GURU SHREE SHANTIVIJAI JAIN COLLEGE FOR WOMEN

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PREFACE

Change is inevitable in an educational system that has to meet the present day needs and prepare the future citizens of a nation. It becomes necessary that educational institutions, however updated we are, we need to renew our relevance every day through research. It is in this background the GSS College look at itself its innovative research & professional approach.

The GSS College provides an ideal environment for both the staff and students to enrich themselves intellectually. We are committed to provide knowledge to meet the intellectual and social needs of the students. GSSJC's TQ.."a research journal" intended to give a birds eye view of the on-going research activities of the teaching community. I am happy to be a part of my team in presenting this TQ...which will give you an idea of how the Teaching Community, in general, connect themselves to innovative research.

I want to thank each and every one of the members of the teaching staff for their support. Also I record my appreciation to the Editorial Committee Members. My sincere gratitude to all those who have worked towards TQ.

Our special word of thanks are to our revered dynamic College Secretary Shri.Er.P.Gautam Vaid whose visionary leadership has shaped the College to become responsive to the demands of the time. We are grateful to him for giving us an opportunity.

I am hopeful that this effort will set the ball rolling and help us to do more and more research.

Dr. (Mrs.) M.K.MALATHI
PRINCIPAL
GSSJC

FROM THE DESK OF HON. SECRETARY

Research improves the Quality of Life. Research involves penetration of Knowledge. This Knowledge era has thrown multiple Challenges and Opportunities, and Innovativeness is become the Order of the Day. It is therefore impertinent for every knowledgeable person to think deep, study extensively, observe carefully and devise appropriate methods or systems to carry on in this Hi-Tech, Hi-Speedy World.

Teachers have been regarded as Masters of Knowledge, and hence their contribution by way of Study, Research and Findings bears lot of importance for future generation.

It gives me immense pleasure that our College has taken a bold step in publishing a Research Journal with the advise and contribution from eminent Scholars in the respective disciplines and is named as "GSSJC's TQ..."a research journal" This Journal will inspire all teachers to project their inquisitive talents and achievements.

MY BEST WISHES for the success and progress of this best initiative, with congrats to our Principal & Professors involved in this laudable venture.

Om Shanti; Jai Hind!

Dr.P.GAUTAM VAID
HON.SECRETARY &
CORRESPONDENT
GSSJC

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THE ROLE OF ARTIFICIAL INTELLIGENCE IN EDUCATION PRESENT AND FUTURE

Dr. P. Arivazhagan

ABSTRACT

Artificial Intelligence (AI) is increasingly transforming education, both in the present and for the future. Today, AI is being used to automate administrative tasks such as grading, scheduling, and data management, allowing teachers to focus more on classroom instruction and meaningful interactions with students. This shift supports a more personalized and student-cantered learning experience. Rather than replacing human teachers, AI serves as a powerful tool that enhances human-led education. Adaptive learning platforms, intelligent tutoring systems, and AI-powered assessments help meet the diverse needs of students, offering tailored content and feedback based on individual learning styles and progress. Looking ahead, the future of AI in education must prioritize equity, accessibility, and ethical development. Collaboration among educators, technologists, and policymakers is essential to design AI tools that reduce educational disparities and ensure inclusive access to quality learning resources for all students.

Key words: Artificial Intelligence, transforming education, Adaptive learning platforms, technologists, future of learning etc.,

INTRODUCTION:

Artificial intelligence (AI) can support education by automating administrative tasks, freeing teachers to focus more on teaching and personalized interactions with students, enhancing rather than replacing human-led teaching. AI applications in education must be designed collaboratively and with equity in focus, addressing disparities across various demographics and ensuring accessibility for all students. Beyond using AI tools for educational purposes, it is crucial to educate students about AI itself, including how to develop AI technologies and understand their potential risks.

A BRIEF HISTORY OF AI

The term "artificial intelligence" was actually coined in 1956. In that year, John McCarthy, a Dartmouth College professor, organized a pivotal workshop that coined the term "artificial intelligence" and aimed to create machines capable of reasoning and using human language. after a fast start, research interest in AI cooled for a few decades before developments in computer technology drove a resurgence in

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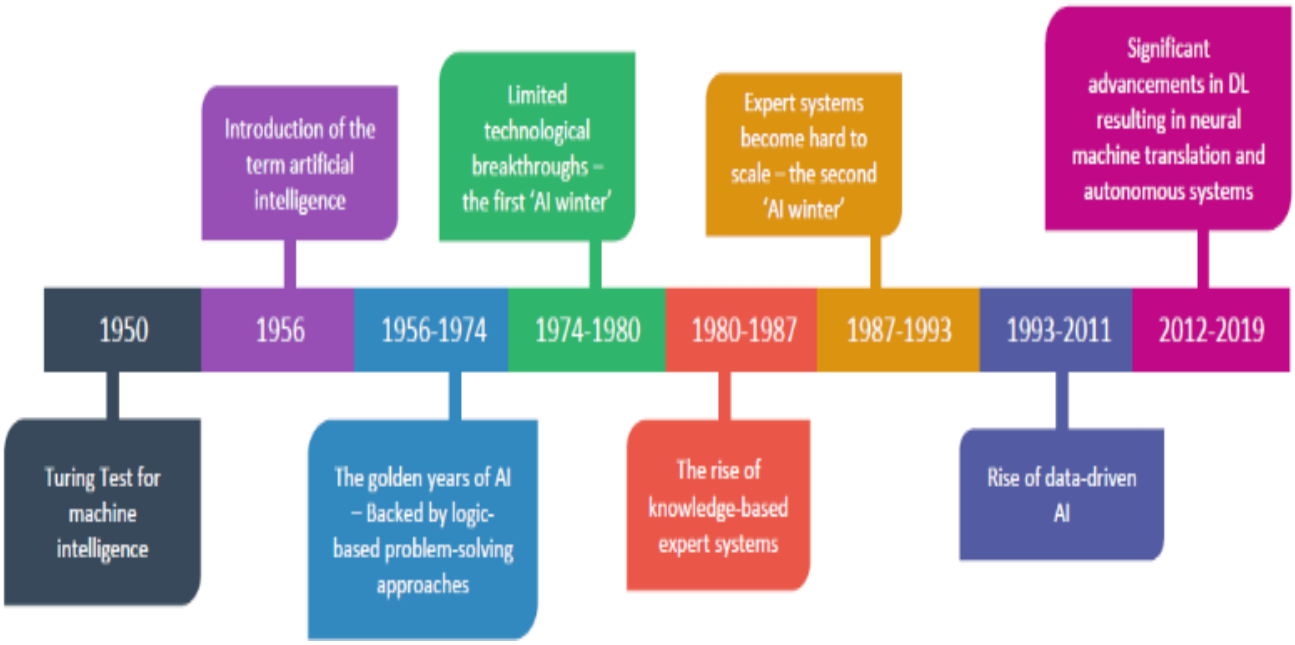
the 1990s with advances in machine learning and neural networks. The public release of Chat GPT in 2022 marked a significant milestone, showcasing unprecedented capabilities in natural language understanding and generation, and fuelling further advancements in AI. Today, AI significantly impacts various sectors, from healthcare to finance, manufacturing, and transportation. Many think it is also poised to revolutionize education.

THE BIRTH OF ARTIFICIAL INTELLIGENCE

Artificial Intelligence (AI) was first formally introduced in a bold research proposal written in August 1955 by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon. They proposed a two-month study at Dartmouth College during the summer of 1956, based on the belief that "every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it." Their goal was to explore how machines could use language, form concepts, solve complex problems, and even improve their own performance. At the time, this was a daring vision. Computers were limited to executing basic instructions and lacked the ability to store information. While the project did not achieve its intended breakthroughs, the 1956 Dartmouth workshop is now considered the official starting point of AI as a scientific discipline. In its early years, AI focused on mathematical computations and simple problem-solving using algorithms. Computers were used to search structured datasets using defined keys—primitive but foundational steps in the evolution of intelligent systems.



ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION: AN OVERVIEW

Artificial Intelligence (AI), a field within computer science, is dedicated to developing intelligent systems capable of performing tasks that typically require human intelligence. In the realm of education, AI involves the use of these smart technologies and algorithms to enhance and transform the teaching and learning process.

AI in education encompasses a variety of advanced tools and technologies, including natural language processing, machine learning, data analytics, and robotics. These innovations support personalized learning, adaptive assessments, intelligent tutoring systems, and other interactive educational experiences.

The central aim of applying AI in education is to improve the quality, accessibility, and effectiveness of learning. By analyzing large volumes of educational data, AI systems offer valuable insights into student performance and behavior. This empowers educators to make informed decisions and deliver tailored instruction that addresses each learner's individual strengths, challenges, and preferences.

ARTIFICIAL INTELLIGENCE IN PRESENT AND FUTURE:

Artificial intelligence is no longer just a promise for the future — it's actively enhancing education today. By integrating AI into classrooms, educators can personalize learning experiences, streamline administrative tasks and provide more effective support to students. Here are some of the specific benefits AI brings to the education sector:

1. **Personalized Learning:** AI can adapt lessons to suit individual learning styles, pace, and needs, helping students grasp complex concepts more effectively.
2. **Intelligent Tutoring Systems:** AI-powered tutors offer real-time feedback and support outside classroom hours, enabling continuous learning.
3. **Administrative Efficiency:** Automating routine tasks like grading, attendance, and scheduling gives educators more time to focus on teaching and mentoring.
4. **Data-Driven Insights:** AI analyzes student performance data to identify learning gaps early, allowing timely interventions.
5. **Inclusive Education:** AI tools can support students with disabilities through features like speech-to-text, real-time translation, or tailored content delivery.
6. **Scalable Learning:** AI enables the delivery of high-quality education to a broader audience through online platforms and virtual classrooms.

List of the AI-integrated tools in present and future education:

1. AI Question Paper Generator
2. Carnegie Learning
3. Generative AI Assessments
4. Smart Sparrow
5. AI Voice Assessments-Eklavvya
6. Coursera
7. Querium
8. Woot Math
9. GradeSlam
10. TutorMe
11. OpenAI
12. Pearson AI
13. Eklavvya - AI Descriptive Answer Evaluation
14. Kaltura
15. Duolingo
16. Edmentum
17. DocuExprt – AI Document Verification
18. Edmodo
19. Carnegie Speech
20. Cognii
21. AI Admission Interview
22. Turnitin
23. Nearpod
24. Squirrel AI
25. Audiopen.ai
26. Thinkster Math
27. Quizlet
28. Descript.ai
29. Writely AI
30. Google Gemini
31. ChatGPT

Result and Findings

AI is transforming modern education

Artificial intelligence is revolutionizing education with cutting-edge tools that enhance teaching and learning. From personalizing experiences to optimizing administrative tasks, here are some examples of how AI is transforming modern education:

I. Personalized Learning

1. Adaptive Learning Platforms – Adjust content difficulty based on student performance.
2. AI-Powered Learning Pathways – Create custom curriculums for individual needs.
3. Real-Time Feedback Systems – Instantly identify errors and suggest corrections.
4. Student Behavior Analytics – Track engagement to recommend learning strategies.
5. Emotion Recognition Software – Detect frustration or confusion to offer timely help.
6. Gamified AI Learning Tools – Use AI to personalize educational games.
7. Reading Level Adjustment – Automatically match content to a learner's reading level.

II. Intelligent Tutoring & Mentoring

8. Virtual AI Tutors – Available 24/7 to answer questions and reinforce learning.
9. AI Chatbots for Homework Help – Provide instant help for assignments.
10. Subject-Specific AI Assistants – Specialized bots for math, science, language, etc.
11. Voice Assistants in Education – Tools like Alexa or Google Assistant used in study routines.
12. AI Writing Assistants – Help students improve grammar, tone, and clarity.

III. Assessment & Evaluation

13. Automated Grading – Grade multiple-choice and short-answer questions efficiently.
14. AI Essay Evaluation – Analyze structure, coherence, and relevance in student writing.
15. Plagiarism Detection Tools – Use AI to ensure academic honesty.
16. Predictive Performance Analytics – Forecast student success or risk of failure.
17. Competency-Based Assessment – AI maps performance to specific skill standards.

IV. Administrative Optimization

18. AI Scheduling Tools – Optimize class schedules and timetables.
19. Smart Attendance Systems – Use facial recognition or biometric tools.
20. Enrollment Prediction Models – Help institutions manage future student loads.
21. Chatbots for Student Queries – Instantly respond to FAQs about fees, deadlines, etc.
22. AI Email Assistants – Automatically sort and respond to academic emails.

V. Accessibility & Inclusion

23. Speech-to-Text for the Hearing Impaired – Convert spoken lectures into text.
24. Text-to-Speech for the Visually Impaired – Read content aloud.
25. Language Translation Tools – Help multilingual or international students.
26. Customizable UI for Special Needs – Interface adapts to cognitive or motor disabilities.

VI. Teacher Support & Development

27. AI Lesson Planning Tools – Suggest content, structure, and learning materials.
28. Professional Development Recommendations – AI suggests courses or resources for educators.
29. Classroom Analytics Dashboards – Help teachers monitor student progress and adapt teaching.
30. Speech & Presentation Feedback Tools – Improve teacher delivery and clarity.

VII. Virtual and Immersive Learning

31. AI in Virtual Reality (VR) Classrooms – Create immersive learning environments.
32. Augmented Reality (AR) with AI – Enhance physical textbooks with interactive elements.
33. Simulated Labs and Experiments – Conduct virtual science labs through AI.

VIII. Institutional and Strategic Planning

34. Curriculum Design Tools – Use AI to analyze trends and shape future curricula.
35. Resource Allocation Algorithms – Optimize use of physical and digitala resources.
36. Alumni Engagement Prediction – Forecast and improve alumni involvement.
37. Dropout Risk Alerts – Flag students likely to leave early and suggest interventions.
38. Career Pathway Mapping – Suggest academic paths based on skills and interests.
39. Lifelong Learning Trackers – Help institutions support graduates with continued AI-driven learning opportunities.

Conclusion:

The future of AI in education is bright, with ongoing improvements in personalized learning and accessibility. We can expect more advanced tools for adaptive learning and immersive virtual classrooms that will make education more engaging and effective.

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CONSEQUENCES OF ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE MANAGEMENT

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ABSTRACT

Artificial Intelligence (AI) is ruling the world and its application in management is not an exemption. AI is the ability of a computer program or a machine to think and learn similar, to the way that human does naturally and be as cognitive as possible via its Artificial Neural Network (ANN) system built in the machine. Artificial intelligence is producing multiple solutions for hiring managers including basic recruiting tools, intermediate applications and advanced AI solutions. Together or independently, these tools are creating a more effective way for human resources to predict a candidate's future success with their company. Artificial intelligence (AI) is transforming the human resources field altogether. The current study will throw some light on the outcomes of artificial intelligence and its implications in human resource management.

Keywords: Artificial, Intelligence, Human Resources Management, Functions, Implications, Outcomes, Conseqeunces

INTRODUCTION

Artificial intelligence is widely used in all the fields like automobile, manufacturing, textile, medicine, agriculture, aviation, management, etc. Wall and Wood (2005) stated that these HR practices focus mainly to retain employees and developing their skills in specific field. Since, human resource is a dynamic part of the company, it is important to have right management by the organization (Bibi et al., 2016). In computer science, artificial intelligence (AI), sometimes called machine intelligence, is intelligence demonstrated by machines, in contrast to the natural intelligence displayed by humans and other animals. Computer science defines AI research as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals. Kaplan and Haenlein define AI as "a system's ability to correctly interpret external data, to learn from such data, and to use those learning's to achieve specific goals and tasks through flexible adaptation". Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving"

Basic artificial intelligence programs that can help recruiters with the sourcing and screening processes include screening chatbots and automated social media scraping tools. These tools are designed to provide weak or average

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indicators about an applicant's likelihood of success with the company. Mya, an AI recruiting assistant created by First Job, is one such chatbot that interacts with applicants to verify they meet job requirements, answer questions and keep them informed on their application's status, according to the Society for Human Resource Management. This bot provides 24/7 support through chat, text message, Skype or e-mail, and will contact a human when it can't complete a task. Social media scraping tools are another type of artificial intelligence recruiting tool. These bots can collect vast amounts of data through an applicant's social media profiles and use this data to predict certain behaviors like future engagement levels.

SIGNIFICANT PAST STUDIES

AI's contribution to human resource management has been growing rapidly, changing practically every important aspect of HRM. AI has been more and more integrated into various operational HR procedures as a result of the large volume of data pertaining to labor management and organizational operations. According to Votto et al. (2021), the goal of this integration is to support sustainable business structures. AI in HRM makes it simpler for businesses to find highly qualified workers, which results in a more effective hiring process (Meshram, 2023). A new approach to personnel management is provided by clever AI technologies, which improve overall business performance and offer a variety of performance management alternatives (Khaled et al., 2023; Hemalatha et al., 2021). Organizations can become knowledge-driven entities that can meet individualized training demands and improve learning quality through AI-based training (Chen, 2022). The potential of AI to create value for clients, staff, and businesses alike is what is driving its increasing use in HRM (Chowdhury et al., 2023)..

OBJECTIVE OF THE STUDY

Based on the above discussions the prime objective of the study is to highlight the significant consequences of artificial intelligence human resource management practices.

CONSEQUENCES OF ARTIFICIAL INTELLIGENCE IN HR

There are lot of potential consequences of artificial intelligence in the most significant human resource management functions. These outcomes adds more values to HR functions and practices which enable the management to take quick and right decisions.

ACCURACY

According to Hmoud & Várallyai (2020), the use of AI technology in HR management has been a developing trend in the recent past. It offers human resources professionals promising

solutions for everything from applicant screening to employee retention by taking over repetitive and time-consuming tasks from the HR team. This improves the quality of HR processes by eliminating biases.

AUTOMATION

With the help of algorithms, AI technologies are being used by organizations to automate repetitive operations and assist in making more accurate decisions involving complex planning (Parry & Battista, 2019). More precisely than humans, machine learning technology can identify issues and forecast the future. When it comes to the employment process, AI will surely do better than humans in selecting applicants. Additionally, it can get rid of several prejudices that are frequently found in the hiring process. AI can provide the most accurate findings while lowering human errors and dangers. There is virtually no chance of mistakes or errors, and AI can accomplish more accuracy and precision.

Positive effects of AI technology include reduced workload, accuracy, cost-effectiveness, time-saving, and lack of prejudice (Hemalatha et al., 2021). Agostinelli et al., (2020) stated that recent developments in AI have made it possible to automate systems that undergo a full transformation. Integrating the Natural learning process with deep learning algorithms produces remarkable outcomes like the translation of speeches or text of human language, extraction of insight from human language, and automatically generating content from natural language (Bongarzoni & Marturano, 2020). By automating repetitive and administrative activities, AI has helped HR professionals (Vedapradha et al., 2019).

Numerous administrative tasks, such as posting jobs, sourcing, screening, scheduling interviews and meetings, creating schedules and timesheets, recording and verifying accounts, and so forth, are necessary but also redundant for HR professionals (Baggio & Omana, 2019). Hence, AI can automate all of these tasks. In such instance, it will greatly help the HR professionals by freeing them from repetitive tasks and allowing them to devote more time to strategic and creative thinking and decision-making (George & Thomas, 2019). AI automation makes it possible to divide the work into distinct tasks that can be completed effectively by a variety of methods, including electronics and mechanics (Ravin, 2017).

COMPUTING POWER & CAPACITY

Modern organizations deal with vast amounts of data and information, and they need to use technology like artificial intelligence (AI) to become more clever and creative (McCarthy et al., 2019). Artificial Intelligence (AI) is purposefully created to be highly effective, profitable, and to help humans reduce their tedious tasks. When AI and human resources are combined, managers may use real-time human resource configuration monitoring and harness the potential of human resources, which can enhance overall management and work efficiency and help businesses achieve high quality and advancement (Ma, et al., 2020).

With the use of AI technologies and Big Data, the computational power of AI has made it possible to automate and, consequently,

analyze vast amounts of organizational data (Pillai & Sivathanu, 2020). AI-powered learning platforms are able to provide each employee with a unique training regimen. These will probably contribute to a significant rise in workers' overall productivity, which will help them reach their full potential (Iqbal, 2018).

REAL-TIME EXPERIENCE

Real-time employee engagement and the modernization of HR procedures such as interview and candidate screening are made possible by AI chatbots (Vedapradha et al., 2019). These days, businesses can utilize AI to collect and process data in real-time, then use the updated data to make decisions (Hughes et al., 2019a). AI technologies make it possible to create an automatic real-time employee feedback system that can receive input from staff members at the right moment and location, which helps to resolve challenging issues at work. Therefore, a real-time system can support employees' career/ professional development and learning process. Large datasets, both structured and unstructured, may be analyzed in real time by AI systems, which can then identify patterns and designs.

By providing real-time understanding of early warning indicators of serious problems, artificial intelligence (AI) can help managers identify abnormalities and enable them to take prompt corrective action (Jarrahi, 2018). Real-time interactions guarantee effective use of available resources and services, which lowers expenses (Gopal et al., 2018). Real-time video interviews with candidates from different nations made possible by AI help to process more applications more quickly (Thomas et al., 2020).

PERSONALIZATION

Like humans, AI is able to feel, explore, analyze, and work in a personalized manner (Khatri et al., 2020). Chatbots are being used by businesses to assist candidates and staff members by offering individualized guidance and assistance based on their needs. In order to achieve both organizational and personal objectives, customized packages are now used in place of traditional pay and benefits approaches. AI and human resources specialists can manage customized and adaptable pay plans. Additionally, in the long run, AI can optimize compensation and benefits, which will lower employee attrition and boost engagement (Hughes et al., 2019b). The idea of mass personalization in employee training and development can, in fact, be facilitated by AI.

With AI, the company can determine the unique needs of both individuals and groups of employees and tailor training to meet those needs. AI can provide employees with virtual personal mentors based on their needs (Maity, 2019). Artificial intelligence (AI)-enabled systems that estimate real-time assistance for sites based on data collected to apply tailored recommendations, explanations, or solutions to customers' or workers' questions or inquiries, seldom even very complex situations (Xu et al., 2020).

TIME SAVING & COST REDUCTION

According to (Sołek-Borowska & Wilczewska, 2018), AI-based HR procedures combined with a knowledgeable and experienced HR staff can surely result in shorter turnaround times and lower expenses. Using modern technologies like artificial intelligence (AI) in the HR process guarantees that the project will be completed and enables businesses to save money and time. Cost reduction is one of the main advantages of implementing AI in HR, and machine learning (ML) algorithms can actually lower the risks of rejecting competent or insufficiently skilled applicants or hiring them, which lowers expenses (Gromov et al., 2018).

CONCLUSION

It is acknowledged that implementing AI in HRM may offer a number of benefits. Academicians, research academics, and AI professionals all agree that AI technologies have an impact on the HRM process with inescapable outcomes. Thus, according to the thorough literature analysis, the possible results of implementing AI in HRM are: Accuracy, Automation, Computing Power & Capacity, Real-Time Experience, Personalization, and, lastly, Time-Saving & Cost reduction. If companies adopt Artificial Intelligence in their management practices especially human resource management, it will reduce considerable workload and improve all the factors mentioned above to enhance organizational performance.

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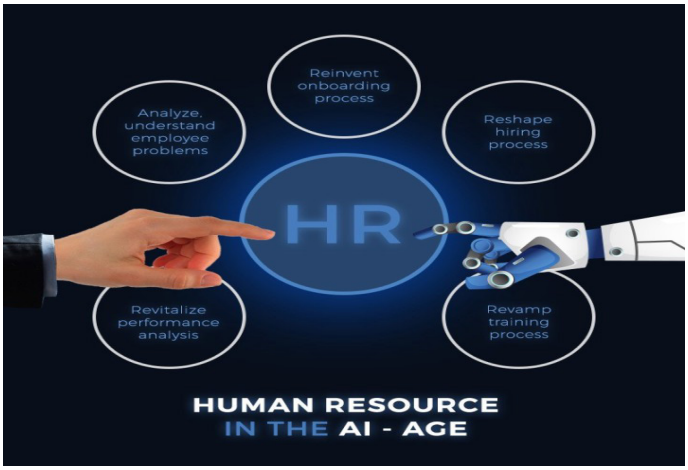

AN IMPROVED METHOD OF AIRCRAFT RECOGNITION IN HIGH-RESOLUTION SATELLITE IMAGE USING SSOFM METHOD

Dr.Karmuhil

ABSTRACT

Aircraft recognition is a vital research area in recent research trends. The objective of the study is to recognize an aircraft in satellite image using sensing images matching for accurate detection and tracking. High resolution multispectral satellite images with multi angular look capability have tremendous potential applications. Automatic aircraft recognition is a challenging task. Conventional methods always extract the overall shapes of aircraft at first and then represent the aircraft based on the extracted shape with different features for recognition a reconstruction-based similarity measure is proposed, which transforms the type recognition problem into a reconstruction problem. The contour tracking system provides the result with low computational complexity and better accuracy. Morphological and connected component analysis was utilized effectively for enhancing a segmented regions and contour tracking target objects. Finally the simulated result was shown that better efficiency achieved with chosen techniques and methodologies. A Novel SSOFM (statistical self-organizing feature map) type recognition approach for aircraft is proposed. In addition to making more use of the shape characteristics of different types of aircraft.

Keywords: Aircraft Recognition, Remote sensing Images, Multispectral images, SSOFM method

1. INTRODUCTION

The aircraft recognition is still a challenging problem; we want to further investigate how we can resolve issues in this field. Aircraft recognition is different from other natural object recognition. The number of aircraft types is limited and each type of aircraft has fixed size and shape. Considering the above characteristics, we can build a template for each type and match the test aircraft to the different types of templates. We can make more use of the shape characteristics of different types of aircraft. More importantly, we will focus on how to measure the similarity between targets and all types of templates, independent of the overall shape extraction of targets. The problem is how to measure the similarity between real target and all types of target. Since we cannot extract the contour of target ideally to obtain the characteristics of suspected target for matching, we measure the similarity between the real target and the suspected target based on the idea of discrimination through reconstructive approaches.

In conventional aircraft recognition methods, several methods are based on using

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rotation- invariant features after linearization. Invariant features are extracted from binary images to automatically identify six aircraft types.

An independent component algorithm is combined with invariant moments for aircraft recognition. In contour tracking is used to eliminate much noise first and then uses moment invariants to recognize the types of the aircraft. These methods always use thresholding segmentation for the overall silhouette or shape of targets, and extract rotation-invariant features such as Fourier descriptor for recognition.

However, these methods have two drawbacks: 1) obtaining the moment invariants and Fourier descriptor requires perfect extraction of silhouette or shape of each aircraft as a precondition, which is too idealistic for targets with irregular appearance caused by distortion, low SNR, and camouflage painting in satellite images; and 2) these methods do not make full use of the shape characteristics of aircraft for target representation, which reflects the prior knowledge of the aircraft target, and will greatly enhance the robustness of recognition mission.

In addition to the above kind of methods, there are also a few recognition methods that estimate the direction first after binarization and then recognize the types of aircraft. These methods estimate the direction of aircraft before representing targets that actually takes more aircraft shape characteristics, such as symmetry and fuselage characteristics, into account. These methods also require the binary image of each aircraft for direction estimation and the silhouette or contour with less fracture for target representation, which reduces the practicability of the above methods.

A novel type recognition approach for aircraft In addition to making more use of the shape characteristics of different types of aircraft, the advantage of the approach lies in that it can recognize aircraft robustly without perfect extraction of targets as a precondition, and can deal with the situation of parts missing and shadow disturbance.

The recognition approach consists of two steps: direction estimation and type recognition. In the approach, a direction estimation method is proposed first to align aircraft to a same direction. Then, a reconstruction-based similarity measure is proposed, which transforms the type recognition problem into a reconstruction problem. Finally, a SSOFM matching algorithm is proposed to solve the problem. We evaluate the method using panchromatic 0.6-m-resolution Quickbird imagery, and the experimental results illuminate that the method proposed in this letter is effective and accurate.

To evaluate the proposed aircraft recognition approach, we select seven types of aircraft occurring frequently in our image set. After direction estimation with our proposed method and alignment, the directions of aircraft are almost upright. We generate segments with four-scale segmentation, and the segmentation in each scale is based on the number of segments in an image. Now, we analyze the SSOFM matching pursuit algorithm for reconstruction.

RESEARCH DATA

This study takes the IKONOS & LANDSAT5/7 high resolution remote sensing image inner city somewhere as the research objects. The research areas include road, water, buildings, tall trees, shadow with buildings shadow, trees shadow, terrain shadows and automobile, etc. This study mainly focuses on Aircrafts. IKONOS satellite image has a pan band which includes red, green and blue, near infrared multispectral bands. The PAN band spatial resolution is 0. 61 m, multispectral spectrum resolution is 2.44 m.

2. STATISTICAL SOFM METHOD

Self organizing Feature maps (SOFM) [1] is an unsupervised learning Neural Network method which is introduced by Kohonen(2001). This method improves the performance of the segmentation than other clustering algorithms (Al-Najdawi et al, 2012) [2,3,4]and an important self organizing property is its ability to process noisy data. Instead of using rule set, it makes the classification by a competitive learning approach that learns from input pattern. It converts high dimensional input pattern into one or two dimensional arrays of neuron units and preserves neighboring input nodes (Neurons). Each node of the map is defined by a weight vector Wij whose elements are adjusted during training. This map retains topological relationship between input neurons and its neighboring neuron. The competitive learning process consists of two steps: ordering (weight modification) and tuning (fine settings) which is selected, a winning neuron according to some criteria which is used to minimize a Euclidean distance between input vector and weight vector.[7,8]

The basic SOFM model includes an input layer and an output layer .Each input neurons is mapped through weights to every output nodes. The weights are adjustable for each iteration. Let IP=[a0,a1,a2……an-1]K be the set of n number of input nodes in Rn and which includes each ain dimension. LetOP=[b0,b1,b2……bn-1]T be the set of n number of output nodes which has two dimensions space vector and W denotes the set of weights Wj = [w0j,w1j,……w(n- 1)j]T and represented as reference vectors. The weight vector wij represents the weight from input node i to output node j iteration h.

The weights are updated by the winning entity and finding the best matching unit is determined by the minimum of Euclidian distance to the input and neighborhood be nearer to the accessible input node. The best matching unit is found by whose distance dij is in least value. An Euclidean distance is measured by dij.

SOFM is constructed by organized set of mapping units with a two dimensional grid topology. It is based on competitive manner. For each feature vector x(t), the winning map unit(Best mapping unit) is displayed as output. The best matching unit s is defined by the difference of the input vector x(t) and the weight vectors wi for each mapping unit such as the following equation(6.8):

$$\| x(t) - w_i \| = \min_i \{\| x(t) - w_i \|\} \quad (1)$$

The general distance is calculated by Euclidean distance formula in equation (2)

$$|| x(t) - w_i || = \sqrt{\sum (x_i(t) - w_{ij})^2} \quad (2)$$

The map units have partitioned the feature space into many small regions called Voronoi regions.(Figure 6.8).After completing the partition, that result will be called Voronoi tessellation. Every map unit 'i' of this Voronoi set Xi which has those input vectorx(t) belongs to the Voronoi region of the unit i.Among the number of input vectors x(t) in the Voronoi set , 'i' is the best-matching unit as follows(Figure 6.8)

$$X_i = \{x(t) \mid i = \arg\min \{|| x(t) - w_i ||\} \forall i\}$$

$$X_i = \{x(t) \mid i = \arg\min \{|| x(t) - w_i ||\} \forall i\} \quad (3)$$

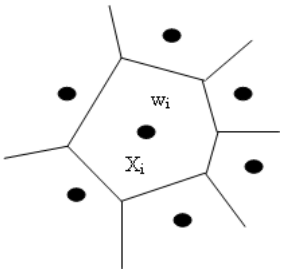


Figure 1: The Voronoi region of the map unit 'i'

3. TRAINING OF SSOFM NETWORK

Before segmenting the image, the SOM network should be trained in the training phase. A huge no of unclassified feature vectors are classified by SOM network. In this phase, the weight vectors of the best matching unit and their neighboring units are updated.[9] The neighborhood function Ns(t) is identified all units inside the regions in specific distance from the best matching unit. During the training process it evaluates as:

$$W_i(t-1) = \begin{cases} w_i(t) - \alpha(t)[x(t) - w_i(t)] & \text{if } i \in N_s(t) \\ w_i(t) & \text{if } i \notin N_s(t) \end{cases} \quad (4)$$

Whereα(t) is the learning function (0<α(t)<1) and Ns(t) is the neighborhood function. While in the training phase, α(t) is decreased towards zero in each iteration and the radius of Ns(t) also decreases. When the training phase training phase starts Ns(t) is quite larger and it minimizes with time till it holds only the nearest neighbor of best matching unit s.

4. THE STATISTICAL SOFM MEASURES

The statistical SOFM is to connect a one dimensional density function to each element plane of Voronoi set of every map unit.The c-interval(confidence interval) to each one-dimensional density function is determined by SSOFM. There are many density functions available:1.Uniform density function,2.Gaussian density function 3.gamma function. This study uses Uniform density function. It is simple and easy to implement in SOFM algorithm.[10]

Let us assume SOFM with weight vectors wi and it is trained with a large number of feature vectors I(t).All feature vectors should originate from the same distribution. Each vector wi is constructed with Voronoi region and its set Xi.The weight vector wi is updated with new weight vector w`i and a C-interval(distance vector) d`i. It estimates the dimensions (d`i) and center of a hyper cube that is placed to a map unit 'i'.The estimated distribution distributes to all points inside the hypercube. The C-interval for the jth component plane of the Voronoi set Xi is denotedby the following equation:

$$w_{ij}^t - \frac{d_{ij}^t}{2}, w_{ij}^t + \frac{d_{ij}^t}{2} \quad (5)$$

Thus, the width of the c-interval in the unit 'i' is defined by the C-interval vector d`i.

A uniform density function

If a uniform distribution is assumed for jth component plane of the Voronoi set Xi and d`i as a c-interval vector is calculated as

$$d^t_{ij} = d(\max\{x_j(t)\} - \min\{x_j(t)\}), \forall x(t) \in X_i \quad (6)$$

Distance function for Statistical SOFM

Where the d is the C-interval(distance vector) generally in the range between 90% and 100%.The updated weight vector is assigned to be the center of the C-interval such as,

$$w_{ij}^t = \frac{d(\max\{x_j(t)\} + \min\{x_j(t)\})}{2}, \forall x(t) \in Xi \quad (7)$$

Distance function for Statistical SOFM

The non matching error pi for each feature vector x(t) and a map unit 'i' is computed. The Hamming distance is as follows:

$$p_i = \sum_j p_{ij} \text{ where } p_{ij} = \begin{cases} 0 & \text{if } (x_j(t) - w_{ij}^t)^2 \le (\frac{d^t_{ij}}{2})^2 \\ 1 & \text{otherwise} \end{cases} \quad (8)$$

Where w`ij is the new weight vector of jth component of a new weight vector m`

,whereasd`ij is the c-interval vector of jth component vector d`i in the mapping unit 'i'. This is successfully implemented in the SSOM algorithm. The Best matching unit s is now selected with the minimum non matching error ps.

$$p_s = \min_i \{p_i\} \quad (9)$$

The SSOFM Algorithm

Table 1: SSOFM Algorithm

Algorithm : SSOFMalgorithm

Input : Satellite Image

Output : Shadow Detection from Segmented Image

1. Input Image
2. Create SOFM
3. (a)set input parameters X={H,S,V,Energy,Contrast ,Mean};
   (b)set int_weight_value from gray histogram ;
4. Initialize learning_rate=0.6;
5. For i =1 toN do
   t=t+1
   For x= 1 to X do

$$X_i = \left\{ x(t) \mid i = \arg\min_k \{\| x(t) - w_k \|\} \forall t \right\}$$

$$[w_{ij}^t - \frac{d_{ij}^t}{2}, w_{ij}^t + \frac{d_{ij}^t}{2}]$$

$$d_{ij}^t = d(\max\{x_j(t)\} - \min(x_j(t))), \forall x(t) \in X_i$$

$$w_{ij}^t = \frac{d(\max\{x_j(t)\} + \min(x_j(t)))}{2}, \forall x(t) \in X_i$$

$$p_i = \sum_j p_{ij} \text{ where } p_{ij} = \begin{cases} 0 & \text{if } (x_j(t) - w_{ij}^t)^2 \le (\frac{d^t_{ij}}{2})^2 \\ 1 & \text{otherwise} \end{cases}$$

$$p_s = \min_i \{p_i\}$$

End for
End for

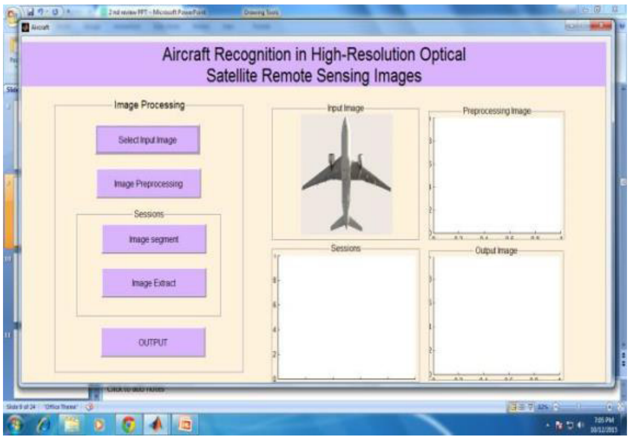
5. EXPERIMENTAL RESULTS

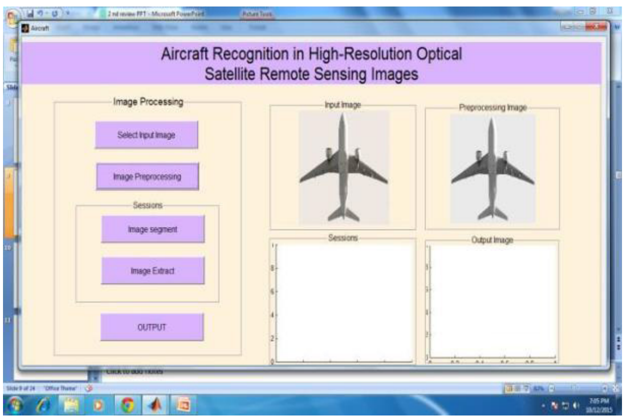
This study takes the IKONOS & LANDSAT5/7 high resolution remote sensing image inner city somewhere as the research objects. The research areas include road, water, buildings, tall trees, shadow with buildings shadow, trees shadow, terrain shadows and automobile, etc. This study mainly focuses on Aircrafts. IKONOS satellite image has a pan band which includes red, green and blue, near infrared multispectral bands. The PAN band spatial resolution is 0. 61 m, multispectral spectrum resolution is 2.44 m.

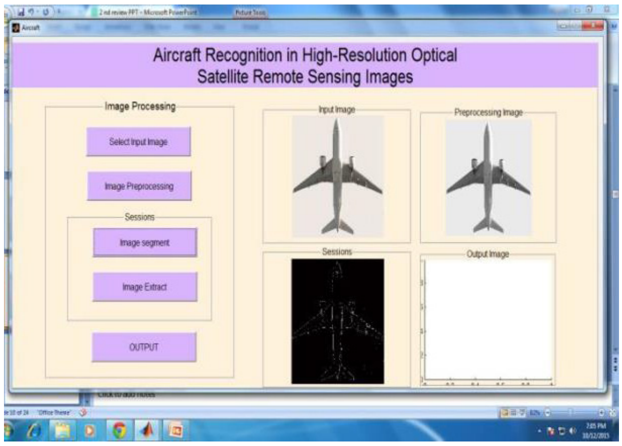
The dataset selection is utilized in this paper the currently popular IKONOS & LANDSAT5/7-

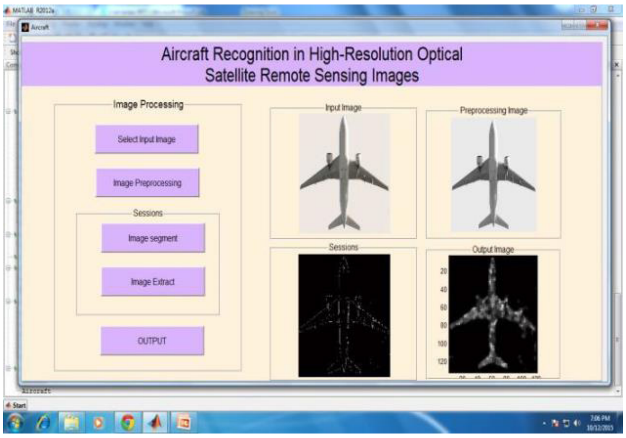
Dataset [5,6] is selected, which is specifically used for remote sensing images. As shown in Figure 2, the samples of the dataset are shown[11]. The dataset consists of four kinds of objects, which is the aircraft, the oil tank, the overpass, and the playground separately. According to the dataset, the number of aircrafts is 432. In the experiment, learning rate attenuation is adopted to adjust the learning rate. The initial learning rate is 0.001, momentum is 0.9, weight attenuation is 0.0006, and the number of iterations is 7500. As the iterations reach the 3200-generation and 34000 generation, respectively, the learning rate is adjusted to 0.1 and 0.01 of the initial learning rate, respectively. In this way, the convergence speed of loss can be adjusted[12].

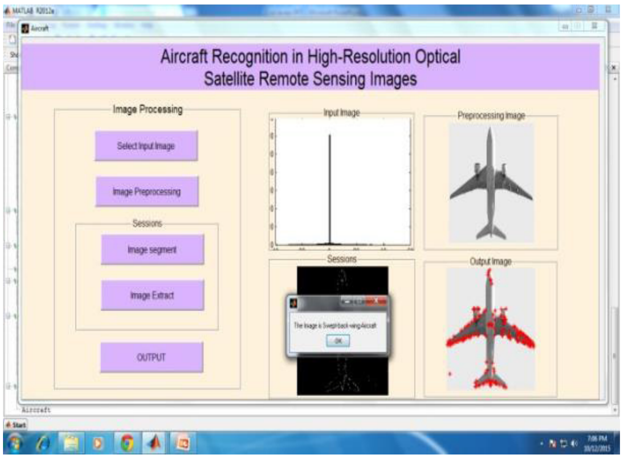
Experiments results of aircrafts are given











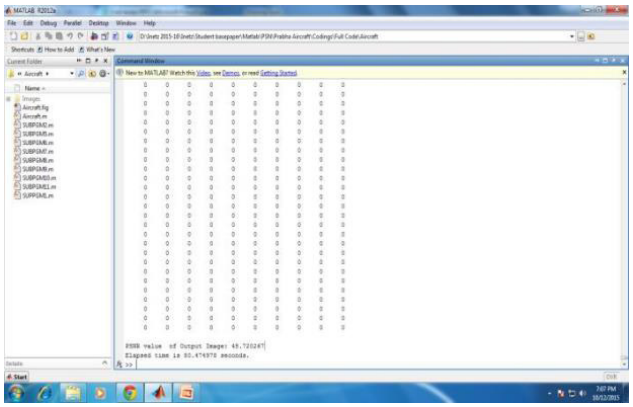
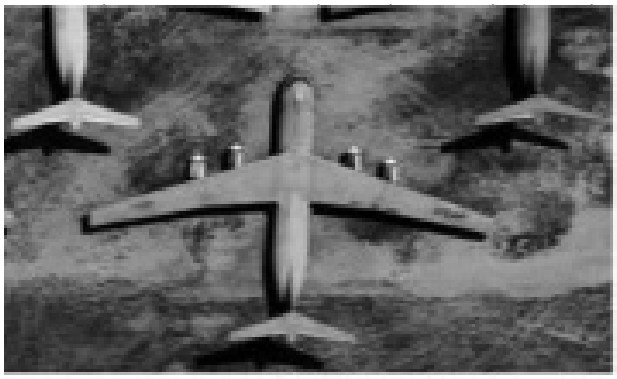


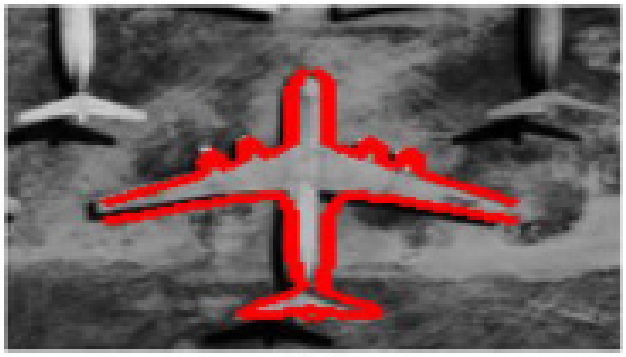
Figure 2: (a) Input Image (b) Image Pre-Processing (c) Image Segmentation (d)Image Extration (e) Output Image PSNR process

Target Reconstruction

After direction estimation with our proposed method and alignment, the directions of aircraft are almost upright. the template reconstruction problem to a mathematical problem and propose the method to solve the mathematical problem to represent the standard template of some type of target, the value of pixels in the target is set to be 1, and the value of pixels outside the target is set to be 0. A segment obtained by multi scale segmentation. Based on the hypothesis, the shape of target can be pieced together with the segment elements.



(a)



(b)

(c)

(d)

TABLE1: Types of Aircraft Images with PSNR Value & Elapsed Time

Image	TYPE PSNR (VALUE)	ELAPSED TIME (SEC)
1	49.856998	52.869492
2	50.838044	28.916059
3	49.958449	17.305389
4	49.060785	18.566245
5	48.647013	11.398873
6	52.886395	23.267480
7	48.667312	25.776915

In this proposed SSFOM method compare with ACM based on ISOMAP algorithm[15], Bidirectional Feature fusion model[16] algorithms and proved that better accuracy and high performance results.IOU(Overlapping area between the overlapping are between the predicted boundary box and labelled original box ,ie the ratio of their intersection and union[16]) Curve is the one of the performance pointer to calculate the feature detection algorithm.

Image TYPE	Propesed SSOFM method		ISOMap Algorithm		BDFFDN Algorithm	
	Precision % (Quality)	IOU % (Performance)	Precision % (Quality)	IOU % (Performance)	Precision % (Quality)	IOU % (Performance)
1	90.45	86.12	78.34	80.13	84.7	72.1
2	96.2	87.33	79.32	81.54	89.41	76.43
3	97.22	85.24	67.51	79.63	91.23	75.22
4	96.74	89.53	76.72	81.67	90.12	72.24
5	95.32	92	74.42	77.86	90.22	70.45
6	96.8	86.43	72.88	82.42	89.98	75.12
7	97.33	87.72	78.92	87.27	91.11	78.59

6. CONCLUSION

In this study, an improved method for Aircraft Recognition in high-resolution satellite images using SSOFM method proposed. This technique, segments the aircraft image using the gray level satellite image with color information. Since, both the qualitative (appx 90%) and quantitative (92%) and better performance experimental results are effectively evaluated and it is seen that aircrafts are detected correctly in addition to the areas under the shadow and are illuminated. This method is not limited to remote sensing images and can be easily applied for other imagery from different sources even those with composite outdoor scenes and it can be utilized as automated method for all object detection from remote sensing images which is a difficult task. Further study can be implemented for the object

compensation to get partial invariant image of the same region.

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Authors Biography

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(a) (b)

EMPOWERING EDUCATORS AND LEARNERS: AI'S ROLE IN TRANSFORMATIVE HUMAN-CENTRIC TEACHING

Dr.D.Akilandeswari

ABSTRACT

The integration of Artificial Intelligence (AI) in education is reshaping traditional teaching practices, placing a renewed focus on human-centric learning. This paper explores how AI technologies—such as intelligent tutoring systems, adaptive learning platforms, and generative AI tools—are empowering educators and learners through personalized, inclusive, and engaging educational experiences. By automating routine tasks and offering data-driven insights, AI enables educators to focus on mentorship, creativity, and emotional support, reinforcing the human dimension of teaching. At the same time, learners benefit from tailored instruction that adapts to their individual pace, style, and needs, fostering deeper engagement and autonomy. Grounded in human-centered pedagogy, this research emphasizes ethical implementation, digital equity, and the cultivation of empathy in AI-enhanced classrooms. The study synthesizes current trends, case studies, and theoretical frameworks to propose best practices for integrating AI in ways that amplify—not replace—the educator's role, ensuring a balanced and transformative future for education.

Keywords:

Artificial Intelligence, Human-Centered Learning, Personalized Education, Adaptive Learning, Educational Technology, Digital Pedagogy, Teacher Empowerment, Ethical AI Integration.

I. Introduction

A. Overview of Generative AI

Generative AI refers to a subset of artificial intelligence that focuses on creating content, including text, images, music, and more, through algorithms and deep learning models. Unlike traditional AI, which typically analyzes and interprets existing data, generative AI actively generates new data that mimics the patterns and characteristics of the input it has been trained on. Prominent examples of generative AI include models like OpenAI's GPT (for text generation) and DALL-E (for image generation). These systems have gained significant attention for their ability to produce coherent and creative outputs, making them valuable tools in various domains.

B. Importance of AI in Modern Education

The integration of AI into education is revolutionizing teaching and learning processes. As classrooms become more diverse and technology-driven, traditional pedagogical approaches often fall short in addressing the unique needs of each student. AI offers the potential to personalize learning experiences, allowing educators to tailor instruction based

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on individual student abilities, interests, and learning styles. By automating administrative tasks, AI also enables teachers to focus more on instruction and student engagement. Furthermore, as the world increasingly relies on technology, equipping students with AI literacy is essential for preparing them for future careers.

II. Understanding Generative AI

Definition and Types of Generative AI

Generative AI encompasses a range of technologies that can create new content based on learned patterns from existing data. The primary types of generative AI include:

1. **Text Generation:** Models like GPT-3 and ChatGPT that generate human-like text for applications in writing, storytelling, and conversation.
2. **Image Generation:** Tools such as DALL-E and Stable Diffusion that create images from textual descriptions, allowing for endless creative possibilities.
3. **Audio Generation:** AI systems that can compose music or generate realistic speech, useful in the fields of entertainment and communication.
4. **Video Generation:** Emerging technologies that create video content based on scripts or predefined parameters, expanding the scope of digital media production.

B. Applications in Various Fields

Generative AI has found applications across numerous sectors, demonstrating its versatility and impact:

- Art: Artists are using AI to create original artwork, blending human creativity with machine learning capabilities. AI-generated art challenges traditional notions of authorship and creativity.
- Writing: Authors and journalists are employing AI to generate articles, essays, and even poetry, enhancing productivity and providing new sources of inspiration.
- Design: Designers leverage AI tools to create logos, websites, and marketing materials, streamlining the design process and offering innovative solutions.
- Gaming: Game developers utilize generative AI to create dynamic environments and characters, enhancing player experiences through adaptive storytelling and gameplay.

C. Relevance to Education

The relevance of generative AI in education is profound. By harnessing these technologies, educators can:

- Personalize Learning: AI can analyze student performance data to create tailored learning experiences, ensuring that each student progresses at their own pace.
- Foster Creativity: Generative AI encourages students to think creatively and experiment with new ideas, as they can generate content and explore concepts beyond traditional limits.
- Enhance Engagement: Interactive AI tools can make learning more engaging, providing students with immediate feedback and

opportunities for collaboration.

- Prepare for the Future: As AI continues to evolve, it's crucial for students to understand its implications and applications. Teaching with generative AI prepares students for a future where AI plays a central role in various professions.

In conclusion, understanding generative AI and its applications is essential for educators seeking to enhance their teaching practices and prepare students for a rapidly changing world. The toolkit will serve as a resource for educators to explore these opportunities and implement AI effectively in their classrooms.

III. Benefits of Generative AI in Education

A. Personalized Learning Experiences

Generative AI offers transformative possibilities for personalized learning, allowing educators to tailor educational experiences to the unique needs of each student. This adaptation can significantly enhance student engagement and comprehension.

Adaptive Learning Paths

Adaptive learning paths leverage AI algorithms to analyze students' strengths and weaknesses, enabling the creation of customized curricula. For instance, an AI system can assess a student's understanding of a particular topic through quizzes and interactions, then adjust the difficulty of subsequent lessons accordingly. This individualized approach allows students to progress at their own pace, ensuring they master foundational concepts before moving on to more complex material. As students engage with content that is neither too easy nor too challenging, they are more likely to remain motivated and achieve better learning outcomes.

Tailored Feedback

Generative AI can also provide tailored feedback that is immediate and specific. Rather than waiting for a teacher to grade assignments, students can receive instant feedback on their work, helping them understand their mistakes and learn from them in real-time. For example, AI-driven writing assistants can evaluate essays for grammar, coherence, and style, offering suggestions for improvement. This instant feedback loop not only reinforces learning but also encourages students to take ownership of their educational journey, making them more proactive learners.

B. Enhancing Creativity and Innovation

Generative AI serves as a catalyst for creativity and innovation in educational settings, offering students new ways to express their ideas and collaborate with technology.

AI-Assisted Project Creation

Students can use generative AI tools to assist in various creative projects, from writing stories to composing music or designing graphics. For instance, a student writing a short story can use an AI tool to generate plot ideas, character development, or even dialogue, sparking their creativity and providing inspiration. This collaborative relationship between students and AI not only enhances the creative process but also helps students understand the capabilities and limitations of AI as a tool for exploration.

Collaborative Learning with AI Generative

AI can foster collaborative learning environments where students work together with AI systems to solve problems or create projects. For example, students can team up to design a video game, using AI to generate character designs and plotlines while they focus on coding and gameplay mechanics. This collaborative approach encourages teamwork, critical thinking, and problem-solving skills, all of which are essential in today's interconnected world. Additionally, it allows students to explore interdisciplinary projects that combine art, technology, and storytelling, further broadening their educational experience.

C. Improving Accessibility

Generative AI plays a crucial role in making education more accessible for all students, particularly for those with disabilities or language barriers.

Tools for Students with Disabilities

AI-driven tools can support students with disabilities by providing customized resources that cater to their specific needs. For instance, speech-to-text applications can assist students with dyslexia or writing difficulties, allowing them to express their thoughts verbally and have them transcribed into written format. Similarly, AI tools can offer visual aids, such as augmented reality applications, to help students with visual impairments navigate educational content in more accessible ways. These innovations not only enhance learning opportunities for students with disabilities but also promote inclusivity in the classroom.

Language Translation and Support

Generative AI can break down language barriers by providing real-time translation services for students who are non-native speakers. For instance, AI-powered translation tools can help students understand instructional materials in their preferred language, facilitating their participation in class discussions and activities. Additionally, generative AI can assist in creating bilingual resources, allowing educators to reach a diverse student population effectively. By fostering a more inclusive learning environment, AI helps ensure that all students have equal access to educational opportunities.

Challenges and Considerations

Potential Drawbacks of Using AI in Education

Despite the numerous benefits, the integration of generative AI in education comes with potential drawbacks:

1. **Dependence on Technology**

   One concern is the risk of students becoming overly reliant on AI tools, potentially hindering their critical thinking and problem-solving skills. If students rely exclusively on AI for generating ideas or completing assignments, they may miss opportunities for personal growth and learning.

2. **Quality of AI-Generated Content**

   The quality of AI-generated content can vary significantly. In some cases, the outputs may not meet educational standards, leading to misinformation or confusion. Educators must remain vigilant in evaluating AI-generated materials and supplementing

them with reliable sources.

3. **Equity and Access Issues**

Not all students have equal access to technology, which can create disparities in learning experiences. Schools must address equity issues by ensuring that all students have access to the necessary tools and resources, particularly in underfunded districts.

Resistance to Change Among Educators

Resistance to adopting new technologies is a common challenge in education. Many educators may feel apprehensive about integrating generative AI due to:

1. **Fear of Job Displacement**

Some teachers worry that AI could replace their roles, leading to job insecurity. It is crucial to communicate that AI is intended to enhance, not replace, the teaching profession. Educators play a vital role in guiding and mentoring students, a function that AI cannot replicate.

2. **Lack of Training and Support**

Many educators may feel unprepared to use generative AI effectively due to a lack of training and support. Professional development programs focused on AI integration can help alleviate these concerns, providing teachers with the skills and knowledge they need to feel confident in their use of technology.

3. **Cultural Barriers**

Cultural attitudes toward technology can influence educators' willingness to adopt AI. In some educational environments, there may be a preference for traditional teaching methods. Addressing these cultural barriers requires ongoing dialogue and advocacy for the benefits of innovative practices.

IV. Future of Education with Generative AI

A. Emerging Trends and Technologies

The future of education is poised to be dramatically shaped by generative AI and other emerging technologies. Several trends are already beginning to take form:

1. **AI-Powered Personalized Learning Platforms**

As generative AI becomes more sophisticated, personalized learning platforms will evolve to provide even more tailored educational experiences. These platforms will analyze student data in real-time, adapting content to meet individual learning styles and paces, ultimately leading to improved outcomes.

2. **Integration of Virtual and Augmented Reality**

The combination of generative AI with virtual and augmented reality (VR/AR) will create immersive learning environments. Students will be able to engage with complex subjects in interactive ways, such as exploring historical events or conducting virtual science experiments, enhancing understanding through experiential learning.

3. **Collaborative AI Tools**

Future educational tools will increasingly

focus on collaboration, allowing students to work alongside AI systems in real-time. These tools will facilitate group projects where AI assists in brainstorming, organizing ideas, and providing feedback, fostering teamwork and creativity.

4. AI in Assessment and Evaluation

Generative AI will play a crucial role in evolving assessment methods. Automated grading systems capable of evaluating open-ended responses and creative projects will provide timely feedback, allowing educators to focus on personalized instruction rather than administrative tasks.

B. Predictions for AI's Impact on Teaching and Learning

As generative AI continues to advance, its impact on teaching and learning will likely intensify in several key areas:

1. Enhanced Student Engagement

With AI enhancing the relevance and interactivity of learning materials, student engagement is expected to rise significantly. Personalized content will resonate more with learners, making education more compelling and enjoyable.

2. Shift from Traditional Teaching Methods

The role of traditional lecturing may diminish as generative AI facilitates more active learning environments. Educators will transition from being the primary source of knowledge to facilitators of exploration and inquiry, guiding students in leveraging AI tools to deepen their understanding.

3. Increased Focus on Critical Thinking and Creativity

As routine tasks become automated through AI, education will shift toward developing higher-order thinking skills. Students will be encouraged to engage in critical analysis, problem-solving, and creative expression, which are essential skills for success in the 21st century.

4. **Lifelong Learning and Continuous Education**

The integration of generative AI will promote the concept of lifelong learning. Access to AI-driven educational resources will empower individuals to pursue knowledge beyond formal schooling, fostering a culture of continuous education and personal growth.

V. Conclusion

Call to Action for Educators to Embrace Generative AI

As we stand on the brink of a new era in education, it is crucial for educators to embrace generative AI as a powerful ally in their teaching practices. By exploring and implementing AI technologies, teachers can enhance their instructional strategies, foster student engagement, and prepare learners for the future. The time is now for educators to take the initiative, experiment with AI tools, and collaborate with one another to share insights and successes.

Vision for the Future of Education

The future of education, enriched by

generative AI, holds immense promise. We envision a landscape where every student has access to personalized learning experiences, where creativity and critical thinking are at the forefront, and where educators play a vital role as facilitators of knowledge. As generative AI continues to evolve, it will transform not only how we teach but also how we learn, creating opportunities for all students to thrive in an increasingly complex and interconnected world. Together, we can build a future where education is more engaging, inclusive, and responsive to the needs of every learner.

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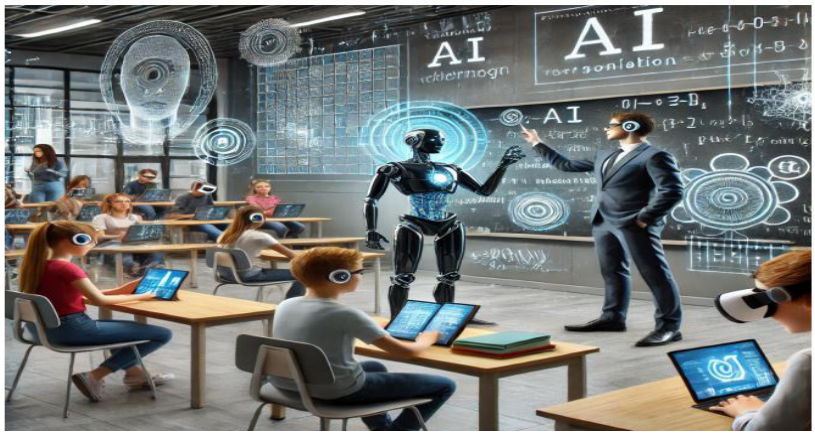

INFLUENCE OF AI ON ADVERTISEMENT IN E-COMMERCE

*Binu G ** Dr Shanthi

ABSTRACT

ArtificialIntelligence(AI)is a branch of computer science that focuses on creating systems or machines that canper form tasks that would typically require human intelligence. The purpose of this study is to evaluate and understand about the the influence and the role of AI in advertisement in the field of E-commerce. The study mainly focuses on the social media platform through which the advertisements are produced. The study also check whether the users are aware about the advertisement pattern through which the e commerce platform influence the customer behaviour .

INTRODUCTION

ArtificialIntelligence(AI)is a branch of computer science that focuses on creating systems or machines that can perform tasks that would typically require human intelligence. These tasks include things like understanding natural language, recognizing patterns, learning from experience, and making decisions.

AI can be broadly categorized into two types: narrow AI and general AI. Narrow AI, also known as weak AI, is designed to perform specific tasks with in a limited domain. Examplesof narrow AI include virtual assistants like Siri or Alexa, recommendation systems used by streaming services or e-commerce platforms, and facial recognition systems.

On the other hand, General AI, also known as strong AI or artificial General Intelligence (AGI), refers to AI systems that have human-level cognitive abilities and can perform many intellectual task that a human can. General AI remains largely theoretical and is the subject of on going research and debate.

AI techniques commonly used in AI systems include machine learning, deep learning, natural language processing (NLP), computer vision, and robotics, among others. These techniques enable AI systems to analyse large data sets, recognize patterns, make predictions, and interact with humans in natural language.

Alan Turing was the first person to conduct substantial research in the field that he called machine intelligence. Artificial intelligence was founded as an academic discipline in 1956. The field went through multiple cycles of optimism, followed by periods of disappointment and loss off unding, known as AI winter. Funding and interest vastly increased after 2012 when deep learning surpassed all previous AI techniques, and after 2017 with the transformer architecture.

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This led to the AI boom of the early 2020s, with companies, universities, and Laboratories overwhelmingly based in the United States pioneering significant advances in artificial intelligence.

The growing use of artificial intelligence in the 21st century is influencing a societal and economicshifttowardsincreasedautomation,data-drivendecision-making,andtheintegration of AI systems into various economic sectors and areas of life, impacting job markets, healthcare, government, industry, and education. This raises questions about the long-term effects, ethical implications, and risks of AI, prompting discussions about regulatory policies to ensure the safety and benefits of the technology.

The various sub-fields of AI research are centered around particular goals and the use of particular tools. The traditional goals of AI research include reasoning, knowledge representation, planning, learning, natural language processing, perception, and support for robotics. Generalintelligence—the ability to complete any task performable by a human on an at least equal level—is among the field's long-term goals.

To reach these goals, AI researchers have adapted and integrated a wide range of techniques, including search and mathematical optimization, formal logic, artificial neural networks, and methods based on statistics, operations research, and economics. AI also draws upon psychology, linguistics, philosophy, neuroscience, and other fields.

Many of these algorithms are insufficient for solving large reasoning problems because they experience a "combinatorial explosion": they became exponentially slower as the problems grew larger. Even humans rarely use the step-by-step deduction that early AI research could model. They solve most of their problems using fast, intuitive judgments. Accurate and efficient reasoning is an unsolved problem.

Knowledge representation and knowledge engineering allow AI programs to answer questions intelligently and make deductions about real-world facts. Formal knowledge representations are use dincontent - based indexing and retrieval, scene interpretation, clinical decision support, knowledge discovery (mining "interesting" and actionable inferences from large databases), and other areas.

A knowledge base is a body of knowledge represented in a form that can be used by a program. Anontology is the set of objects, relations, concepts, and properties used by a particular domain of knowledge.Knowledge bases need to represent things such as: objects, properties, categories and relations between objects; situations, events, states and time; causes and effects; knowledge about knowledge (what we know about what other people know); default reasoning (things that humans assume are true until they are told differently and will remain true even when other facts are changing); and many other aspects and domains of knowledge.

Merits of AIon Advertising

- **Targeted Advertising:** AI can analyze vast amounts of data to understand consumer behavior and preferences. This enables advertisers to target their ads more precisely, increasing the likelihood of reaching interested customers.
- **Personalization:** AIalgorithms can personalizeads based on individual user data, such as browsing history, demographics, and past interactions. Personalized ads tend to be more relevant and engaging, leading to higher conversion rates.
- **Optimized Campaigns:** AI can continuously optimize advertising campaigns by analyzing performance metrics in real-time. This allows advertisers to allocate their budgets more effectively and improve the return on investment (ROI) of their campaigns.
- **Automated Content Creation:** AI-powered tools can generate ad creatives, copywriting, and even video content, saving time and resources for advertisers.These toolscanproducehigh-qualitycontentatscale, cateringtodifferentaudiencesegments.
- **Predictive Analytics:** AI can forecast future trends and consumer behaviors based on historical data and market analysis. Advertisers can use this insight to anticipate market changes and adjust their strategies accordingly.

Demerits of AIon Advertising:

- **Privacy Concerns:** AI - driven advertising often relies on collecting and analyzing user data, raising privacy concerns among consumers. Excessive data tracking and targeting can lead to back lash and damage brand reputation.
- **Bias and Discrimination:** AI algorithms may inadvertently perpetuate bias and discrimination, especially in targeted advertising. Biased algorithms could unfairly target or exclude certain demographic groups, leading to ethical and legal issues.
- **Over reliance on Technology :** Relying too heavily on AIin advertising can result in a lack of human creativity and intuition. While AI can optimize processes and improve efficiency, it's essential to maintain a balance and incorporate human insights into advertising strategies.
- **Algorithmic Complexity:** AI algorithms used in advertising can be complex and opaque, making it challenging to understand how decisions are made. This lack of transparency can lead to distrust among advertisers and consumers alike.
- **Ad Fraud:** AI-powered advertising systems are susceptible to manipulation and fraudulent activities, such as click fraud and bot traffic. Advertisers need to implement robust measures to detect and prevent ad fraud to ensure the integrity of their campaigns.

REVIEW OF LITERATURE

- According to **Navdeep Singh, Daisy Adhikari**

  In the dynamic realm of eCommerce, the integration of Artificial Intelligence (AI) has revolutionized advertising strategies, forging a path towards highly personalized consumer experiences. This exploration delves into the multifaceted role of AI in eCommerce advertising, highlighting the efficacy of technologies such as machine learning, natural language processing, and predictive analytics. A thorough analysis of consumer behavior, underpinned byAI, reveals advancements in data collection, privacy concerns, and innovative data analysis techniques. Ethical considerations, including data privacy and bias in AI algorithms, emerge as pivotal in maintaining consumer trust. The paper presents an array of case studies, illustrating the successful application of AI across diverse industries.

- According to Adrian Micu, Angela-Eliza Micu, Marius Geru, Alexandru Căpățînă, Mihaela - Carmen Muntean Amfiteatru Economic 23(56), 137-154, 2021

  This study aims at identifying the tools used in e-commerce, able to optimize marketing campaigns. Managerial and marketing processes have been identified in the relevant body of knowledge that can be optimized using artificial intelligence; thus, a questionnaire has been designed with in aquantitative research.The sample used in the research consists of 201 persons having managerial positions, who are involved in e-commerce, their companies' have been their company active in 2020, with atleast one employee.The article highlights the managerial tools used in promoting products in the online environment and business processes that they want to optimize using artificial intelligence.At the same time, for the quantitative study, three hypotheses have been tested to identify the motivation to buy online, as well as the methods used by online store managers in the communication process. The limitations of this study are determined by the fact that only the managerial perspective is analysed, without considering the perception of the final consumer, which could have ethical implications. Optimizing the flow of stocks and logistics processes will be the subject of future research considering that it is the main challenge for management, as the quantitative research proved.

- A Srivastava Contemporary Issues in Commerce & Management 1 (1), 165-175, 2021

  We are living in an era that is full of technologies. Gone were the days when everything can only be done manually. Now technologies have a major role to play in our daily life. One of the technologies is Artificial Intelligence (AI). It becomes part of everyday life and changing the

working style of people. Sometimes we even do not know that we are using AI. It can be seen in the form of home automation devices, self-driven cars, applications in smartphones, wearable devices, etc. It transforms everything it is part of. AI is the most progressive technology that the world is witnessing today. In the same way, the E-commerce industryhas transformed the way business is done in India. India is the fastest-growing E-commerce market and it is expected to grow at a much higher pace in the coming years. One can see the application of AI in Ecommerce as well. AI is playing a crucial role in the E-commerce industry. The Ecommerce industry is moving towards a major technological change in the form of AI.

The application of AI in the E-commerce industry is increasing drastically in the last decade. The E-commerce industry is using AI to process a large database of progressive customers, communicate with them using chat bots, helps in searching, sorting, and finding a relevant product. AI makes it possible to capture, process, and infer data on a large scale, and it is more efficient and accurate. E-commerce competitors are using AI to create a customer-centric search, retarget potential customers, create a more efficient sales process, voice powered search, improve recommendations for customers, tackle fake reviews, et

Brijesh Sivathanu, Rajasshrie Pillai, Bhimaraya Metri, International Journal of Retail & Distribution Management 51 (1), 124-145, 2023

The purpose of this study was to investigate the online shopping intention of customers by watching artificial intelligence (AI)–based deepfake video advertisements using media richness (MR) theory and Information Manipulation Theory 2 (IMT2).

Design/methodology/approach

A conceptual model was developed to understand customers' online shopping intention by watching deepfake videos. A quantitative survey was conducted among the 1,180 customers using a structured questionnaire to test the conceptual model, and data were analyzed with partial least squares structural equation modeling.

The outcome of this research provides the antecedents of the online shopping intention of customers after watching AI-based deepfake videos. These antecedents are MR, information manipulation tactics, personalization and perceived trust. Perceived deception negatively influences customers' online shopping intention, and cognitive load has no effect. It also elucidates the manipulation tactics used by the managers to develop AI - based deep fake videos.

Practical implications: The distinctive model that emerged is insightful for senior executives and managers in thee - commerce and retailing industry tounderst and the influence of AI-based deep fake videos. This provides the

antecedents of online shopping intention due to deep fakes, which are helpful for designers, marketing managers and developers.

Originality/value: The authors amalgamatethe MR and IMT2 theoryto understand the online shopping intention of the customers after watching AI-based deepfake videos. This work is a pioneer in examining the effect of AI-based deepfakes on the online shopping intention of customers by providing a framework that is empirically validated.

Research problem

This research aims to explore how customer engagement with AI technologies, such as chatbots, recommendation systems, and personalized advertising algorithms, influences the effectiveness of advertising campaigns in the e-commerce sector. By understanding the dynamics between AI-driven customer inter actions and advertising outcomes, this study seeks to provide insights for businesses to optimize their marketing strategies in the digital market place.

Research objectives

- To know about the knowledge regarding influence of aiine - Commerce advertisement
- To know about customer perception towards advertisement in e-commerce.
- To know about the customer knowledge regarding the role performed by AI in advertisement through social media

RESEARCH METHODOLOGY

The aim of the study is to analyses the artificial intelligence in e-commerce. The data is used both primary and secondary data. The research instrument used in this study is questionnaire. It designed pertaining to the impact of the study. Data is used simple percentage method. The sampling unit for the study is selected by using convenience sampling procedure. The research design used for the study is the convenient research. Sample size for the study is 25 respondents.

Primary Data

Primary data are those which are collected afresh and forthe first time and thus happen to be original in character questions and interviews method were accede to collect primary data through questionnaire.

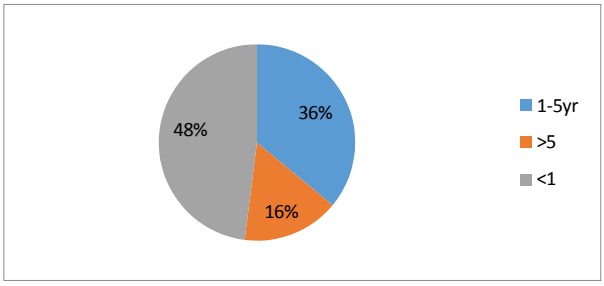
Secondary Data

It is collected from the internal record of company such as library records trade journals various training programs previously conducted and its responds etc... It is also conducted from the officials of the pursued department in the factory. Secondary data provides a better view of problem study many magazines tools and other references were also mean important in this study

DATA ANALYSIS AND INTERPRETATION

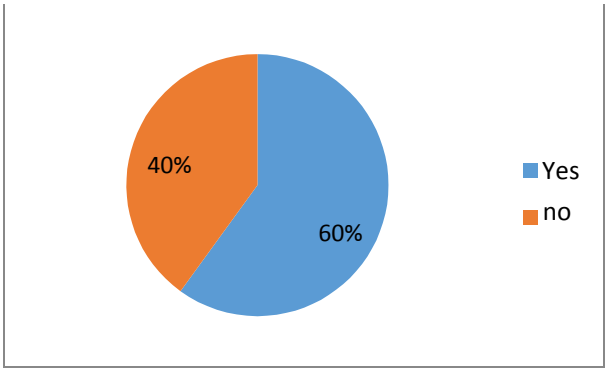
1. How many years you being using E-Commerce?

Years	1-5	>5	<1	Total
No.of response	9	4	12	25



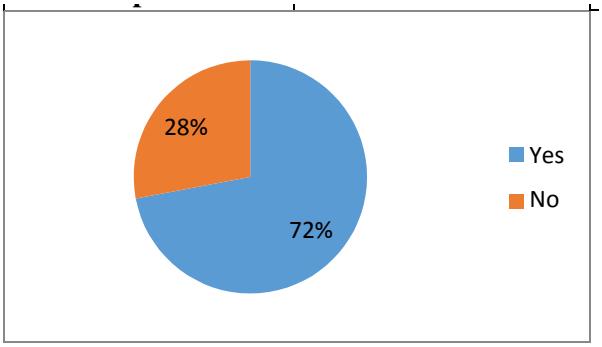
2.Are you a frequent online shopper?

	Yes	No	Total
No.of response	15	10	25



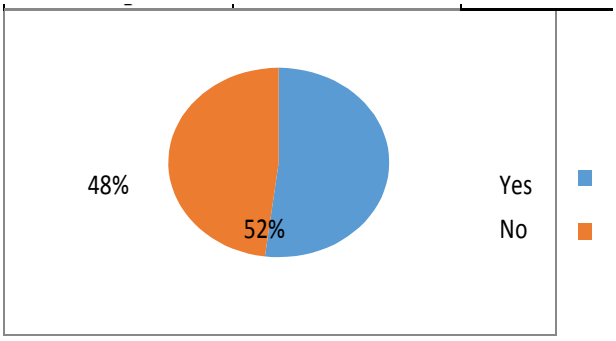
3. Have you ever made a purchase based on the suggestion from an advertisement in socialmedia.

	Yes	No	Total
No.of response	18	7	25



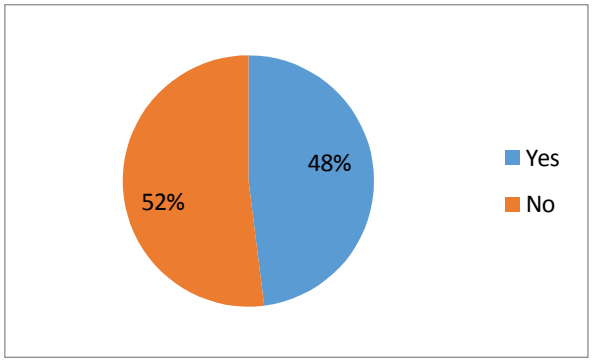
4. Are you familiar with the AI technologies?

	Yes	No	Total
No.of response	18	7	25



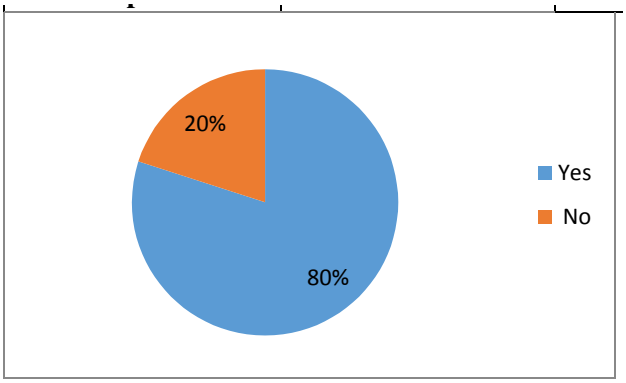
5. Are you aware about the negative impact of AI technologies?

	Yes	No	Total
No.of response	12	13	25



6. Do you agree that the advertisements are much significant in improving customer satisfaction?

	Yes	No	Total
No.of response	20	4	25



FINDINGS

The following findings and conclusion that could enlighten the impact of artificial intelligence on e-commerce in advertisements.

From the analysis we found that 36% of the respondents are using e-commerce 1 to 5 years, 16% of the respondent sare using more than 5years, 48% of the respondent sare using less than one year., 60%are frequent online shoppers, 72% of the responses agrees that they bought items on the suggestion they see in social media in which they searched for. Only 52% of the responses are familiar with the AI technologies. Only48% of the response sare aware about the negative impact AI technologies regarding data privacy, personal data looting etc.80% of the responses agrees that the advertisements are much significant in improving customer satisfaction as the gets the items which are most required for their searches.

SUGGESTIONS

- The users should beaw are about thee-commerce platforms they are using and its privacy control.
- The user should always keep their personal data secure.
- The privacy breakage of the e-commerce platforms should be well aware by its users.

CONCLUSION

In future years, AI is going to acquire even the core activities of the organisation. The use of AI has shown ways to perform complex actions and perform activities like humans .Even though the application is wider, still it can't be used in all activities. AI technology can be used to perform repetitive tasks but still the decision making is done by the humans. It is therefore should be noted that thee-commerce platforms and the social media advertisements are directly linked and personalized as per the requirements and taste of the users on which the data are transformed from their searches and needs they post in various browsing apps and e-commerce platforms.

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REIMAGINING TEACHER – STUDENT ROLES IN AI-ENHANCED EDUCATION

Dr.K.P. Varalakshmi

ABSTRACT

In today's knowledge-based society, India has one of the largest higher education systems, making quality education a national priority. Quality is not a one-time attainment but a constant process that supports social and economic growth. With the evolution of digital technology and Artificial Intelligence (AI), teaching and learning have shifted from teacher-centred methods to student-centred approaches. Teachers now act as guides and facilitators, helping students learn effectively. Students take an active role in learning by thinking critically, solving problems, and developing important skills. Teachers use AI tools and innovative teaching methods to improve learning outcomes, while students engage in self-learning and problem-solving using technology. Educational institutions ensure quality through regular monitoring, evaluation, and improvement practices.

This paper explains how changing teacher–student roles, ethical use of AI, and continuous quality practices help sustain quality education in the AI era.

KEY WORDS

Quality Education, Artificial Intelligence, Teacher–Student Roles, Student-Centred Learning, Digital Technology, Higher Education, Learning Outcomes, Ethical Use of AI

INTRODUCTION

In the modern, technology-driven knowledge society, higher education institutions are under pressure to continuously enhance their quality of teaching and learning. India, faces a challenge for maintaining quality in in education due to rapid changes in economic, social and technological changes. Quality in higher education is considered as a continuous and dynamic process that is essential for development of the student, institution and nation.

The rapid progression of Artificial Intelligence (AI) and digital technologies has meaningfully transformed the educational landscape. Traditional teacher-centred pedagogical practices are gradually giving way to learner-centred and technology-enabled approaches that emphasize active learning, critical thinking, problem-solving, and skill development.

Many institutions effectively integrate the technologies of AI and digital tools into teaching learning practices. The teachers are expected to shift their roles from knowledge transmitters

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to perform the role of facilitators, mentors and academic guide to design learning experience through digital tools and in turn students are expected to take greater responsibility by actively participating in using digital technology for their self-directed learning.

In the AI-enabled learning environment, teachers are expected to move beyond the traditional role of knowledge transmitters and function as facilitators, mentors, and academic guides who design engaging learning experiences using digital tools. At the same time, students are required to take greater responsibility for their learning through active participation, self-directed learning, and responsible use of technology. The successful alignment of these evolving roles is essential for improving learning outcomes and ensuring quality education. The study focuses on how students and teachers understand their changing roles and contribute effectively to maintain quality in higher education by the support of Artificial intelligence and digital learning practices.

MODERN TEACHING AI TOOLS

A. VoiceThread – Interactive Learning

VoiceThread is a platform helping both teachers and students to share presentations, videos, voice and text comments. It helps in student discussions and participation especially for shy learners.

Example: Used in universities for virtual seminars, reflective assignments, and peer review activities.

B. Blogging – Reflective Learning Practice

Class blogs help students to post images, case studies, and subject notes. It helps students think better and keep a digital record of their work. Example: Students create e-portfolios using WordPress or Google Sites to store their internship work, placement details, and learning outcomes.

C. Prezi – Engaging Presentations

Prezi helps create attractive presentations that are not in a straight-line format, which keeps students interested and helps them understand concepts better. Example: It is used for project reviews, startup idea presentations, interdisciplinary seminars, and management presentations.

D. Social Bookmarking – Knowledge Sharing

Social bookmarking tools help students save, organize, and share study materials online. Example: Mendeley and Zotero are commonly used for research work, managing references, and writing literature reviews.

E. Podcasts – Flexible Learning

Podcasts provide recorded lessons that students can listen to at any time, helping them learn at their own pace.

Example: Teachers create podcasts and AI-based short lectures that students use for revision and flipped classroom learning.

F. Screen casting – Self-Learning Support

Screen casting tools help teachers record

lessons and demonstrations so students can watch them again whenever needed. Example: Tools like Loom and OBS Studio are used to explain concepts, solve problems, and provide software training.

G. Social Media – Collaborative Learning

Social media platforms help students and teachers communicate, interact with peers, and learn informally. Example: WhatsApp groups are used for academic updates, Telegram channels share study materials, and LinkedIn groups support professional learning.

H. Polling and Gamified Learning

Online polling and game-based tools make classes more interesting and give quick feedback to students. Example: Menti meter and Kahoot are used in classes for quizzes, opinion polls, and continuous assessment.

I. Smart Boards – Interactive Classrooms

Smart boards make teaching more visual and interactive, which helps students understand and remember lessons better. Example: AI-enabled smart classrooms are used in institutions as part of the NEP 2020 guidelines.

J. Learning Management Systems (LMS)

Learning Management Systems (LMS) support both online and blended learning by providing study materials, assignments, quizzes, and discussion spaces in one place. Example: Moodle with AI-based tools is used to track attendance, follow student progress, and assess learning outcomes.

RESEARCH METHODOLOGY

Formulation of Research Problem

To study how changing roles of teachers and students help improve and maintain quality education in the AI era.

EXTENSIVE LITERATURE SURVEY

Lucki et al. (2016) explained in his study that Artificial Intelligence is designed to support teachers, not to replace them. The author highlighted that quality education is achieved when human intelligence and artificial intelligence work together in a balanced way. He concluded in his study that, teachers guide and manage the learning process, while students use AI tools to get feedback and explore new ideas.

Holmes et al. (2022) in his study described Artificial Intelligence as a useful tool that helps teachers to assess the personalized learning, and to understand student progress. AI helps teachers to take better teaching decisions using learning data, while students receive learning support based on their individual needs. The study concludes that education quality can be improved only when teachers stay in control of teaching and curriculum planning, using AI as a support and not as a replacement.

Chan and Tasi (2023) explained in his study that Artificial Intelligence cannot replace teachers but changes how they work. Teachers are considered very important for giving emotional support, values, and real-life understanding to students which AI cannot provide. Students

benefit from AI by getting quick feedback and learning at their own pace, while teachers motivate and help students for using technology responsibly. The study concludes that quality education is continued when teachers, students, and AI work together in a balanced way.

UNESCO (2023) stresses in his study that generative AI tools should be used in education in a responsible and ethical way. Teachers should guide students to use AI tools safely, fairly and properly and should ensure that learning materials and assessments are meaningful and free from bias. The study concludes that quality education can be maintained by teachers by actively involving in setting rules and guidance for the use of AI in education.

Zhai (2024) explains in the study that teachers play a changing role due to AI generative tools. Teachers are no longer responsible for teaching alone but also for guiding them to use AI tools in an ethical way. At the same time students can use AI tools for exploring new ideas, creative thinking and solving problems rather than depending on teachers. The study concludes that quality education can be sustained only if teachers develop strong knowledge and skills related to AI and guide students effectively and responsibly.

Krause et al. (2025) studied on changing the methodology for teaching and learning in colleges and universities. He concluded in his study that teachers are no longer giving lecturers instead they guide students to think deeply about their learning process with the help of AI tools rather than memorizing facts.

Mahmud et al. (2025) explored the framework explaining the importance of AI for both teachers and students. According to him teachers should know the AI technologies and should guide students in using them ethically. The study concludes that both teachers and students take shared responsibility for learning through AI and the learning outcomes improves the quality of education over a long period of time.

Tripathi and R. (2025) studied on the topic role of teachers in changing teaching methodologies with the use of AI in classrooms. The study concluded that teachers no longer give instructions instead they learn with students in exploring AI tools by creating a friendly and supportive learning environment which results in increasing the learning quality

Frontiers in Education (2025) reviewed many studies on AI teaching methods making learning more interesting and easier. The study concluded that the teachers are more important in guiding students for using AI tools and they should ensure that students think on their own rather than depending much on AI tools.

MDPI (2026) study says that using AI in education is not always easy. Some teachers lack in technology usage and not all students have access to digital tools. Due to this teacher need to take lead and bring positive changes among the students to learn new AI technologies. The study concluded that proper training to be provided to

teachers to sustain quality education in the AI age.

PREPARING THE RESEARCH DESIGN

The study adopted an experimental research design by using pretest and post-test approach for examining the effectiveness of technology driven teaching learning tools. A sample of 100 students were selected for the study. A pre-test was conducted to measure students' existing knowledge, understanding, and level of engagement before using any technology tools. Based upon the results teaching intervention using technology-based learning tools like VoiceThread, blogs, Prezi, Moodle, Menti meter, and Kahoot were implemented for four weeks to support teaching and learning in classroom teaching without any disturbance to the prescribed syllabus. After the completion of the fourth week a post test was conducted among the sae set of students and scores were compared. This process helped to measure the effect of technology-based teaching tools. The results were valid and reliable as the same set of students were used for the similar test for four weeks' overall research design made it easy to understand how learning is improved among students by using AI tools in teaching.

DETERMINING SAMPLE SIZE

- The study included 100 UG students selected from Management, Commerce, and Arts program as samples to give a very reliable result and to compare a pretest and post test scores.
- Since students were included from various courses it brought variety in learning styles.
- The tools used in the study were common to all subjects and hence the results can be applied to other UG students in similar courses.
- This sample size made the study easier to identify learning improvement after the use of AI tools.
- The sample size was found to manageable and the findings were more dependable.
- A simple random sampling method was used to choose the sample hence every student had an equal chance of being selected.
- Selection of sample was done randomly by listing the roll numbers to avoid bias.
- The selection was made on a fair ground without being influenced by factors like marks, gender or background.

DATA COLLECTION

- A structured questionnaire was used to collect data for both pre and post-test measuring the students learning before and after the use of AI tools.
- All the 100 samples were given the same set of questions which made the comparison of results easy.
- The pretest helped to identify the student's existing knowledge and understanding and post-test on the improvement made in learning after using AI tools in teaching.

- At the end of the study students experience on using AI tools such as VoiceThread, Blogging, Prezi, Moodle, Menti meter, and Kahoot was collected using a feedback questionnaire.
- Linkert's 5-point scale, Dichotomous, multiple choice, Closed ended and open-ended questions were used to collect the data.

DEVELOPING THE HYPOTHESIS

After collection of data, a hypothesis was framed and statistically tested to verify the impact of technology-driven teaching–learning tools on student learning outcomes.

Null Hypothesis (H_0)

There is no significant difference in the learning outcomes of students before and after the use of technology-driven teaching–learning tools.

Alternative Hypothesis (H_1)

There is a significant improvement in the learning outcomes of students after the use of technology-driven teaching–learning tools.

(A) Paired T-Test

A paired t-test was used to find out whether there was a significant difference in students' performance before and after using technology-driven teaching–learning tools. This T test compares two related scores to identify the changes in score was real or happened by chance. This test was chosen since the same group of 100 students took part in both pre and post-test.

Type of Test	Mean Score	Standard Deviation	Sample Size (n)
Pre-Test	56	8	100
Post-Test	78	7	100

- Calculated t value = 18.25
- Level of significance = 0.05
- Degrees of freedom (df) = 99
- Table *t* value at 0.05 level = 1.984

Since the calculated t value (18.25) is greater than the table t value (1.984), the null hypothesis is rejected.

Interpretation of Results

- It is found that there was an increase in mean score from 56 in the pre-test to 78 in the post-test showing a clear improvement in students' performance after the use of AI tools.
- The standard deviation decreased slightly in the post-test, showing that students' scores more consistent.
- The same 100 students participated in both tests, making the comparison fair and reliable.
- Overall, the results suggest that technology-driven teaching–learning tools had a positive effect on student learning outcomes.

(B) R Test (Pearson's Correlation)

The r test (Pearson's correlation coefficient) was used in this study to determine the relationship between pre-test and post-test scores of the same group of students.

R=NΣXY-(ΣX) (ΣY) / [NΣX2−(ΣX)2] [NΣY2−(ΣY)2

- r = Pearson's correlation coefficient
- X = Pre-test scores
- Y= Post-test scores
- N = Number of students (100)
- ΣXY= Sum of the product of paired scores
- ΣX,ΣY = Sum of pre-test and post-test scores
- Σx2, Σy2= Sum of squares of pre-test and post-test scores

Calculated Value

Using the above formula and the collected test score data is r=0.68

- The r test was used to find out the relationship of scores of the students between pre-test and post-test.
- The test was used to understand the concept whether students who performed well before introducing AI teaching tools also performed well after using technology-based teaching tools.

Interpretation

- The value of r=0.68 implies a moderate to strong relationship which is positive between scores of pre-tests and post -tests.
- The test implies that students scored higher in pre-test also scored higher in post-test.
- The result shows an increase in post-test scores proving that technology-based teaching tools improves learning among students.
- The test also confirms an effective improvement in students' academic performance consistently and positively by use of digital tools like VoiceThread, blogging, Prezi, Moodle and polling applications.

(C)Effect Size (Cohen's d)

This test shows how big is the improvement in learning among students after using AI tools.

- Pre-test Mean = 56
- Post-test Mean = 78
- SD ≈ 7.5 (average of 8 and 7)

Formula

d =Post Test Mean/Pre -Test Mean /Pooled Standard Deviation

d= 78-56 /7.5= 22/7.5 =2.93

- 0.2 = small effect
- 0.5 = medium effect
- 0.8 and above = large effect
- d= 2.93 indicates a very large effect

Interpretation

The effect size Cohen's d=2.93 shows a very large improvement in learning outcome of students after the usage of technology -driven teaching -learning tools. The study concludes that there is a strong and meaningful impact on learning by using AI tools.

FINDINGS OF THE STUDY

- Students' performance improved noticeably

after learning technology-based AI tools.

- ❖ It was found that the post test score was higher than pretest score, showing better understanding of the lessons among students.
- ❖ It was found that students became more active in learning through AI tools which helped them to learn by their own and revise lessons whenever needed.
- ❖ Learning through AI tools increased the confidence level of slow learners and made them to actively participate in learning process.
- ❖ Overall, from the study it was found that teaching became more interesting, interactive, student centred and effective.

RECOMMENDATIONS

- ❖ It is recommended that digital tools like learning apps, online platforms, blogs, polls and recorded lessons to be used by teachers regularly.
- ❖ Proper training in using AI tools to be provided by institutions to both teachers and students.
- ❖ Proper AI technology should be used to support student centred and outcome-based learning.
- ❖ To improve digital teaching methods regular feedback should be collected from students.
- ❖ Students with special learning needs can be supported with AI tools in their learning process.

CONCLUSION

The study concludes that technology-based teaching tools greatly improve student learning. The comparison of pre-test and post-test results clearly shows better academic performance and higher student involvement. Digital tools help students participate actively, learn on their own, and understand concepts more easily. Using technology in teaching helps institutions improve and maintain the quality of education and supports modern teaching methods and national quality standards.

A COMPARATIVE STUDY OF FACULTY PERSPECTIVES ON THE ETHICAL CONCERNS AND CHALLENGES OF TRADITIONAL VS. AI-POWERED TEACHING WITH SPECIAL REFERENCE TO CHENNAI COLLEGES

***Ms. Jeevitha A** ***Jerlin Ishiah S R**

ABSTRACT

As Artificial Intelligence (AI) becomes increasingly integrated in the education sector, the growing technology of AI and its usage in the classroom are subject to debate in recent days. This research study is more important to understand the awareness and adoption of AI by college faculty in the academic curriculum. Further it also compares to analyse the traditional approach of teaching and AI-empowered teaching method. The study was conducted particularly in Chennai by using the conventional sampling method through a structured survey and 50 samples were collected from college faculty across multiple disciplines. Statistical analysis like T-Test, Chi-square test and ANOVA were used to identify the better statistical inferences of the study. Through this research it is possible to explore the AI related challenges and ethical issues such as transparency, fairness, academic honesty, and data privacy among the users. The outcomes will provide insights into the need for formal training, the scope of ethical guidelines, and the institutional support to encourage proper use of AI in classrooms by the teachers, and they will also act as primary drivers of ethical AI integration in academia.

Keywords: Artificial Intelligence (AI), Traditional vs. AI approach of teaching, Ethical Concern and Challenges.

INTRODUCTION

In today's world, Artificial Intelligence is reshaping how educators teach and how students learn. While traditional teaching methods heavily rely on empathy, human interaction, and pedagogical experience, AI tools offer scalability, personalization, and efficiency. However, the integration of AI in education has its own ethical and practical concerns, especially regarding academic honesty, data privacy, bias, and the teacher-student dynamics.

In the Indian higher education context, the adoption of AI in classrooms is still at a primary stage. While some faculty members have begun to explore AI tools, others remain hesitant. This study aims to examine and compare the perspectives of college faculty on the effectiveness, ethical concerns, and practical challenges posed by traditional and AI-empowered teaching methods. The research seeks to uncover how AI is perceived, how it is being used, and what institutional measures are necessary to support its responsible integration. The study also seeks to understand whether faculty members view AI

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as a threat or as a valuable aid that can coexist with traditional teaching.

NEED FOR THE RESEARCH

The integration of AI in education is currently inevitable and rapidly growing, yet academic institutions have not established uniform guidelines or training to ensure ethical and effective use. Faculty members are at the forefront of this transformation, and their perspectives are critical in shaping responsible implementation. This research is essential because:

There is a growing concern about ethical issues such as data privacy, plagiarism, fairness, and transparency in AI-powered learning.

Faculty members need institutional support to make informed decisions about adopting AI tools without compromising academic honesty.

A comparative understanding of traditional vs. AI-powered teaching methods can guide institutions in creating a balanced pedagogical framework.

There is limited existing literature on Indian faculty perceptions regarding AI in education, especially in Chennai.

RESEARCH OBJECTIVES

The main objectives of this research are as follows:

To understand the level of awareness and experience with AI tools in teaching.

To compare traditional pedagogical teaching approach and AI-powered teaching methods.

To analyse faculty's perspective on ethical concerns and challenges associated with AI in education.

REVIEW OF LITERATURE

Comparative Analysis of Teaching Methods

Susan Rochelle and Dr. Sushith (2024), 'Exploring the AI Era: A Comparative Analysis of AI-Driven Education and Traditional Methods' A well-constructed comparative framework is essential to understanding the relationship between traditional and AI-powered teaching. This study explores how AI offers scalability and personalization in learning, but also highlights the risk of reduced teacher-student empathy and the potential for depersonalization. The findings suggest that a blended model combining AI and traditional pedagogical approaches may address the defects of each method.

Faculty Perspectives on AI Adoption

Patrick T. S. Harris (2024), 'Faculty Perspectives toward Artificial Intelligence in Higher Education' Faculty behaviour and willingness play a decisive role in AI adoption. Relevant studies indicate that educators recognize the efficiencies and innovations enabled by AI, such as automated grading and personalized feedback. However, there is also significant apprehension related to a lack of adequate training, fears of diminished academic honesty, and resistance to altering established teaching methods. This study emphasizes the need for structured institutional support and ongoing training. It also identifies self-efficacy as a critical factor shaping faculty openness to AI, advocating for targeted professional development programs.

Ethical Considerations in AI-Assisted Teaching

'Selin Akgun and Christine Greenhow (2021), Artificial Intelligence in Education: Addressing Ethical Challenges in K-12 Settings' Ethical issues are a consistent theme in the literature. This research discusses concerns such as data privacy, surveillance, fairness, algorithmic bias, and the lack of transparency of AI decision-making. The authors emphasize on the importance of developing ethical guidelines, transparency protocols, and best practice recommendations to ensure responsible use of AI in educational settings. These concerns are amplified in the Indian context, where regulatory frameworks are still emerging.

Indian Higher Education Context

'Prema Sihag and Vibha (2024), Transforming and Reforming the Indian Education System with Artificial Intelligence' India presents unique opportunities and challenges for the adoption of AI in education. This study reviews the post-pandemic rise in AI use in Indian institutes and points to infrastructural disparities and variable faculty willingness as key hurdles. The article calls for context-specific guidance, investment in faculty training, and establishment of ethical standards that align with the nation's diverse educational landscape.

Professional Development Needs

'Dana-Kristin Mah and Nele Gross (2024), Artificial Intelligence in Higher Education: Exploring Faculty Use, Self-Efficacy, Distinct Profiles, and Professional Development Needs' Across the existing literature, there is consensus that faculty training and professional development are essential to facilitate effective and ethical integration of AI in teaching. This research stresses the need for hands-on exposure, peer learning, and institutional support to boost faculty self-efficacy and adaptability in the face of technological change.

RESEARCH METHODOLOGY

This is an empirical study based on convenient sampling method. Primary data was collected through Google forms. This questionnaire was issued to 55 respondents through Google forms out of which 50 respondents have been taken into study. The tools used were Regression analysis and ANOVA analysis.

METHOD OF STUDY

As the research is based on the problem or criteria which are related to the society, the research has been carried on the basis of descriptive study format.

COLLECTION OF DATA

The Primary data was collected through Google forms, 50 respondents taken into study and secondary data were taken from journals, websites.

HYPOTHESIS

Hypothesis were framed based on Objectives.

RESEARCH TOOLS AND TECHNIQUES

SPSS Software was used and MS office were used to determine its following value-

- ❖ Simple Percentage Analysis
- ❖ Regression Analysis

❖ One way ANOVA

RELIABILITY TEST

More than 0.7 which is reliable and good.

ANALYSIS AND INTERPRETATION

DEMOGRAPHIC PROFILE

LIMITATIONS OF THE STUDY

This study is circulated to college faculty from Chennai exclusively. It is conducted with limited time and has taken small number of samples.

S.No	Age	Percentage	S.No	Type of Institution	Percentage
1.	25-35 Years	32	1.	Government College	4
2.	36-45 Years	40	2.	Autonomous	48
3.	46-55 Years	22	3.	Self-Financed	48
4.	Above 55 Years	6			
S.No	Department	Percentage	S.No	Years of Teaching Experience	Percentage
1.	Commerce	36	1.	Less than 2 years	14
2.	Science	18	2.	2-5 years	20
3.	Computer Science/ IT	12	3.	5-10 years	14
4.	Humanities	8	4.	More than 10 years	52
5.	Management	2	S.No	Usage of AI tools in Classroom	Percentage
6	Engineering	16	1	Yes	68
7	Other	8	2	No	32

Interpretation:

From the above table it is inferred that 40% of the teachers belong to the age group of 36-45 Years, Most of the faculties working in Autonomous and Self-Financed Institution Consists of 48%, Majority of the teachers belong to Commerce stream of 36%, the majority have 2-3 years of experience is of 20% and 68% of the faculties using AI tools in class room.

Compulsion from institution for adoption of AI tools in teaching

Compulsion from institution for adoption of AI in teaching		Frequency	Percent
Valid	Yes	11	22
	No	39	78
	Total	50	100.0

Interpretation:

From the above table it is inferred that 78% of faculties agrees that there is no compulsion from the institution of adopting AI tools for teaching.

AI tools Used in Teaching

AI Tools		Frequency	Percent
Valid	ChatGPT	14	28.0
	Gemini	2	4.0
	Quillbot, Grammarly	1	2.0
	Gradescope	1	2.0
	Other	3	6.0
	Not Using	29	58.0
	Total	50	100.0

Interpretation:

From the above table it is inferred that majority of 29% of faculties are not using any AI tools and 14% are using ChatGPT.

Frequency of Using AI tools in Teaching

Frequency of Using AI tools		Frequency	Percent
Valid	Never	7	14.0
	Rarely	9	18.0
	Occasionally	19	38.0
	Frequently	11	22.0
	Very often	4	8.0
	Total	50	100.0

Interpretation:

From the above table it is inferred that 38% are used occasionally and the least of 8% are used very often in their teaching.

The Purpose of Using AI tools in Teaching

The Purpose of Using AI tools in Teaching		Frequency	Percent	Ranking
Valid	Preparing lecture content or presentations	4	8.0	4
	Grading and evaluation	5	10	3
	Plagiarism detection	1	2.0	7
	Creating or modifying assignments and quizzes	2	4.0	6
	Student engagement (e.g., chatbots, interactive tools)	25	50	1
	Research-related support (e.g., literature review, data analysis)	10	20	2
	Administrative tasks (e.g., scheduling, report writing)	3	6.0	5
	Total	50	100.0	

Interpretation:

From the above table it is inferred that the majority of the teachers 25% are using AI tools for the purpose of Students engagement like creating interaction.

Formal training on the use of AI in educational settings

Received formal training on AI use		Frequency	Percent
Valid	Yes, organised by my institution	11	22
	Yes, through an external source (MOOC, webinar, etc)	21	42
	No, but I've self-learned	4	8
	No, I haven't received any training	14	28
	Total	50	100.0

Interpretation:

From the above table it is inferred that the majority of the teachers 42% have received training regarding AI use in education from external source.

Teaching approach that better supports the development of well-rounded students (ethically aware, critical thinkers, adaptive learners)

Teaching approach for better development of students		Frequency	Percent
Valid	Traditional teaching methods	12	24
	AI-empowered teaching	3	6
	A combination of both	35	70
	Total	50	100.0

Interpretation:

From the above table it is inferred that the majority of the teachers 70% consider a combination of both traditional and AI-empowered teaching methods to better support the development of well-rounded students

Awareness about guidelines on ethical AI use in education from institution or government bodies

Awareness about ethical guidelines		Frequency	Percent
Valid	Yes, institutional guidelines	13	26
	Yes, national/international guidelines (UGC, UNESCO)	6	12
	No	17	34
	Not sure	14	28
	Total	50	100.0

Interpretation:

From the above table it is inferred that the majority of the teachers 34% are not aware about guidelines on ethical AI use in education, and the majority of teachers 26% who are aware of such guidelines, know it through their institutions.

Ethical values to be prioritized while using AI in classrooms

Ethical values to be prioritized while using AI in classrooms		Frequency	Percent	Ranking
Valid	Fairness	5	10	3
	Transparency	3	6	5
	Accountability	2	4	6
	Academic honesty	27	54	1
	Data privacy	6	12	2
	Student autonomy	3	6	5
	Faculty oversight	4	8	4
	Total	50	100.0	

Interpretation:

From the above table it is inferred that the majority of the teachers 54% consider Academic Honesty as the value to be most prioritized while using AI in classrooms.

ONE WAY ANOVA

Significant difference in the ethical concerns of faculty based on their age

H0: There is no significant difference in the ethical concerns of faculty based on their age.

H1: There is significant difference in the ethical concerns of faculty based on their age.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.200	3	.067	.126	.944
Within Groups	24.303	46	.528		
Total	24.503	49			

Interpretation:

The above table indicates the significant value is 0.944 which is falling under the category of (0.051 to 1.000) where H0 is accepted, hence there is no significant difference between Age and Ethical concerns of the faculty.

REGRESSION ANALYSIS

Relationship between effectiveness of Teaching Methods and Student Performance

H0: There is a significant relationship between Effectiveness of Teaching Methods and Student Performance.

H1: There is no significant relationship between Effectiveness of Teaching Methods and Student Performance.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.227a	.052	.032	.7991

a. Predictors: (Constant), Have you noticed any difference in student performance when AI tools were incorporated into teaching?

ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.667	1	1.667	2.610	.113b
Residual	30.653	48	.639		
Total	32.320	49			

a. Dependent Variable: In your opinion, which approach is more effective in enhancing student learning outcomes?

b. Predictors: (Constant), Have you noticed any difference in student performance when AI tools were incorporated into teaching?

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	2.128	.290		7.331	.000
Have you noticed any difference in student performance when AI tools were incorporated into teaching?	.191	.118	.227	1.616	.113

a. Dependent Variable: In your opinion, which approach is more effective in enhancing student learning outcomes?

Interpretation:

The above table indicates the significant value is 0.113 which is falling under the category of (0.051 to 1.000) where H0 is accepted, hence there is a significant relationship between effectiveness of teaching methods and student performance.

FINDINGS

- Majority 40% of the respondents are 36-45 years of age.
- 36% of the respondents are from the Commerce discipline.
- 52% of the respondents have more than 10 years of teaching experience.
- Majority 68% of respondents use AI in their teaching activities.
- ChatGPT is the most frequently used AI tool.
- Student Engagement has been ranked as the highest purpose of using AI with 50% responses.
- It has been inferred that 34% of the respondents are not aware of the guidelines for AI use in classrooms.
- Academic Honesty is the most prioritized ethical value while using AI in classrooms with 54%

responses.

- ❖ It is found that there is significant association between Effectiveness of Teaching Methods and Student Performance.
- ❖ It is found that there is no significant difference between Age and Ethical Concerns of the faculty.

RECOMMENDATIONS

- A combination of traditional and AI-powered teaching methods could be implemented to yield optimum outcome.
- Continuous training for the faculty regarding AI use in education should be provided.
- Faculty members should be willing to incorporate AI in education and classroom activities to increase the student interaction.
- Institutions need to allocate resources toward AI training for the faculty.
- Clear guidelines and regulations need to be established by government bodies and institutions to ensure ethical and responsible use of AI.

CONCLUSION

With increasing incorporation of AI in all fields, the education sector is no exception. Therefore, faculty need to be more willing to adopt AI in their classroom activities, as it has been found to increase student interaction and yield a significantly better outcome. AI adoption in classrooms is still at a very early stage in India, therefore significant ethical concerns remain among faculty. The study has emphasized the need for training among faculty regarding AI tools, to ensure ethical usage.

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THE IMPACT OF FEMALE LEADERSHIP ON ORGANIZATIONAL INNOVATION AND SUSTAINABILITY

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ABSTRACT:

Female leadership plays a pivotal role in driving organizational innovation and sustainability by fostering inclusive decision-making, diverse perspectives, and adaptive strategies. Women leaders often emphasize collaborative approaches, ethical governance, and long-term value creation, which contribute to sustainable business practices and innovative solutions. This paper explores the impact of female leadership on enhancing organizational creativity, environmental responsibility, and social sustainability. By addressing gender-related challenges and leveraging unique leadership styles, female leaders can pave the way for resilient and forward-thinking organizations in the modern business landscape.

Keywords: Female leadership, organizational innovation, sustainability, inclusive decision-making, gender diversity, ethical governance, business resilience.

INTRODUCTION

In today rapidly evolving business landscape, the integration of diverse leadership perspectives are increasingly recognized as a catalyst for organizational innovation and sustainability. Female leaders, in particular, bring unique insights and approaches that foster inclusive decision-making, ethical governance, and long-term strategic thinking. Research indicates that organizations with women in leadership positions tend to exhibit stronger social commitments and participatory leadership styles, contributing to sustainable business practices and innovative solutions. This paper explores the impact of female leadership on organizational innovation and sustainability, highlighting current examples and analyzing the underlying factors that enable women leaders to drive transformative change.

THE ROLE OF FEMALE LEADERSHIP IN ORGANIZATIONAL INNOVATION

Innovation is a critical component of business growth and competitiveness. Studies suggest that gender-diverse leadership teams are more likely to introduce novel ideas, challenge conventional thinking, and foster a culture of creativity. Female leaders bring diverse perspectives that drive product development, process improvements, and new business models. Their leadership style, often characterized by collaboration, empathy, and openness to diverse viewpoints, creates an environment that encourages experimentation and continuous learning.

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Research indicates that organizations with women in top leadership positions experience higher levels of innovation performance. Female leaders tend to adopt a holistic approach to problem-solving, considering the long-term impact of decisions on stakeholders, employees, and the environment. This approach not only enhances innovation but also ensures that new initiatives are aligned with sustainable development goals (SDGs).

FEMALE LEADERSHIP AND ORGANIZATIONAL SUSTAINABILITY

Sustainability has become a key priority for organizations across industries. Female leaders are often at the forefront of championing sustainable business practices, incorporating environmental, social, and governance (ESG) criteria into their decision-making processes. Women in leadership positions have been found to prioritize corporate social responsibility (CSR) initiatives, implement ethical supply chain practices, and advocate for environmentally friendly policies.

A study by the Harvard Business Review highlights that companies with greater gender diversity in leadership roles are more likely to achieve sustainability targets, such as reducing carbon emissions, promoting fair labor practices, and ensuring responsible resource management. Female leaders are more likely to engage with stakeholders, build strong community relationships, and support initiatives that create long-term value for both the organization and society.

Challenges Faced by Female Leaders in Driving Innovation and Sustainability Despite the evident benefits of female leadership, women in leadership roles continue to face significant challenges in their pursuit of driving innovation and sustainability. Gender bias, lack of mentorship opportunities, and limited representation in executive positions remain persistent barriers. Additionally, the "glass ceiling" effect often hinders women advancement to top leadership roles, limiting their ability to influence strategic decision-making processes. Organizations must address these challenges by implementing policies that promote gender equality, such as mentorship programs, leadership training, and flexible work arrangements. Creating an inclusive corporate culture that values diversity and recognizes the contributions of female leaders is essential for unlocking their full potential in driving innovation and sustainability.

THE FUTURE OF FEMALE LEADERSHIP IN DRIVING CHANGE

As the global business landscape continues to evolve, the role of female leaders in driving innovation and sustainability will become increasingly critical. Organizations that embrace gender diversity and empower women leaders will be better equipped to navigate complex challenges and seize new opportunities in a rapidly changing environment. To foster the next generation of female leaders, it is essential to provide equal opportunities, promote inclusive leadership practices, and create networks that support women professional growth. governments, industry bodies, and educational

institutions must collaborate to break down barriers and create an enabling environment for women to thrive in leadership roles.

LITERATURE REVIEW

A growing body of research highlights the positive influence of female leadership on organizational innovation and sustainability. Studies have shown that gender-diverse leadership teams enhance creativity, risk management, and decision-making effectiveness.

According to a report by McKinsey & Company, organizations with higher female representation in leadership positions are 21% more likely to outperform their peers in profitability and innovation. Similarly, research published in the Journal of Business Ethics emphasizes that female leaders prioritize corporate social responsibility and environmental stewardship, leading to improved sustainability outcomes. Despite these benefits, literature also underscores the challenges women face in leadership roles, including gender bias and limited access to professional networks. Addressing these barriers is essential for unlocking the full potential of female leadership in driving sustainable innovation.

CONCLUSION

Female leadership plays a transformative role in shaping organizational innovation and sustainability. Women bring distinct leadership styles that emphasize collaboration, ethical governance, and a long-term perspective. Their ability to foster inclusive environments and drive strategic changes leads to enhanced business performance and sustainable practices.

However, challenges such as gender bias and underrepresentation continue to persist, requiring proactive measures to ensure equal opportunities for women in leadership. By embracing and supporting female leadership, organizations can unlock greater potential for innovation and sustainability, ultimately contributing to a more diverse, resilient, and forward-thinking business landscape.

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NAVIGATING THE FUTURE OF LEARNING: HUMAN-CENTERED AI IN EDUCATION

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ABSTRACT

The integration of Artificial Intelligence (AI) into education has the potential to revolutionize teaching and learning. However, for this transformation to be meaningful and ethical, AI systems must be developed and deployed with a human-centered approach, prioritizing the needs, values, and contexts of learners and educators. This paper explores how human-centered AI can support personalized learning, enhance teacher effectiveness, bridge educational gaps, and promote lifelong learning. It also discusses challenges such as bias, data privacy, and over-reliance on technology, advocating for thoughtful and inclusive design of AI-powered education systems.

INTRODUCTION

AI is reshaping every domain, including education. From adaptive learning platforms to AI tutors and grading assistants, its potential is vast. But while the technology advances rapidly, the key question remains: How do we ensure that AI empowers rather than replaces human educators, and uplifts every learner? This paper argues for a human-centered AI model, where the core of design is empathy, equity, and collaboration between human and machine.

WHAT IS HUMAN-CENTERED AI IN EDUCATION?

Definition: Human-Centered AI (HCAI) in education refers to AI systems that are designed to enhance and not replace human teaching and learning. These systems focus on supporting the unique needs of students, while ensuring that educators remain in control. The AI adapts to diverse learning styles, cultural backgrounds, and emotional contexts, making education more personalized and inclusive.

Principles:

1. **Empathy-Driven Design** - AI systems are developed with a deep understanding of the emotional and cognitive states of learners. They aim to recognize frustration, confusion, or disengagement, and respond with compassion, just like a good teacher would.

   For example, an AI tutor might slow down if a student is struggling or offer encouragement when it detects low motivation.

2. **Transparent and Explainable Algorithms**

   Human-centered AI must be understandable to teachers, students, and parents. This means decisions made by the AI like grading or recommending content which should be clearly explained, not hidden in a "black

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box." Transparency builds trust and allows users to question or override AI decisions when needed.

3. **Inclusivity and Accessibility**

The AI must be designed to support all types of learners, including those with disabilities, language barriers, or from under-resourced communities. Tools like text-to-speech, language translation, and adaptive content delivery ensure equal access to quality learning.

4. **Collaboration with Educators and Learners**

Human-centered AI is built with input from teachers and students, not just engineers. This ensures the technology aligns with real classroom needs, respects human values, and enhances and not hinders the learning experience. Teachers are seen as co-designers and users, not just end-users.

Goal:

Empower, Not Replace Teachers. The ultimate aim of HCAI in education is to support and empower educators. AI can handle routine or data-heavy tasks (like grading, tracking progress, or recommending resources), freeing teachers to focus on relationship-building, mentoring, and creativity. The teacher remains the central figure in education, using AI as a tool, not as a substitute.

KEY APPLICATIONS OF HUMAN-CENTERED AI IN LEARNING

Personalized Learning Pathways

- AI can tailor content to match a student's pace, style, and interests.
- Examples: Intelligent Tutoring Systems (ITS), platforms like Khan Academy, DreamBox.

Assessment and Feedback

- Instant feedback on quizzes, essays (e.g., Grammarly, Gradescope).
- AI can identify learning gaps early, helping with intervention.

Teacher Support and Workload Reduction

- Automating admin tasks (grading, attendance tracking).
- AI-powered dashboards for student analytics.

Inclusive Education

- Tools for students with disabilities (text-to-speech, captioning, AI translators).
- Bridging language or socio-economic divides.

CASE STUDIES AND REAL-WORLD EXAMPLES

- Squirrel AI (China): Adaptive AI tutor that customizes math learning in real-time.
- Carnegie Learning (USA): Blended learning AI system with teacher-AI collaboration.
- CENTURY Tech (UK): AI platform that tracks student engagement and provides actionable data.
- AI in Indian Education: Platforms like Byju's are integrating AI for K–12 learning personalization.

CHALLENGES AND ETHICAL CONSIDERATIONS

Bias and Fairness

- AI systems may reinforce existing inequalities if trained on biased data.
- Example: Underrepresented groups may get less accurate recommendations.

Data Privacy

- Sensitive student data must be protected.
- GDPR, FERPA, and other regulations should guide development.

Over-reliance on AI

- The risk of minimizing human interaction, especially in early education.
- Emotional and social learning needs human guidance.

Digital Divide

- Not all schools/students have equal access to AI tools and devices.

CONCLUSION

Human-centered AI offers a promising future for education, one where every learner can thrive, and every teacher can be supported. But this vision depends on intentional design, inclusive policies, and ethical safeguards. To truly navigate the future of learning, we must place humanity at the center of innovation. Teachers, students, designers, and policymakers must work together to shape an AI-powered education system that uplifts all.

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स्वातंत्रयोत्तर हिंदी फिल्मों के राष्ट्रीय चेतना के स्वर

Dr. Ishwari.V

हिंदी फिल्मों की पृष्ठभूमिः

सिनेमा अपने आप में ही एक नए यथार्थ का आरंभ है। भारतीय सिनेमा के आरंभ की बात करें तो इसकी शुरुआत मूक फिल्मों से हुई। २८ सितंबर १८९५ लुमियर बंधुओं ने एक ऐसे मशीन से दुनिया को परिचित कराया जो तस्वीरों को चलता हुआ दिखा सकती थी। १८९६ को पहली बार लोगों को दिखाया तो लोगों ने दांतो तले उंगली दबा ली। आरंभिक १३ फिल्मों से शुरू हुआ यह क्षेत्र जो सभी के दिल में घर कर गया। लेकिन गुलामी का यह दौर किसी विद्रोही चीज की कल्पना भी उनके लिए घातक थी क्योंकि यह वह समय था जब भारतीय जीवन पराधीनता की बेड़ियों में जकड़ा था। ऐसे में निर्देशकों के सामने बड़ी चुनौती थी। भारत में फिल्म उद्योग स्वतंत्रता आंदोलन के समय उभरा। १९वीं शताब्दी के नाटक की तरह इस बात की प्रबल संभावना थी कि फिल्मों के माध्यम से देशभक्ति की भाव का संचार किया जा सकता है।

'मूल शब्दः'

- स्वतंत्रतारोत्तर हिंदी फिल्में
- राष्ट्रीय चेतना
-देशभक्ति
- स्वतंत्रता संग्राम
- राष्ट्रीय एकता

स्वतंत्रतारोत्तर हिंदी फिल्में : स्वतंत्रता की घोषणा के साथ इस तरह की बाधा रही कि राष्ट्रवाद के विषय पर हमने फिल्मों को बनते नहीं देखा। स्वतंत्रता के लंबे संघर्ष के बाद स्वतंत्र देश में देशभक्ति फिल्म न बनना एक विषय रहा। ऐसा इसीलिए की तुलनात्मक दृष्टि से १९५२ की मिस्र की क्रांति पर अनेक फिल्में बनी और बांग्लादेश के मुक्ति पर भी फिल्में बनी। वजाहत मिर्जा ने शहीद फिल्म का लेखन किया और इसका निर्देशक रमेश सहगल ने किया। इस फिल्म ने १९४८ में अच्छा व्यवसाय किया। इस फिल्म का गीत

'वतन की राह में वतन के नौजवान शहीद रहे'.....

बहुत प्रचलित हुई । 'समाधि' फिल्म नेताजी सुभाष चंद्र बोस की आजाद हिंद फौज से जुड़ी सच्ची घटना पर आधारित थी। १९५३ में झांसी की रानी, १९६० के बाद हकीकत, पूरब और पश्चिम, हिंदुस्तान की कसम, विजेता, और आक्रमण, उपकार ऐसी अनेक फिल्में बनी।

राष्ट्रीय चेतना : इक्कीसवीं दशक में प्रहार, बहर्डर (१९९१), एलओसी कारगिल (२००३), टैंगो चार्ली (२००५), शौर्य (२००८), गाजी अटैक (२०१७) जैसी राष्ट्रीय चेतना जगाने वाली

फिल्म में नजर आई। इससे लोगों के प्रति सेना के प्रति सम्मान बढ़ा। २० वीं दशकों में लगान (२००१), भारतीय किसानों की दुर्दशा, चक दे इंडिया में शाहरुख खान का राष्ट्रप्रेम खूब झलक रहा था। भाग मिल्खा भाग (२०१३) और दंगल (२०१६) जैसी फिल्मों ने देशभक्ति की भावना बढ़ाने के लिए खेलों का सहारा लिया। सन २००२ में भगत सिंह के बारे में हिंदी फिल्मों का निर्माण किया गया। द लिजेंड अहफ भगत सिंह शहीद-ए-आ. जम और नेताजी सुभाष चंद्र बोस- द फहरगहटेन हीरो आदि। देशभक्तिः फिल्म बहर्डर का मैं खास उल्लेख करना चाहती हूं। फिल्म बहर्डर ने भारतीय सिनेमा के माध्यम से राष्ट्रभाव की वैश्विक व्याख्या की। देश के लिए युवा अपने परिवार और समाज को छोड़कर कैसे अपनी जान की बाजी लगा देते हैं, इसी की व्याख्या करती यह फिल्म इतनी मार्मिक और जोश से भर देने वाली है। जिसका गीत है -

संदेसे आते हैं हमें तड़पाते हैं तो चिटटी आती है तो पूछ जाती है के घर कब आओगे के घर कब आओगे लिखो कब आओगे

की तुम बिन ये घर सूना सूना है।

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सत्य घटना पर आधारित इस फिल्म की कहानी १९७१ में हुए भारत-पाक युद्ध पर आधारित है। फिल्म में राजस्थान की लोंगेवाला पोस्ट पर तैनात १२० भारतीय जवान की कहानी है, जो रात भर जाग जाग कर पाकिस्तान की टांक रेजिमेंट का सामना करते हैं।

१९७१ के युद्ध की घोषणा से पूर्व के दृश्यों से शुरू होती फिल्म में मेजर कुलदीप सिंह चांदपुरी (सनी देओल) को १२० जवानों के साथ लोंगे वाला पोस्ट पर भेजा जाता है। दूसरी और मेजर बाजवा (जैकी श्रहफ) को जैसलमेर में हवाई बेस बनाने का आदेश मिलता है। फिल्म में जवान अपना समय काटने के लिए अपने परिवारों की कहानी सुनाते हैं। सैनिक धरमवीर की नेत्र. हीन मां और उसकी मंगेतर की कहानी, भैरव सिंह को सुहागरात के दिन ही घर छोड़कर आना पड़ता है उसकी कहानी

रतन सिंह के माता-पिता की राह देखने की कहानी, मथुरा दास की बीमार पत्नी की कहानी जैसी कई कहानियां सामने आती है। यह कहानियां बताती है कि अपनी राष्ट्र के प्रति समर्पित इन सैनिकों की पारिवारिक जिंदगी से बढ़कर उनका देश होता है। अंत में सब अपने अधूरे सपनों के साथ देश के लिए अपनी जान बलिदान कर जाते हैं। ऐसी फिल्में आज की युवा पीढ़ी के दिल में राष्ट्रीय चेतना को जगाने का काम अवश्य कर रही है और करेंगी।

स्वतंत्रता संग्राम : जनवरी २०१९ में रिलीज हुई अभिनेत्री कंगना रनौत की फिल्म 'मणिकर्णिकाः द क्वीन अहफ झाँसी में रानी लक्ष्मीबाई के साहस और शौर्य को बड़े पर्दे पर दिखाया गया था। झाँसी की रानी को अंग्रेजों के सामने सिर झुकाना कभी गवारा नहीं था, इसलिए उन्होंने आखिरी दम तक उनसे जंग जारी रखी। कंगना रनौत ने फिल्म में दमदार एक्टिंग की है। उनकी परफहर्मेंस दर्शकों को खासा पसंद आई। जैसे झाँसी की रानी लक्ष्मीबाई का रोल उन्हीं के लिए बना था।

२१ मार्च २०१९ को अक्षय कुमार की फिल्म 'केसरी' रिलीज हुई थी। यह फिल्म १२ सितंबर १८९७ को भारत के सारागढ़ी में हुए महान युद्ध पर आधारित है। इसमें हवलदार ईशर सिंह सारागढ़ी की लड़ाई में २१ सिखों की एक सेना के साथ १०,००० अफगानों के खिलाफ जंग लड़ते हैं। फिल्म का गाना 'तेरी मिट्टी में मिल जावां' के लिए गायक बी प्राक को सर्वश्रेष्ठ प्लेबैक सिंगर के लिए राष्ट्रीय फिल्म पुरस्कार से सम्मानित किया गया था। इस गाने को सुनकर आज भी हर देशवासी की आँखें नम हो जाती हैं।

राष्ट्रीय एकताः

पिछले ७० वर्षों में हिन्दी की अनेक यादगार फिल्मों ने लोगों में देशभक्ति भाव, शौर्य और देश के लिए बलिदान का भाव भरा है। फिल्मों के विषय स्वतंत्रता संघर्ष, आक्रमण और युद्ध, खेल, प्राचीन और मध्यकालीन इतिहास, विद्रोह आदि रहे हैं। लेकिन सबके मूल में भारतीय होना और देश के प्रति कर्तव्य का भाव रहा है। लेकिन आज के बहलीवुड में कम संख्या में देशभक्ति की फिल्मे बन रही है। पुराने जमाने के बम्बई फिल्म उद्योग में देशभक्ति फिल्मों की संख्या अधिक हुआ करती थी।

उपसंहारः बहलीवुड में हर साल कहमेडी, रोमांस, ड्रामा, ऐक्शन और थ्रिलर बेस्ट सैकड़ों फिल्में बनाई जाती हैं, लेकिन भारत जैसे देश में जहाँ राष्ट्र ही सर्वोपरि समझा

जाता है, वहाँ राष्ट्रवाद और देशप्रेम की भावना से जुड़ी फिल्में काफी पसंद की जाती हैं और यह अच्छा बिजनेस भी करती हैं। वर्ष २०१५ के बाद से सिनेमाघरों में रिलीज हुई राष्ट्रवाद और देशभक्ति से जुड़ी फिल्मों को दर्शकों का भरपूर प्यार मिल. ा। पिछले एक दशक में बहलीवुड में काफी बदलाव आया है। खासतौर पर पिछले पाँच वर्षों में हिंदी सिनेमा का कंटेंट जिस तरह से बदला है, वह काबिल-ए-तारीफ है। इंडस्ट्री में लेखन से लेकर अभिनय, एक्शन और फिल्म मेकिंग के तरीकों में तमाम सकारात्मक बदलाव आए हैं। साथ ही मल्टीप्लेक्स की संख्या बढ़ी और दर्शकों का फिल्म को देखने का नजरिया भी बदला है। भारतीय सिनेमा की शुरुआत में जो फिल्में बनीं वो अधिक मसालेदार न होकर समाज का आईना थीं, लेकिन दौर बदला और फिल्मों में मसाला का तड़का लगाया जाने लगा। हालाँकि, एक बार फिर भारतीय सिनेमा ने करवट ली है और विगत पाँच वर्षों से देश भर में देशभक्ति का माहौल बना और हर ओर देशप्रेम झलकने लगा ।

संदर्भ ग्रंथः

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USER SATISFACTION TOWARDS ACADEMIC LIBRARY SERVICES: A STUDY

Dr. B. Vanathi

1. INTRODUCTION

Academic libraries play a crucial role in supporting teaching, learning, and research activities in higher education institutions. They act as the backbone of academic excellence by providing access to information resources, study spaces, and professional guidance. With rapid changes in information technology and user expectations, academic libraries must continuously evaluate their services to remain relevant and effective. User satisfaction has become an important indicator to assess the quality and performance of library services. Understanding user needs and satisfaction levels helps librarians improve services and utilize resources efficiently. Hence, the present study attempts to examine user satisfaction towards academic library services in a college environment.

2. ACADEMIC LIBRARY SERVICES

Academic library services include circulation of books, reference services, access to journals and periodicals, digital and e-resources, reading room facilities, internet services, and user education programs. These services aim to fulfill the academic and informational needs of students and faculty members. Effective library services enhance academic performance, promote independent learning, and encourage research culture among users. Evaluating the effectiveness of these services through user feedback is essential for quality improvement.

3. REVIEW OF LITERATURE

Several studies have highlighted the importance of user satisfaction in academic libraries. Previous research indicates that availability of relevant resources, helpful library staff, comfortable reading environment, and access to digital resources significantly influence user satisfaction. Studies also reveal that regular assessment of library services helps in identifying gaps and improving service quality. However, many academic libraries still face challenges such as limited digital resources and lack of user awareness programs. This study adds to existing literature by analyzing user satisfaction in the present academic context.

4. STATEMENT OF THE PROBLEM

Despite the availability of various library services, it is essential to assess whether users are satisfied with the existing facilities and services. User expectations are constantly changing due to technological advancements and increased access to online information. Therefore, evaluating user satisfaction towards academic library services is necessary to understand user perception and

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identify areas for improvement.

5. OBJECTIVES OF THE STUDY

The objectives of the study are:

To examine the level of user satisfaction towards academic library services.

To identify the frequently used library services.

To analyze user opinion on library resources and facilities.

To identify problems faced by users while using library services.

To suggest measures for improving academic library services.

6. SCOPE OF THE STUDY

The study is limited to students of a selected college. It focuses on evaluating user satisfaction towards library resources, services, facilities, and staff support. Faculty members and external users are not included in the study.

7. RESEARCH METHODOLOGY

The study adopts a survey method to collect data from library users.

Research Method: Survey method

Tool Used: Structured questionnaire

Sample Size: 80 college students

Sampling Technique: Random sampling

Data Analysis: Percentage analysis

The questionnaire was designed to collect information regarding frequency of library visits, satisfaction with services, resources, facilities, and overall user experience.

8. DATA ANALYSIS AND INTERPRETATION

The collected data were analyzed using percentage analysis.

Table 1: Frequency of Library Visit

Frequency	Percentage
Daily	30%
Weekly	40%
Occasionally	20%
Rarely	10%

INTERPRETATION:

The majority of users visit the library regularly, indicating active utilization of library services.

Table 2: Satisfaction with Library Services

Aspect	Very good	Good	Satis factory	Poor
Library working hours	35%	40%	20%	5%
Book collection	30%	45%	20%	5%
Reading room facilities	40%	35%	20%	5%
Staff support	45%	40%	10%	5%
Digital resources	20%	35%	30%	10%

INTERPRETATION:

Users are highly satisfied with library staff support and reading room facilities. However, satisfaction with digital resources is

comparatively lower.

9. FINDINGS OF THE STUDY

- The major findings of the study are:
- Most users visit the library regularly for academic purposes.
- A majority of users are satisfied with library working hours and book collection.
- Library staff are found to be helpful and cooperative.
- Reading room facilities are adequate and comfortable.
- Users expressed the need for improvement in digital and e-resources.

10. SUGGESTIONS

- Based on the findings, the following suggestions are offered:
- The library should enhance digital resources and online databases.
- Regular user orientation and awareness programs should be conducted.
- Latest editions of textbooks and reference books should be added.
- Internet and computer facilities should be improved.
- User feedback should be collected periodically to improve services.

11. CONCLUSION

Academic libraries play a significant role in supporting the academic community. The present study reveals that users are generally satisfied with academic library services, especially with staff support, reading facilities, and book collection. However, continuous improvement in digital resources and user education programs is essential to meet the evolving information needs of users. Regular evaluation of library services through user feedback will help libraries enhance service quality and user satisfaction.

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CONSUMER AWARENESS AND BEHAVIOURAL RESPONSES TOWARDS DATA PRIVACY PRACTICES IN DIGITAL MARKETING PLATFORMS

Ms.S.Sudha

ABSTRACT

The expansion of digital marketing platforms has intensified the collection and utilization of consumer data, making data privacy a critical concern in contemporary marketing practices. While data-driven strategies enable personalization and enhanced consumer engagement, they simultaneously raise issues related to transparency, consent, and ethical use of personal information. In this context, consumer awareness of data privacy practices plays a pivotal role in shaping behavioural responses towards digital marketing platforms.

This theoretical study aims to examine the relationship between consumer awareness and behavioural responses towards data privacy practices in digital marketing platforms by synthesizing existing literature, theories, and conceptual models. The study explores key dimensions of data privacy awareness, including knowledge of data collection mechanisms, understanding of data usage, perception of privacy risks, and awareness of regulatory protections. It further analyses behavioural responses such as trust, acceptance, resistance, avoidance, and continued engagement with digital marketing platforms.

1. INTRODUCTION

The rapid growth of digital marketing platforms has transformed the way businesses communicate with consumers. Technologies such as social media marketing, search engine advertising, mobile marketing, and programmatic advertising rely heavily on the collection, processing, and analysis of consumer data. While data-driven marketing enables personalization and improved customer engagement, it has simultaneously raised serious concerns related to data privacy.

Consumers today are increasingly exposed to targeted advertisements, behavioural tracking, cookies, and algorithm-driven recommendations. However, awareness of how personal data is collected, stored, shared, and monetized varies widely among consumers. This variation in awareness significantly influences their behavioural responses such as trust, acceptance, resistance, or avoidance of digital marketing platforms.

This theoretical study seeks to examine the concepts, dimensions, and relationships between consumer awareness of data privacy and behavioural responses towards digital marketing practices, by synthesizing existing theories, models, and scholarly literature.

2. CONCEPT OF DATA PRIVACY IN DIGITAL MARKETING

2.1 MEANING OF DATA PRIVACY

Data privacy refers to the rights of individuals to control the collection, use, storage, and sharing of their personal information. In

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digital marketing, data privacy concerns arise from the use of personal identifiers such as browsing behaviour, location data, purchase history, social media interactions, and device information.

Digital marketers often collect data through:

- Cookies and tracking pixels
- Mobile applications
- Social media platforms
- E-commerce websites
- CRM and loyalty programs

While such data enhances marketing efficiency, it raises ethical and legal concerns regarding transparency, consent, and misuse.

2.2 Data Privacy Practices in Digital Marketing Platforms

- Data privacy practices include:
- Data collection policies
- User consent mechanisms
- Transparency disclosures
- Data security measures
- Third-party data sharing policies

Platforms such as Google, Meta, Amazon, and mobile applications implement privacy policies; however, the complexity of these policies often limits consumer understanding.

3. Consumer Awareness towards Data Privacy

3.1 Meaning of Consumer Awareness

Consumer awareness towards data privacy refers to the extent to which consumers understand:

- What personal data is collected
- How data is used for marketing purposes
- Who has access to the data
- The risks associated with data misuse

Awareness can be classified into:

- Basic awareness – knowing that data is collected
- Functional awareness – understanding usage and consent
- Advanced awareness – knowledge of rights, regulations, and controls

3.2 Determinants of Consumer Awareness

Key determinants include:

- Digital literacy
- Education level
- Media exposure
- Previous privacy breaches
- Trust in digital platforms
- Cultural and social norms

Higher awareness often leads to more cautious digital behaviour, while low awareness increases vulnerability to data exploitation.

4. Behavioural Responses towards Data Privacy Practices

Consumer behavioural responses represent the actions and attitudes exhibited in response to perceived privacy practices.

4.1 Positive Behavioural Responses

- Willingness to share data
- Acceptance of personalized advertisements
- Continued use of digital platforms

- Increased engagement with brands

4.2 Negative Behavioural Responses

- Avoidance of targeted ads
- Use of ad blockers and privacy tools
- False information disclosure
- Reduced trust and platform abandonment

4.3 Privacy Paradox

The Privacy Paradox explains the contradiction between consumers' stated privacy concerns and their actual behaviour. Despite expressing high concern, many consumers continue to share personal data in exchange for convenience, discounts, or personalized experiences.

5. Theoretical Foundations Supporting the Study

5.1 Theory of Planned Behaviour (TPB)

According to TPB, consumer behaviour is influenced by:

- Attitudes towards data privacy
- Subjective norms
- Perceived behavioural control

Awareness shapes attitudes, which in turn influence behavioural responses to digital marketing practices.

5.2 Protection Motivation Theory (PMT)

PMT explains how consumers react to perceived privacy threats. High awareness increases:

- Perceived severity of data misuse
- Perceived vulnerability
- Motivation to adopt protective behaviours

5.3 Social Exchange Theory

Consumers engage in a cost–benefit analysis:

- Benefits: personalization, convenience, offers
- Costs: loss of privacy, data misuse

Higher awareness leads to more conscious exchanges.

5.4 Technology Acceptance Model (TAM)

Perceived usefulness and ease of use of digital platforms influence acceptance. Data privacy awareness moderates technology acceptance.

6. Ethical and Regulatory Perspective

Digital marketing ethics emphasize:

- Informed consent
- Transparency
- Data minimization
- Accountability

Regulatory frameworks such as:

- GDPR (EU)
- Digital Personal Data Protection Act (India)

play a significant role in shaping consumer awareness and platform practices, although consumer comprehension of such regulations remains limited.

7. Conceptual Framework (Theoretical Model Explanation)

The theoretical framework proposes that:

- Consumer Awareness of Data Privacy influences

- Perceived Risk, Trust, and Attitude, which in turn affect
- Behavioural Responses towards digital marketing platforms

Moderating factors:

- Digital literacy
- Platform credibility
- Cultural context

8. Research Gap (Theoretical)

Most existing studies emphasize empirical analysis using surveys, while limited attention has been given to:

- Integrated theoretical synthesis of awareness and behaviour
- Comparative analysis of privacy theories in digital marketing
- Conceptual clarity of awareness levels and behavioural outcomes

This study addresses the gap by offering a comprehensive theoretical framework.

9. Significance of the Theoretical Study

Provides a consolidated understanding of data privacy awareness

Supports policymakers in designing consumer-centric privacy laws

Assists marketers in ethical digital marketing strategy formulation

Serves as a foundation for future empirical research

10. Conclusion

Consumer awareness towards data privacy plays a pivotal role in shaping behavioural responses in digital marketing platforms. A theoretical understanding of awareness, supported by behavioural and technological theories, is essential for developing ethical, transparent, and consumer-trust-oriented digital marketing ecosystems.

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ARTIFICIAL INTELLIGENCE IN VENDOR AND SUPPLIER MANAGEMENT: ENHANCING EFFICIENCY, AGILITY, AND RESILIENCE

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ABSTRACT

The integration of Artificial Intelligence (AI) into vendor and supplier management is revolutionizing procurement practices across industries. This paper explores how AI enhances efficiency, transparency, and strategic decision-making by automating processes such as vendor selection, contract analysis, risk management, and spend optimization. It also addresses key challenges, including data quality, integration issues, and ethical concerns. Drawing on case studies and empirical research, the paper outlines the transformative potential of AI to reshape global supply chains and recommends a framework for its ethical and effective adoption.

Key Notes: Supply Management, Decision Making, Data Quality

1. INTRODUCTION

Global supply chains are increasingly complex, making vendor and supplier management a critical strategic function. Traditionally dominated by manual processes and fragmented data, procurement departments now face the dual challenge of improving efficiency while managing risk. AI offers a powerful solution, enabling smarter, faster, and more transparent decision-making. This paper examines the role of AI in modernizing supplier management and explores its transformative impact on procurement operations.

2. LITERATURE REVIEW

Recent studies underscore the value of AI in enhancing procurement outcomes. According to Deloitte (2023), over 60% of leading companies have implemented AI tools for supplier evaluation and risk analysis. IBM's procurement arm has demonstrated significant cost savings through AI-based sourcing solutions. Moreover, Gartner (2024) predicts that by 2026, 75% of procurement decisions will be influenced by AI-driven analytics.

Key themes in the literature include automation of repetitive tasks, predictive analytics for demand and supply, enhanced risk detection and mitigation, and intelligent contract and performance management.

3. AI APPLICATIONS IN VENDOR AND SUPPLIER MANAGEMENT

3.1 Vendor Selection and Onboarding

AI systems analyze large datasets to assess vendor suitability based on pricing, quality, delivery times, certifications, and compliance. Machine learning models can match organizational needs with the best-fit suppliers.

3.2 Contract Lifecycle Management

AI powered contract management platforms extract and compare clauses, identify risks, and ensure adherence to legal standards. NLP technologies can summarize and highlight

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deviations in contract terms.

3.3 Risk Assessment and Mitigation

AI tools aggregate real-time data from news, social media, and financial reports to score supplier risk. Early warning systems can flag disruptions due to political unrest, natural disasters, or supplier insolvency.

3.4 Spend Analysis and Cost Optimization

AI analyzes historical procurement data to identify spending trends, detect anomalies, and suggest areas for cost reduction. It also supports dynamic pricing and discount optimization based on supplier performance.

3.5 Relationship and Performance Management

AI dashboards provide real-time performance metrics (e.g., delivery accuracy, quality ratings), fostering a data-driven approach to supplier engagement and relationship-building.

3.6 Automation and Chatbots

AI-enabled bots handle routine interactions such as invoice verification, document requests, and procurement FAQs, freeing human resources for strategic activities.

4. Benefits of AI Integration

Increased Efficiency: Automation reduces manual tasks and shortens procurement cycles.

Improved Accuracy: Data-driven decisions minimize errors in supplier evaluation.

Enhanced Agility: Real-time insights enable quick responses to market changes.

Cost Savings: Optimized sourcing and reduced supplier churn lower total procurement costs.

Risk Reduction: Proactive risk detection ensures greater supply chain resilience.

5. Challenges and Ethical Considerations

Data Quality and Integration: Incomplete or siloed data can limit AI effectiveness.

Technology Adoption Barriers: Lack of skilled personnel and resistance to change hinders implementation.

Transparency and Bias: Algorithmic bias can influence vendor selection unfairly.

Ethical Procurement: AI must align with human values, fairness, and compliance norms.

6. Case Studies

IBM Watson in Procurement: IBM's AI platform reduced procurement cycle time by 75% and increased sourcing accuracy through intelligent supplier analytics. Unilever's AI Strategy: Unilever uses AI to enhance sustainability by monitoring supplier practices and optimizing sourcing based on environmental impact data. Maersk's Predictive Supply Chain: The logistics giant applies AI to forecast supplier delays and dynamically reroute shipments.

7. Recommendations

Invest in clean, integrated data systems.

Train procurement teams in AI literacy.

Adopt transparent AI models to avoid black-box decision-making.

Establish ethical guidelines for AI use in vendor selection.

Integrate AI with ERP and SCM platforms for seamless operations.

Conclusion

AI is redefining the future of vendor and supplier management by enabling organizations to be more proactive, efficient, and resilient. While challenges exist, the benefits far outweigh the barriers when adoption is guided by strategic vision and ethical governance. As procurement becomes a key lever for organizational success, AI will continue to drive competitive advantage in the digital age.

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