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A Descriptive Study On The Growth, Development, And Future Of Artificial Intelligence In India

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Abstract:

In the past few years, we have seen vast development in technology, notably in the AI field, Artificial Intelligence. Artificial Intelligence(AI) is the advanced technology that makes it possible for computers to perform advanced functions like analysing data, it also can see, understand, and translate spoken language. According to the Worldometer, the Population of India is 1.41 billion at present and it is increasing rapidly. As the population increases the speed of work decreases. It is too difficult to maintain a database of 1.41 billion people, but AI makes it possible. Now with the help of AI, we have increased the speed, productivity, and reliability of work in most sectors like Education, Health, Hospitality, Retail Industry, and many more.

The main aim of this research paper is to deliver an explanatory analysis regarding the growth and development of Artificial Intelligence in various sectors, especially in the Education, Health, and Retail sectors in India. Artificial Intelligence is a trending topic of modern times. The other objective of this paper is to review the future of Artificial
Intelligence in India.

Keywords: Artificial Intelligence, AI in Education, AI in the retail sector

Introduction:

Artificial intelligence is coined as the unnatural incorporation of intelligence in computers like humans. AI is often interchangeably used with machine learning and deep learning however machine learning and deep learning are the subsets that come under the umbrella of AI. It's important to note that although all machine learning is AI, not all AI is machine learning. According to (McCarthy, 1998) AI is defined as the science and engineering of making intelligent machines, especially intelligent computer programs. AI refers to machine-based systems that can give a set of human-defined objectives, and make predictions, recommendations, or decisions that influence real or virtual environments. AI systems connect with us and act on our environment, either explicitly or implicitly. Often, they appear to operate autonomously and can adapt their behaviour by learning about the context. (UNICEF, 2021, p. 16).

AI is on a perpetual basis of learning and analysing the data that can be used in the dynamic world. AI is not a new concept it was discovered in the 1940s but as the pandemic hit India the technology momentum increased leading to its usage from a retail store to the education sector to the healthcare sector of the country. In the retail sector, it has transformed the pedagogy of manual working to computer working in the files like customer service, supply chain, store management, and whatnot. In the education sector, Beyond teaching (i.e., student-

focused AIED), AI has potentially interesting applications in education administration (i.e., system-focused AIED) and teacher support (i.e., teacher-focused AIED), and could even stimulate new pedagogical and pedagogical approaches.

However e machines are taking up the jobs and tasks which were earlier performed by man as machines have developed intelligence, memory, and labour but this way man is free to do the task that he is good at i.e. empathy and creativity which is yet to be taken by any machine and since most of the tasks will be performed by machines, the scope of mistake reaches to zero leading to efficient work and more productivity, in turn, helping the country to grow better. According to McKinsey, AI has the potential to deliver additional global economic activity of around $13 trillion by 2030, or about 16 percent higher cumulative GDP compared with today. Thus it can be said that AI is not only affecting the growth of INDIA but also the overall development of the nation.

Objective:

1) To check the growth of Artificial Intelligence in India.
2) To analyse the future impact of artificial intelligence in the retail and education sector.
3) To analyse the shortcomings of AI in the retail and education sector.

Literature Review

AI in Retail

The necessary experience of shopping in India hasn't changed much from the past many years in the retail industry; It is like just going into the store, finding the product we need, and purchasing it. Artificial Intelligence(AI) has the power to convert the traditional retail experience into a smart retail shop through personalization, automation, increased efficiency, and reliability of work. It starts happening in the urban areas of the Country in the cities like Mumbai, Ahmedabad, Bangalore, Jaipur, and many more. Let us see the growth of AI in different Retail Industries.

AI in Clothing Industry

If you want to purchase a t-shirt, you have to wear that t-shirt to check whether the size of the t-shirt is perfect or not and how it looks on you. But now with the help of AI magic Mirror, it becomes easy to check it. A magic mirror system that uses a high-quality camera to capture the body characteristics of a customer while they are in front of the magic mirror. Using augmented reality technology, the mirror's display can show fashion concepts and various outfits to the user, coordinated to his or her body. (Mri Kim and Kim Cheeyong, 2015). Many companies use AI to predict the sales of the product according to the need of the market like the colour, price, type, etc. According to the reports, Predictions show Revenue of the Indian Fashion Industry will grow 16.32% annually (CAGR 2022-2027) to reach $39.42 billion by 2027.

AI in Home Decor Industry

Furniture is an essential need for everyone in today's world. Earlier if we wanted to purchase furniture we went to different-different stores and we were not confident that it would be comfortable in the required space. It consumes too much time, now all are shifting towards the new technology of home decor on their mobile phones and laptops. There are many features such as visual search, Chatbots, etc. which help the customer to find and explore the virtual market. The customer just has to click the picture of the space where they want to put the furniture. With the help of Visual Search, they get the best solutions for their home (**Pradeep Singhvi**,2018). AI is starting to grow in the field of Home decor in India. Still, in India, it will take more time to grow because people in India normally prefer to go to the market and purchase furniture, instead of clicking photos and all. But it is developing in the urban areas of the country.

AI in EyeWear Sector

With the increasing adoption of technology, the eyewear industry in India is also witnessing the integration of Artificial Intelligence (AI) in various aspects of the business. One of the main areas where AI is being used in the eyewear sector in India is the development of smart glasses and virtual try-on technology. Companies are using AI-powered algorithms to create virtual try-on experiences for customers, which allows them to see how a pair of glasses would look on them before making a purchase. This technology uses facial recognition and 3D modelling to create a virtual representation of the customer, which can be used to try on different frames and styles.

AI is also being used in the retail sector of the eyewear industry in India, where it is being used to improve the customer experience and provide personalised recommendations to customers. Retailers are using AI-powered chatbots and virtual assistants to interact with customers and provide them with product recommendations based on their individual needs and preferences. Overall, the growth of AI in the eyewear sector in India is expected to bring significant benefits to the industry, including improved efficiency, cost reduction, and improved customer experience.

AI in education

The willing full activity of inculcating knowledge and skills is known as education. When education is done by humans, it is known as a traditional form of learning whereas the same being done by computers intelligently, is known as Artificial Intelligence. From the last decade, Artificial Intelligence is termed the 'new oil'(e.gPalmer, 2006) or, as UNESCO's director general suggested in her 2019 Mobile Learning Week keynote that AI is one of the greatest inventions since the palaeolithic age. India's agenda of making 50% of students in the country do their higher education in 2030. Education is a vital need required for survival and growth therefore, humans are making AI-based robots that get developed through technology and then teach the students. The blended version of gaining knowledge inside and outside of the classroom by the student using technology is having more impact and retention on the student. A study shows that the power of retention increases through personalised learning. This computer-enabled learning expands the teaching-learning activity by predicting the performance of the student and carving personalised learning experiences (Thai-Nghe, Drumond, Krohn-Grimberghe, & Schmidt-Thieme 2010). The concept is not a new demand of the students, but more emphasis has been given in recent years when students are demanding personalised learning and AI is fulfilling this demand. like BYJUS is an Indian Edtech company based on AI and machine learning which evaluate the student prior and then provides the best match of professor to the student. A holistic approach to learning is a motivation for the education sector in India which will help the country in this aspect in the present and the future for the nation. Human errors are inevitable and keeping in mind the unforeseeable future is dynamic, non-predictable, and competitive, the manual concept and doing the work is now being replaced with AI. India has the largest proportion of youngsters in the world and a country's successful and bright future lies in the hands of their youth faces who form the workforce of the nation, therefore, educating and inculcating the latest technology usage and making them familiar with them is one of the crucial tasks of India.

Future aspects of AI include using face detection machines for attendance which has now been shifted to detecting the face and marking the presence of the students. Robo teachers

APPLICATION OF AI IN EDUCATION IN INDIA

Despite recent interest in applications of education and AI, both of the fields have intersected for some time (e.g., Aleven & Koedinger, 2002)—which will be questioning the ethical and philosophical aspects. Now we will discuss some AI-supported teaching and learning techniques being supported by AI in India already. Along with that, we will discuss the shortcoming and the suture aspect of AI in the education system.

1. Counselling

The role of a counsellor in the school is multitudinous, time taking, costly and eventually after a certain period of working hours it is less efficient. The researchers have found the way out through it using Chatbots. These can be called artificial counsellors for students and parents who are available 24*7 and work efficiently at all times, unlike humans. The student can ask any question or query they have in their mind before entering any educational institution. According to a recent study (Page & Gehlbach, 2017), Georgia State University (GSU) deployed an AI chatbot to answer questions about forms students would need to fill out before college commencement. The authors concluded that the chatbot was trained with deep reinforcement learning which is the same technology that has enabled state-of-the-art advances in automated gameplay (AlphaStar Team, 2019)— keeping in mind that it is tough to evaluate and train the chatbot model for user-friendly answers that is unclear till date.

These chatbots can be termed computer counsellors that act as an agent between the student and the educational institute in answering the diverse questions of the student on time without any delay or linguistic barrier. However, researchers question that the chatbot can not answer the complex educational question, therefore this aspect of AI advancement can be taken into consideration.

2 Personalised learning

According to studies, there is an inverse relation between the number of working hours and the efficiency of working, same applies to teachers. Every student wants to have a personalised learning effect to get better and deeper knowledge in terms of queries. Every student needs a personal factor in their learning as every student does not hold the same catching power. Therefore platforms like ‘Byjus’ and ‘Unacademy’ came up with the idea of assessing the student before enrolment and with the help of an AI-based system they analyse the level of concentration of the student and then provide them with suitable teachers.

3. Intelligent tutoring system

Intelligent Tutoring System (ITS) has been introduced where AI-based tutors will be there who will be answering the student's questions based on historical answers. The I in ITS stands differently for different people based on their knowledge parameters.

A prediction system can be developed through which the likelihood of “correctness” is as accurate as possible (e.g., using deep reinforcement learning a la Reddy et al., 2017). Applications like ‘Toppr’ are using ITS for a better concept clearance of the student where she is learning at her own pace with personalised feedback. AI-powered platforms like ‘Simplilearn’ are adapting to students' learning styles and adjusting the content and pace of instruction accordingly.

4. Instant assessment and grading

To overcome the problem of students waiting for the solution to their problem, it is time to take the component of AI, mainly machine learning, to help grow the digital marketing concept and encourage the students to use IST. AI-based tools such as ‘Gradescope’ are being used to grade student work in India, helping to save time for educators and ensure more accurate grading. Being a writer requires a feedback mechanism on the regulator and an instant basis. For this,(Fiacco et al., 2019)AI recently designed a neural network-based machine learning system to identify which methods, or frame new knowledge. The instant learning concept commenced too big changes in linguistic structures were there in sentences having a corpus of research study articles: for example, which sentences should describe the study, provide context on the study, etc.

In the future, AI-driven education in India will become more prevalent and will help to improve the quality of education, making it more personalised, engaging, and effective for students. Additionally, it will also help to bridge the gap between urban and rural education and help reach more students in remote areas.

Research Methodology:

In this Research, the study of Artificial Intelligence mainly focuses on the Education and Retail sectors. One questionnaire was prepared to know how many people are aware of AI, the Growth of AI till the present time in the education sector and whether people are ready to shift towards AI in the future or they are not ready to shift. For the retail sector, the data was collected through Telephonic and face-to-face surveys from the retailers.

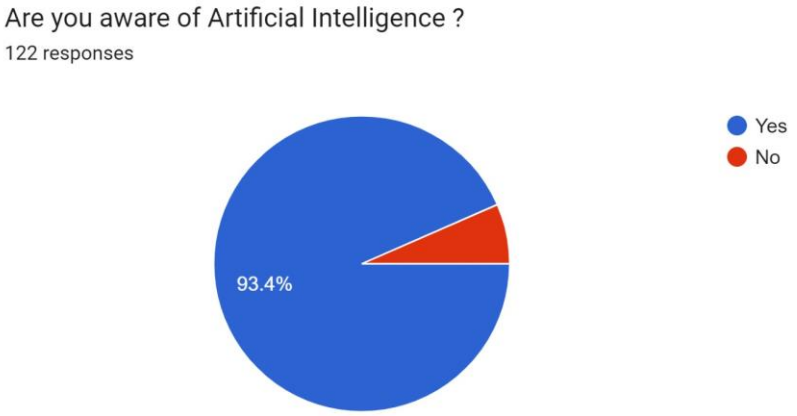
Data Collection:

a) Education: The sample size of 122 people from Poornima University from different Courses with age groups 18-24 was taken. 100% of the data was collected by Survey Method through Google Forms.
b) Retail: 30% of data was collected via Telephonic and 70% through face-face-face Surveys. The data was collected from different retailers like bakery shops, Kirana stores, Optical shops, etc.

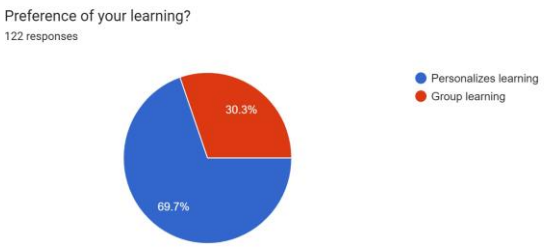
Result And Discussion:

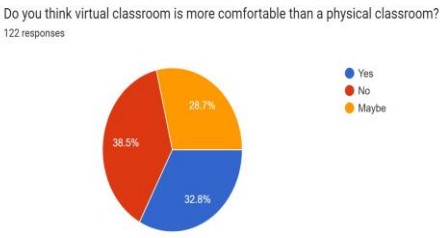
As mentioned earlier, the data was collected by survey method, Analysis was based on the answer given to the responses.

Education:



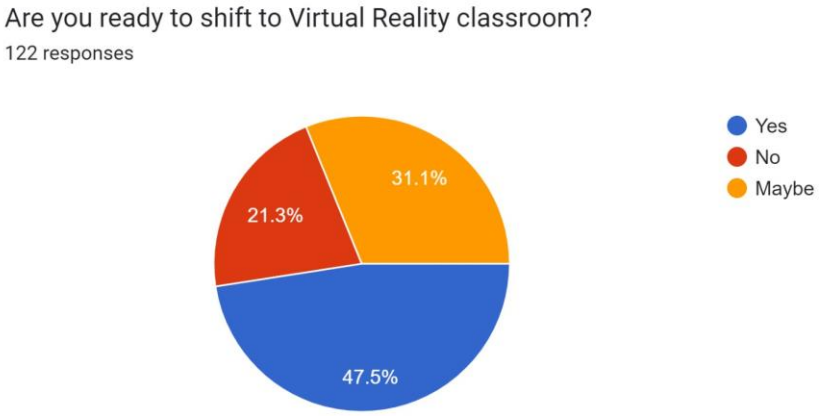
There are 93.4% of respondents aware of Artificial Intelligence. It means that most of the respondents are aware of Artificial Intelligence except 6.6%.





69.7% of the respondents want to do personalised learning rather than group learning where the level of efficiency and effectiveness of the educator is not equal for every student in most cases. If the student can get personalised one-on-one learning sessions with the educator the level of knowledge will eventually increase.

According to the responses of the students from the survey, 38.5% of the student are not in favour of virtual classrooms where they can impart knowledge through virtual reality technology rather 32.8% are in favour of virtual reality classrooms and 28.7% of students are still in dilemma whether they should go for virtual classroom or not.



To get an insight into students' inclination towards accepting to change from the traditional way of learning in the classroom to studying in a Virtual Reality classroom where they will be getting an environment where they will be getting a deeper understanding of the knowledge through VR. 47.5% of the students are in favour and ready to shift towards the virtual reality classroom whereas, 21.3% of the students don't want to leave their roots of getting knowledge by getting into physical classroom scenarios. The rest of the students are in the middle of the situation of whether they should go for a VR classroom or not.

Retail:

According to the responses of the retailers, 23% of the retailers are not aware of AI while the remaining people are aware of AI. Most retailers are ready to adopt AI concepts in their shops. The future of AI in India will grow in the upcoming years.

Conclusion

It can be said that most students as well as retailers are aware of AI. AI can help students to overcome their struggles regarding personalised learning, getting an instant solution to their answers, getting one on one counselling sessions, and whatnot. AI is the new future in the education industry where every individual will be techno-savvy. In the Retail sector also AI helps retailers to do their work effectively and increases productivity and speed of work. It can be concluded that AI has a bright future in the education and retail sector in India in the upcoming years.

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