

The Level of Awareness and Perception of University Students towards Artificial Intelligence in Higher Studies

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ABSTRACT

Artificial intelligence stands at the forefront of transformative technology, reshaping educational tools and organizations. In the realm of education, traditionally characterized by the indispensable presence of teachers, the advent of online education and continuous advancements in the Artificial Intelligence (AI) and the machine learning are reshaping the duties of educators. While teachers remain a cornerstone of effective education practices, AI leverages advanced analytics, deep learning, and machine learning to monitor individual progress, differentiating itself from conventional teaching methods. The evolving landscape of AI in education not only facilitates the identification of teaching and learning gaps but also enhances the overall quality of education. As AI solutions progress, they offer a means to identify and address shortcomings in educational delivery, allowing for a more refined and personalized approach to learning. The sublimation of AI into education empowers teachers by developing new time zones adding time and flexibility. This newfound freedom allows educators to rely on developing crucial aspects of understanding and adaptability that require human capabilities, areas where computers may struggle to make an impact. The synergy between AI and human instructors can lead to enhanced efficiency, personalized learning experiences, and streamlined administrative processes. In essence, the convergence of technology and educators holds the potential to extract the best performance from learners. The research article presented here delves into the multifaceted role and impact of AI within the education industry, shedding light on the various modes in which AI can augment educational practices while recognizing the enduring significance of human involvement in the learning process.

Keywords: *Artificial Intelligence, Machine Learning, Education Industry, Online Education*

Technology is the main growth factor to many sectors of society and its inclusion into the education process has great benefits for the teaching and learning facility. Conventional systems of education are rapidly changing in order to encash benefit of technological advancements. The change is occurring because of the easy and widespread outreach to various educational sources of information online.

Artificial intelligence is not the new concept; in fact, it is approximately as old as computer itself. But its application in the real life is few decades old and it is continued to evolve. It is

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quite difficult to give exact definition of AI because of the two reasons i.e. first AI is the continuously evolving field of technology and second AI is itself belong to the interdisciplinary field where expert from varying fields like computer science, linguistic, psychology, mathematics etc. making contribution in its development. The advancement of computer and information communication technologies over time has facilitated the creation of artificial intelligence. According to Coppin [2004], artificial intelligence is the capacity of robots to adapt to new circumstances, deal with unexpected events, solve issues, provide answers, devise strategies, and carry out a variety of other tasks that call for a level of intelligence generally present in human beings. Our social interactions could change in every way thanks to the burgeoning field of artificial intelligence. AI in education has started to develop novel teaching and learning techniques that are currently being evaluated in various settings. AI needs highly sophisticated infrastructures and a dynamic innovation ecosystem. However, the growth of AI in education has been hampered by the fact that traditional educational systems around the world have been slower to adopt technological advancements. A portion of the vision included AI, which promised to revolutionise education by enabling individualised tutoring. This promise is already beginning to materialise as modern technology has started testing many models all around the world, raising numerous concerns in the sphere of education.

Impact of AI in Education

AI influences almost every walk of our life in near future and out of those areas mostly education sector will see the huge impact because teaching and learning is an essential part of life and the current education system has many changes to be desired.

In older times the schooling was less adaptable than what the future of AI is going to offer now. The educators gaining the most important role in educational system on both the fronts pricey and not scalable. Teachers are underappreciated and performing lots of paper work in different setups. AI may not only help individual by giving them separate curriculum based on their interest and skill assessments.

The development of AI applications in higher education introduces new ethical considerations and risks in spite of the immense openings that AI may provide to help teaching and learning. For example, when running low in budgets the administrator may follow retrenchment strategy to make use of automated AI solutions. Most of the resources be replaced by the chat bots, expert systems, and intelligent tutors. While AI has the potential to improve learning analytics, the fact that these systems require vast amounts of data, including sensitive information on faculty and pupils, presents severe privacy and data protection concerns.

Role of Artificial Intelligence

Many educational institutions, including certain colleges, are slowly abandoning the conventional methods of teaching and learning because they are becoming outdated. Instead of delivering physical books and Chalk and Talk way of teaching, most of the educational organisations making use of online learning and providing digital learning material. AI powered machines can do the customization of the academic curriculum. AI tools can make global classrooms possible including people who are visually or hearing impaired. Students with some illness and absenteeism can also benefit from this. The educator assesses the students according to conventional educational system through their assignments and tests,

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which takes a lot of time. When AI intervenes in this situation, it would quickly complete these jobs.

There are now improvements in the direction of utilising computers to grade written type answers, such as paragraphs and assertions. There were already several settings where mcq tests were graded through machines.

AI In the future, AI may be used to handle enrollment and admissions procedures, while its full potential is still untapped. AI can aid students with their home study pattern and exam planning. The development of more sophisticated tutoring and study programmes is entirely due to artificial intelligence. Applications for education are being created, such as AI mentors for students. Students can be divided into groups by AI that are most suited for specific assignments. Adaptive group formation is the term for this. Software using artificial intelligence that can evaluate student essays right away. These essays are added to a central database, and the database's prior essays can be used to compare future articles. A computer-based technique called artificial intelligence in education offers individualised, flexible, and perceptive instruction.

The other component of AI that is highly useful in education is Voice Assistant, which is very beneficial in teaching. This is a ground-breaking use of AI. This includes the Google Assistant, Microsoft's Cortana, Apple's Siri, and Amazon's Alexa. Without the assistance of their teacher, these voice assistants allow students to communicate directly with the instructional materials that are available on the internet and in the installed devices. One-on-one private tutoring is encouraged using the Intelligent Tutoring System. Using neural networks and algorithms, they may decide against a certain pupil.

Challenges of AI in Education

Emotional well-being:

AI based online education makes the use of machines to interact and deal with learners and we all know machines are devoid of emotions. Emotional state of the learners affects how well student can focus and perceive the subject knowledge. It is always said that necessary part of the effective education is interaction with human. It is challenge for scientist and engineers to make the machine identify the learners or students' emotion and present the relevant education material accordingly to keep the student motivated.

Teachers' employment with the advancement of Artificial intelligence and machine learning most of the teaching, learning job will be done by machine. Advancement in AI and ML will further improve the online education. Increasing number of students and learners get the education through online media and robots. There is possibility that the robots with AI technology will replace the human teachers. The challenge is to provide job to these teachers. However, with the advancement in AI, the new jobs will be created which requires new skills related to AI, ML and Big data.

Ethical Education:

Advancement in Machine learning and AI will make the robots to learn and create the courses on their own. The process on online learning and teaching will be automated with the help of robots. In such scenario, the major challenge and issue of concern is to provide ethical online education. AI based education should promote creativity and thinking in students. Governments of the world should make policy in this regard.

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Sustainable growth:

The rapid development of AI is now starting to exceed the computational capacity of the largest AI developers. This pace of development in data driven AI may not be sustainable. Also, the success of AI based educational technology depends on many educational, social and political factors. AI based education should be persuasive and easily accessible to all the section of society.

Significance of the Study

- The finding of the study will enrich the existing literature on Artificial Intelligence in Higher Studies.
- The study provides the relevant information regarding the level of awareness and perception of students in higher education towards Artificial Intelligence.

Research Gaps

The industrial revolution has gradually impacted the artificial intelligence usage in higher education because of the advancement of technology AI is the latest trend in higher education which is based on present scenario. A lot of research has been undertaken to address the level of awareness and perception of AI in higher education. Out of those few studies, a very limited number of studies have been related to the Lucknow City of Uttar Pradesh state.

Research Questions

- What is the basic philosophy of AI.
- What is the level of awareness and perception of students in higher education towards AI.

Objectives of the Study

- To explore the basic concept of AI
- To measure the level of awareness and perception of students in higher education towards AI

RESEARCH METHODOLOGY

The study is exploratory and descriptive in nature. It is based on primary data that has been collected through self-administrated questionnaire using sample survey method. For the exploration of the concept, the secondary data has been used.

Sample Design and Size

- The target population for the study is the students from different courses
- Of study such as MBA, BBA, BCOM etc. The study is limited to Lucknow City of Uttar Pradesh state only.
- A total number of 120 respondents (40 MBA, 40 BBA, 40 BCOM students have been taken into consideration)

Tools Used

- Frequency Analysis, Percentage Analysis, Mean, Chi Square Test, T-test using SPSS software.

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Hypotheses

- **Null Hypothesis H₀:** There is no significant relationship between demographic variables and the level of awareness and perception of use of artificial Intelligence in Higher Education.
- **Alternate Hypothesis H₁:** There is significant relationship between demographic variables towards artificial intelligence in higher education.

Limitations of the Study

- The study is limited to Lucknow city only
- Only 120 respondents were taken for the study
- There is a time and resource constraint
- The use of non-probability sampling has its own limitation

Data Analysis and Discussion

The data regarding the level of awareness and perception have been collected through questionnaire which has further presented in the form of tables and analysed through frequency analysis, chi square and t-test

Table 1 Students enrolled in different courses and usage of AI

Students Enrolled	Fully Aware	Average Aware	Somewhat Aware	Not Aware	Can't Say	Total
MBA	5	9	13	11	2	40
BBA	11	16	9	3	1	40
BCOM	6	8	10	15	1	40
Total	22(18.33%)	33(27.50%)	32(26.67%)	29(24.17%)	4(3.33%)	120(100%)

Source: Primary Data

Null Hypothesis H₀: There is no significant relationship between students enrolled in different courses.

The Table1 depicts the cross tabulation of types of students and level of awareness towards AI

The data shows that out of 120 respondents only 87 respondents (72.50%) claimed that they are aware about the usage of AI while 37respondents (27.50%) were not aware about the usage of AI. Out of 87 respondents 18.33% were fully aware, 27.50% were average aware and 26.67% were somewhat aware. Out of 37 respondents 24.17% were not aware and 3.33% were not able to say anything.

Table 2: Chi-Square Test Students enrolled in different courses towards level of awareness

	Value	Df	Asymp Sig 2 sided
Pearson Chi Square	15.309 ^a	8	.043
Likelihood Ratio	16.234	8	.039
Linear by Linear Association	.010	1	.0921
N of Valid Cases	120		

3 cells (20.0%) have expected count less than 5. The minimum expected count is 1.33. Based on author calculation using SPSS.

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Table 2 exemplifies the test results of the significance of relationship between the students enrolled in different courses and level of awareness towards AI in Higher studies using Chi Square test. The p value of chi square test is 0.043 which is less than 0.05 therefore null hypothesis is rejected. It means there is a significant relationship between students enrolled in different courses and their level of awareness towards AI.

Table 3 Perception of students enrolled in different courses and usage and awareness of AI

Factors related to AI	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
User friendly Interface	19	38	5	18	7	87
Cost Effective	22	41	9	12	3	87
Data Privacy/Security	11	39	7	19	11	87
Time Saving	23	45	3	11	5	87
Prompt Detection	33	38	2	6	8	87
Increase Performance	21	26	19	12	9	87
Future of AI	17	45	14	8	3	87

Sources: Primary Data

Table 3 exemplifies the perception of student who are aware about AI regarding the importance of its usage. Out of 87 aware respondents, 57(65.52%) students agreed that the AI is simple to use and has user friendly interface while 25(28.73%) students perceived that it is not simple and user friendly. In terms of cost, 63(72.41%) respondents have an opinion that the AI is cost effective while 15(17.24%) respondents do not feel as such. The security and privacy of data is one of the crucial factors in AI 50(57.47%) students perceived that the data is secured while 30(34.48%) students perceived that there is a sufficient chance of branch of security and privacy of data in AI. In terms of time saving 68(78.16%) students agreed that the use of AI speed up learning process while 16(18.39%) students have a contrary view 71(81.61%) students have an opinion that in AI problems are easily detected and fixed as and when occurred while 14(16.09%) students perceived that it is very difficult to detect and fix problems at early stage in AI. In terms of performance enhancement 47(54.02%) students agreed that the use of AI in higher education and learning substantially increases the performance of students have an opinion that the AI do not increases the students have asked about the future use of AI in higher education while 11(12.64%) students have a contrary view.

Table 4 Students Perception regarding AI – One Sample statistics and t-test
(Test Value=3)

Factors Related with AI	N	Mean	St Dev	St Error of Mean	T	Sig 2-tailed
User Friendly Interface	87	3.51	1.266	.136	3.727	.000
Cost Effective	87	3.77	1.086	.116	6.615	.000
Privacy/Security	87	3.23	1.282	.137	1.672	.098
Time Saving	87	3.80	1.140	.122	6.586	.000
Prompt Detection	87	3.94	1.233	.132	7.131	.000
Increased Performance	87	3.44	1.282	.137	3.177	.002
Future of AI	87	3.75	0.991	.106	7.033	.000

Source: Primary data (Questionnaire) based on author calculation using SPSS

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Table 4 exemplifies the one sample statistics and t test result of student's perception regarding the important issues of AI. The factor simple to use and user-friendly interface has a mean value of 3.51 which indicates that most of the respondents are agreed strongly agreed with this factor. It is also statistically significant because the p-value of t-test is less than 0.05. The factors cost effective time saving prompt detection increased performance and future of AI have mean values of 3.77, 3.80, 3.94, 3.44, 3.75 respectively. These mean values are more than .03 which indicate that the majority of the respondents are agreed strongly agreed with these factors. The p-value of t-test of these factors is less than 0.05 which signifies that the opinions of students are statistically significant. Further, the mean value of security privacy of data is 3.23 but the p-value is more than 0.05 which implies that security and privacy of data is one of the most important threat/ limitations of AI.

CONCLUSION

Even though the AI-based eLearning platform hasn't become a standard learning approach amidst most learning organizations, but the rate of adoption of AI in teaching learning and evaluation process by educational organizations will be continue to grow. AI is making positive contribution toward the effectiveness of eLearning. Artificial intelligence paving the way for student centric personalised learning. AI based online education will fill the teaching learning gap, save the learning time and accelerate the student's performance with better understanding. Since, most of the education related tasks will take over by AI, role of teachers will be shifted to that of facilitator. The key challenges of AI based online education system will be keeping the sustainable growth of AI, simulating the intelligence of human expert from many fields and delivery of ethics and emotion related education.

AI learning is currently considered as education assistant at the early stage, while AI-enable education will play a more important role as learning requirements changes. It now provides courses of different difficulty based on simple rule judgement and has not reached the best intelligence level in intelligent education. There are education studies for AI systems involving knowledge map and probability model. With increasingly frequent interaction of the educational process, AI systems will generate more and more data to provide a clearer picture of the process of teaching and learning, which enables more accurate information recommendation. AI systems will help teachers and students by providing them with high-quality contents that will enhance teaching and learning and make the entire process measurable with the help of learner analytics, machine learning, and data mining.

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Conflict of Interest

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