand, had no visible impact on adoption, suggesting that barriers are less powerful than anticipated. The results shown that the main factors influencing the adoption of AI in higher education are effective implementation and the way the implementation introduced . By highlighting implementation as a crucial mediator in adoption models, the work adds theoretical value and has applications for educators and policymakers.

Keywords: ChatGPT, Digital Learning, AI Adoption, Higher Education, Student Perception, Ethical AI

INTRODUCTION

The education sector is not only a single sector where the swift transformation of numerous industries brought about by the integration of Artificial Intelligence (AI) into modern life. AI is being used more and more in higher education in instructional nature , improve administrative, , and learning effectiveness. AI is changing how educational institutions are making them learn about the usage of AI and engage with and assist students, from chatbots like ChatGPT that are powered by AI to predictive analytics and automated grading tools. This change requires a fundamental rethinking of pedagogy, teacher-student relationships, and the role of the learner in the digital age. It is not just a technological one.

India offers a distinctive and dynamic environment to explore the role of AI in higher education, with its size and diversity of student population and rapidly digitizing educational systems. The importance of the integration of the emerging technologies, including artificial intelligence (AI), in the academic program and the work of the institution is particularly underlined in the National Education Policy (NEP) 2020. Government efforts such as the Responsible AI for Youth programme and the National Programme on Artificial Intelligence also provide additional policy impetus toward this direction. Nevertheless, despite the evident institutional excitement, the attitudes and readiness of key stakeholders, particularly students are important to the successful implementation and adoption of AI technologies.

Whether AI implementation is successful or not in higher education is highly dependent on the perception of students towards the technology. Students use AI technologies in their everyday academic activities not only as passive observers of these technologies but also as active users iJf AI technology. Their readiness to embrace or dismiss these tools depends on a range of factors that may be linked to technological knowledge and experience as well as concerns about data privacy, equity, and the humanizing nature of education. A study by Zawacki-Richter et al. (2019) and Luckin et al. (2016) suggests that the thinking of AI influences the perception of students regarding it based on how they view the usefulness, usability, and reliability of the technology.

Moreover, the application of AI in education is becoming more recognizable because of the post-pandemic shift to online education platforms. Schools have had to determine how to ensure continuity, quality and student engagement in virtual learning during and after COVID-19. This era saw the emergence of increasingly popular AI-based solutions offering predictive performance analytics, automatic feedback, and adaptive learning. Consequently, many students have been exposed to AI solutions as the obligatory aspects of their learning instead of just the optional ones. However, this has increased visibility has brought about new concerns. Ethical issues regarding the use of algorithms, data collection, surveillance, and possible teacher displacement are increasingly significant in the context of student discourse.

Thus, it is crucial to comprehend how students perceive in order to promote an equitable, inclusive, and moral educational environment as well as to maximize the use of AI tools. Therefore, understanding how students feel is essential to ensure a fair, inclusive, and ethical learning environment and utilize AI tools to their full potential. The lack of literature where the students consider, apply, and evaluate AI tools in relation to Indian higher education remains unaddressed, although the existing literature focuses mainly on the technological capabilities of AI or regulations the institutes may have concerning the use of AI. This paper will help bridge this gap by exploring what students think about it in several domains, including awareness, patterns of use, perceived benefits, ethical implications, institutional support, and barriers to adoption.

This research is informed by the premise that any meaningful AI implementation in the higher education system must be user-centred, taking into account the expectations, concerns, and lived experiences of students. In this work, we can find both qualitative and quantitative data on the evolving relationship between AI technologies and students with the mixed approach. To obtain an extensive overview of the perception of AI in the context of Indian higher education, the study employs a sample of students who study different academic disciplines, including management, science, technology, and humanities..

The study's objectives are

(1) To investigate the relationships between the perceptions of students and their knowledge of artificial intelligence with each other.

(2) This paper seeks to explore the impacts of perceived AI benefits.

(3) To examine the impact of implementation on the uptake of AI technologies by college students.

The unprecedented growth of the use of AI in higher education centers on students. The perceived effectiveness, direction, and inclusivity of implementing artificial intelligence in educational environments will eventually hinge on their perceptions. To make sure that this technological revolution does not harm anyone but, on the contrary, brings advantages to all students and helps bridge the educational gap, understand how students will see it is crucial, and how they can be made to embrace the idea of India becoming a global leader in AI and digital education.

LITERATURE REVIEW

Artificial intelligence (AI) has found increased application in numerous areas of higher education with tools that enhance learning, automate administrative tasks, and tailor educational experiences. Probably the most common are intelligent tutoring systems (ITS), chatbots and other natural language processing (NLP) systems, adaptive learning, automated tests, student performance prediction, and systems that detect infringement (Luckin et al., 2016; Zawacki-Richter et al., 2019). These tools will support educators and learners by optimising learning pathways, increasing student engagement and providing real-time feedback..

Holmes et al. (2019) state that artificial intelligence (AI) in education is not a tool that replaces a teacher, but rather an augmentation tool that allows teachers to address the needs of every individual student more effectively. It simplifies the transition away from the traditional methodology of one-size-fits-all and towards more personalized, data-driven teaching with the help of AI. Chen et al. (2020) proceed to highlight the role of AI in

recognizing student performance trends enabling early intervention with students at risk and supporting personal learning.

There are already many works which have investigated the understanding of and applications of AI among students in educational institutions. Zawacki-Richter et al. (2019) state that student awareness of AI tools depends significantly on the discipline, educational level, and the type of institutions in a systematic review of AI applications in learning. Students mostly gain knowledge of AI through conversational AI such as chatbots like ChatGPT, adaptive learning systems at Coursera, Grammarly, and Turnitin.

Mehta and Suri (2023) discovered that students in India are increasingly utilizing AI tools for learning reinforcement, research support, assignment preparation, and language support. Nearly 70% of the students surveyed from various universities reported using AI applications at some point during their academic careers, but only a small portion were aware of how these tools worked. Raghwan and Das (2021) found that students with backgrounds in computer science and engineering were more aware of and confident in their use of AI tools than students with backgrounds in the arts or humanities.

Perception of higher education students towards AI have been overall positive when these tools are perceived as useful, easy to use, and productive of academic achievement. Siau and Wang (2018) state that AI is perceived positively by students when it complements human teaching, not when it replaces it. Perceived utility and usability are two important components of the Technology Acceptance Model.

According to a study conducted by Bond et al. (2021), students utilizing AI-based tutors highlighted increased motivation, improved learning outcomes, and satisfaction with personalized feedback. Artificial intelligence (AI) applications that provide a timely, accurate response to assignments or exams can enhance student self-regulated learning and reduce their dependence on instructors to provide answers to frequently asked questions. But, previous experience, understanding of the transparent working of AI, and trust in AI systems are mediators of acceptance..

It has also been researched that individuals are increasingly losing trust in AI-based evaluation software and predictive analytics due to their perceptions that they lack openness and fairness. A Selwyn (2019) study reveals that students were not sure about the legitimacy of AI-generated responses and feared that a reliance on algorithms will reduce the quality of human interaction in classrooms..

Ethical concerns are further aggravated by the fact that the use of AI in Indian universities is not explicitly outlined in the policies of their institutions. Raghwan and Das (2021) state that students typically encounter AI in an unregulated environment where they have been implemented without adequate oversight, rationale, or regard to their privacy. This could lead to confusion, mistreatment or even abandonment of AI technologies.

Institutional preparedness has a major impact on how students perceive AI. When introduced with proper orientation, technological support, and ethical standards, students generally feel freer utilizing AI tools within the university (Dwivedi et al., 2023). Educational programs, digital literacy programs, and modeling academic AI use make it easier to positively perceive and adopt AI.

But institutional disparity remains an issue in India. Although at most public universities the basic digitalization remains a problem, elite private universities can be well-equipped with AI infrastructure and awareness initiatives. The digital divide can significantly influence how students perceive and engage with AI, including both access to hardware and AI literacy (Kumar and Bansal, 2022).

Bond and Zawacki-Richter (2022) report that to make the AI implementation in education successful, both pedagogy and institutional culture should align. The more AI is appropriately integrated into the learning setting and supported by human control, training, and policies, the more students will be willing to adopt it. Fragmented or inconsistent implementation can confuse, frustrate or even make students resistant.

In spite of the wide adoption of models such as the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Technology Acceptance Model (TAM) to investigate user acceptance of technology, these

models often do not take into account educationally specific aspects of the situation, such as institutional governance, alignment of pedagogy, and ethical aspects. Due to this reason, other scholars such as Aoun (2017) have proposed more comprehensive and student-focused models that consider social aspects, trust, and transparency when adopting AI.

RESEARCH METHODOLOGY

This study used both a quantitative approach and a survey as a method of research. The population consists of students in Indian higher education studying a number of disciplines. A structured questionnaire was created using previously tested scales (Luckin et al., 2016; Zawacki-Richter et al., 2019; Holmes et al., 2019). The test assessed six constructs, which include awareness, perception, perceived benefits, adoption, implementation, and challenges. Each construct (four to seven items) had to be rated on a five-point Likert scale (1 being strongly disagree and 5 strongly agree).

H1: Awareness (AW) is helpful in perception (PE).

H2a: There is a positive effect of perceived benefits (PB) on implementation (IMPL).

H2b: There is a negative impact of challenges (CH) on Adoption (AD).

H3a: Perception (PE) has a positive influence on adoption (AD).

H3b: Implementation (IMPL) has a positive effect on Adoption (AD).

A purposive sample was selected from students in various academic disciplines. Of the valid ones were one hundred. Partial least squares Structural Equation Modeling (PLS-SEM) was used in analyzing the data. Reasons why PLS-SEM should be used were that it can be applied to exploratory models, it can accommodate complex interactions, and it can address small to medium amounts of data (Hair et al., 2019). There were two phases to the analysis: (1) evaluating the measurement model to verify construct validity and reliability, and (2) evaluating the structural model to test explainability and proposed connections.

Analysis of the Measurement Model using PLS-SEM.

The measurement model was evaluated on the basis of average variance extracted (AVE), composite reliability (CR), and outer loadings. All of the item loadings above 0.68 support the reliability of the indicator, most above 0.70. The CR values were within the range of 0.80 to 0.89 and met the criteria of internal consistency reliability (the higher the value, the greater the reliability). The AVE values showed convergent validity with values ranging between 0.57 and 0.66; they exceeded the cut of 0.50 (Fornell and Larcker, 1981).

All of the indicator loading range was within the acceptable range of 0.68 to 0.89. The Composite Reliability (CR) was used as a measure of internal consistency and was 0.80-0.89. The indication of the Average Variance Extracted (AVE) greater than 0.50 indicates that all indicators loadings were within the range of 0.68 to 0.89. The Composite Reliability (CR) indicated internal consistency ranging between 0.80 and 0.89. Convergent validity test The values of the Average Variance Extracted (AVE) are greater than 0.50. validity of convergence..

Measurement Model Results

Latent variables	Indicators	Loadings	CR	AVE
Awareness	AW1-AWS	0.71-0.85	0.86	0.62
Perception	PE1-PE4	0.68-0.81	0.80	0.52

Perceived benefits (PB)	PB1-PB6	0.72-0.88	0.88	0.64
Implementation(IMPL)	IMPL1-IMPL4	0.70-0.83	0.85	0.60
Adoption (AD)	AD1-AD7	0.74-0.89	0.89	0.66
Challenges	CH1-CH4	0.69-0.82	0.82	0.57

Path	B	p- value	Result
AW → PE	0.432	>0.05	Supported
PB → IMPL	0.500	>0.05	Supported
IMPL → AD	0.328	>0.05	Supported
PE → AD	0.086	N.S	Not supported
CH → AD	0.070	N.S	Not supported

Model Structure

The model found significant correlations of:

AW to PE (p<0.05, b=0.432)

PB to IMPL (p<0.05, b=0.500)

AD is predicted by IMPL (b=0.328, p<0.05).

Unimportant relationships.

PE to AD (b=0.086, n.s.)

The variable explained was CH to AD (b = 0.070, n.s.) (R^2).

Perception = 0.19

Implementation: 0.25.

0.30 is the adoption rate.

RESULTS AND DISCUSSIONS

The outcomes indicate that perception is influenced by awareness, but not adoption. The perceived benefits are more crucial as they result in improved execution, which promotes acceptance. It proves that students can accept AI easier when they think it really can be of benefit to them and when educational institutions use AI the right way.

Unexpectedly, the obstacles such as infrastructure or ethical concerns did not gain any relevance in adoption. It means that students tend to be overall optimistic and satisfied with using AI in case there are some obvious benefits and its powerful realization.

These findings are not new since previous researchers emphasized the value of institutional preparation and smooth implementation (Mehta and Suri, 2020; Raghwan and Das, 2021; Bhat and Jha, 2021). The study is useful since it empirically validates implementation as a facilitator of AI adoption..

CONCLUSION

The findings revealed that perception is significantly better when there is awareness, and thus students with a higher level of knowledge about AI form a more pleasant perception . The study has also revealed though not always that a perception is followed by adoption and so though awareness and attitudes have a part to play they are not sufficient to change a behavior unless the institution does something about it.

An influencing aspect of implementation that had a positive impact was perceived benefits. The more the students were ready to recognize the positive side of the artificial intelligence to the institution i.e. efficiency of automation and personalization the more they were inclined to make the changes to the personality of the institution. The fact that implementation is the surest sign of adoption is understandable by the fact that it does matter that universities and administrators adopt AI systems effectively and incorporate them into the academic setting.

In the current study, surprisingly, there were no major obstacles to adoption. Students showed hope and willingness toward AI use in education despite their anxieties regarding infrastructure, ethics, and privacy. This fact indicates that Indian students may not be as susceptible or flexible to technological change particularly in areas where the perceived benefits are visible, unlike in some foreign research where the difficulty has been hindering.

Explanatory power of the model was moderate with R^2 of 0.19, 0.25 and 0.30 respectively. This means that though the constructs represent a significant percentage of the variation, other variables like cultural forces, faculty preparedness institutional policy, could play a role.

The overall research findings indicate the importance of using as a mediating variable. The process of assimilating AI tools in instructional and educational contexts is what influences acceptance, but awareness and perceived benefits also impact attitudes as well. This increases the significance of Indian higher education institutes to invest in effective student-based implementation and in building awareness.

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