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Overview of Artificial Intelligence in Education: Implications for Future Learning

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Abstract

Artificial Intelligence (AI) has led to an era of fascinating transformation in human endeavors that includes face recognition, energy conservation, merchandise, adaptive learning solutions, surveillance, etc. Both academia and industry are trying their best to meet the existing challenges faced otherwise through AI, yet are unprepared to handle the difficulties that AI usage might bring. Still, as we embrace AI's transformative potential, it's essential to strike a balance between automation and human interaction, recognizing the continued importance of educators in guiding learners and nurturing much-needed critical thinking skills in students. This paper raises concerns that while the student's benefits and compromises are overtly highlighted in all discussions on Artificial Intelligence (AI), what is left out of consideration is the role of the human in the loop. Along with concurrent teaching assignments, teachers make decisions, make plans, reflect on their teaching, and select the technologies to set the context for their classrooms and their fellow beings. They do worry that overuse of AI may reduce soft skills development in students and emphasize the need to include ethical usage of AI in their curricula. While the students who frequently use AI, feel that it helps with creative assignments and completing homework, not just cheating, though they do seem to be concerned about bullying and disinformation. Equitable access to AI remains a concern for policymakers. Teachers can shape a better future for education by utilizing AI as a tool to create a mixed learning experience that blends the advantages of technology and human skills. The paper aims to address the desired change in perspective regarding the role of AI in the education sector.

Key Words- Artificial Intelligence, soft skills, education, transformation, teaching, ethics.

1.0 INTRODUCTION

It is a known fact that innovations empower the world today and learning evolves in response to changes in the environment, experiences, or knowledge. Learning resources could be better suited to students' needs and strengths as a result of the Fourth Industrial Revolution (4.0), which signifies a fundamental shift in how we live, work, and relate to one another. A primary goal is to improve instruction, and artificial intelligence (AI) may be able to aid educators more by means of automated assistants or other technologies. Teachers believe that using AI-powered tools, such as voice recognition, can help increase the support that kids with disabilities can get. Students are examining how AI could improve instruction or assist with writing, as well as how they search for, choose, and alter materials to utilize in their classes. Teachers are also aware of emerging threats, such as the security and privacy of data. The paper aims to refer to their role in exercising judgment and control over the use of AI.

1.1 The Need for Integrating Artificial Intelligence in India's Development, in the right spirit

India's education system is facing a number of challenges, such as socioeconomic disparities, gender inequality, a shortage of instructors and poor instruction, high dropout rates, linguistic obstacles, and the digital divide. As mentioned in the report by UNESCO, ML, NLP, learning analytics, computer vision, and other AI approaches can offer potential answers to these problems. According to Lee and Chen (2021), there are two problems with the current educational system: it takes a one-size-fits-all approach even though each student is unique, and high-quality education is costly, which frequently results in unreasonably high student-teacher ratios. This could be resolved by AI in two ways: first, through automation, and second, through tailored learning.

1.2 The foundation of AI development is education.

In response to the AI boom, Indian colleges and universities have started to offer specialized degrees and courses. These instructional programs are supported by rigorous research and development in academic institutions, often in partnership with industry leaders. The next generation of Indian AI professionals is being shaped by the more diversified group of

students who can pursue AI studies thanks to government and private sector scholarships. In India, AI is a driving force behind a broad social revolution rather than only a fad. India's dedication to adopting technology for advancement is demonstrated by its early adoption as a leader in AI innovation.

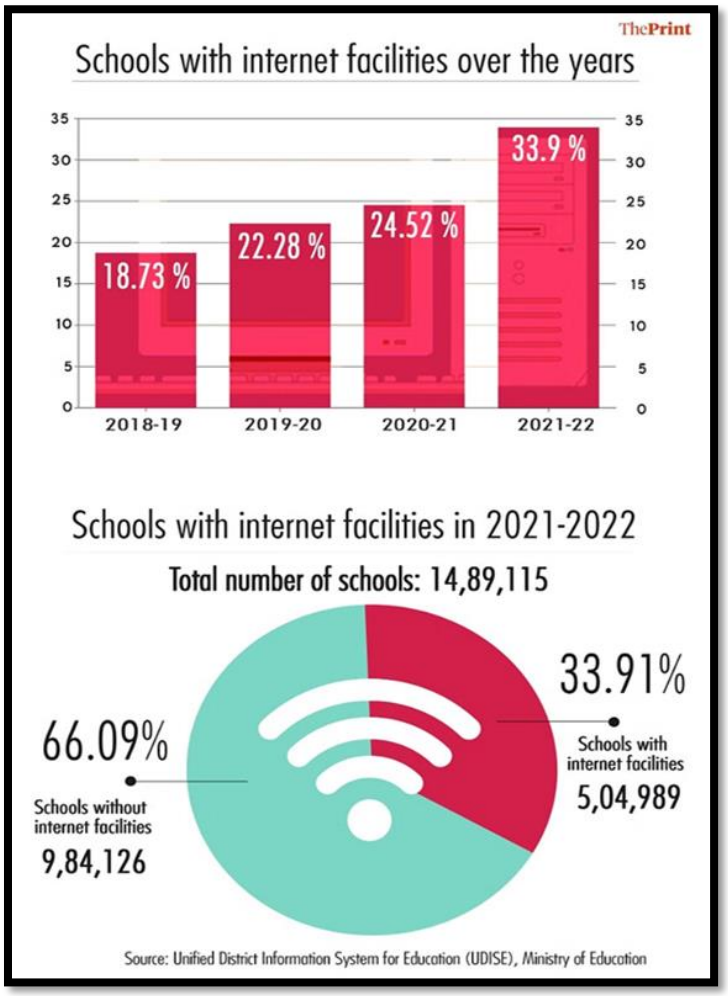

Figure: 1, Schools with Internet facilities

1.3 The Unified District Information System for Education **(UDISE) report** for 2021–2022 states that 45.8% of Indian schools have working computers and 25.9% of schools have operational desktop computers available. Only about 34 percent of schools in India have internet facilities and more than 50 percent do not have functional computers, according to data released by the Ministry of Education. In the last three years itself, there has been a gradual growth in the number of computers available in Indian schools. Computers are now a necessary component of contemporary education, particularly in light of the COVID-19 epidemic.

1.4 According to a **UNESCO report**, titled, State of the Education Report for India, 2022, in 2021, 67.5% of Indian households owned a smartphone. Seventy-nine percent of kids attending private schools have smartphones. 63.7% of kids attending public schools have a smartphone. AI-powered technologies will contribute to the expansion of India's GDP. In order to increase efficiency and effectiveness, indigenous AI-based solutions are being created in India for a variety of industries, including healthcare, agriculture, smart mobility, and government projects. Since the Indian government is aware of AI's potential, it has placed a strong emphasis on integrating AI into education through NEP 2020 to support high-quality, skill-based education that satisfies Industry 4.0 requirements. NITI Aayog (2018), the Government of India's public policy think tank, recognizes the value of AI literacy in India and views it as a national priority. The National Education Policy 2020, which places a strong emphasis on integrating AI into education, thus reflects this (Ministry of Education, 2020a). Both a technology and a human component make up AI literacy. Raising awareness of AI's limitations, hazards, and ethics is part of the human dimension, whereas data and algorithm literacy are part of the technology dimension. Although it is

relevant to everyone who has dealt with AI—which is probably going to be everyone in the future—the human element is frequently overlooked. *Ziesche, S., & Kumar Bhagat, K. (2022)*

1.5 Rising Interest in AI in Education

According to a US report on its Govt site, Office of Govt Technology, many of the priorities for bettering teaching and learning are still unfulfilled today. Teachers are looking for scalable, safe, and technology-enhanced methods to achieve these priorities. Teachers see chances to employ AI-powered tools. such as bilingual instruction and speech recognition to improve the assistance offered to students with impairments. Students and others who stand to gain from increased customization and flexibility in digital instruments for education. They are investigating how AI might facilitate writing or enhance instruction, in addition to how they locate, choose, and modify resources to use in their classes. Educators are aware that AI can generate inappropriate or inaccurate results on its own. They fear that automation or associations produced by AI may unintentionally promote prejudices. It has been demonstrated that students can creatively pass off other people's work as their own. *Cardona, M. A., Rodríguez, R. J., & Ishmael, K. (2023).*

They understand the concept of "teachable moments." along with instructional techniques that can be addressed by a human teacher but are missed or misinterpreted by AI models. Three Arguments for Using AI in Education Right Away. AI has the potential to make it possible to accomplish educational goals more effectively, more efficiently, and at a lesser cost. Second, worry about possible future dangers and knowledge of system-level risks give rise to priorities and urgency. For instance, pupils can come under more scrutiny. Despite the strong opposition to the notion that AI may replace teachers, some educators fear that they might be supplanted. The magnitude of the potential unanticipated or unexpected repercussions is the third factor that highlights urgency. When AI allows for the large-scale automation of instructional decisions, educators may find unintended repercussions that require policy-level attention. *Cardona, M. A., Rodríguez, R. J., & Ishmael, K. (2023).*

2.0 Objectives

The paper aims to

1 identify the fears/contradictions in the minds of educators regarding the use of AI

2 examine the significance of human factor in the teaching-learning process

3 formulate strategies to use AI as a tool for advantage in education.

3.0 Literature Review

A lot of literature has been reviewed, keeping the objectives in mind.

3.1 AI operates improperly and harms learners, causing a loss of social skills

According to an article named Potential Risks of Artificial Intelligence Integration into School Education: A Systematic Review, AI technology's continuous monitoring and surveillance systems access teachers' and students' personal data without their permission, limiting the school environment and keeping them from actively participating in instruction and learning and from speaking, feeling anxious, or expressing themselves. Schools are using AI technology in teaching and learning at a rapid pace as they become aware of their full potential and capabilities. AI operates improperly and harms learners during learning because of system mistakes, faulty algorithm design instructions, and other technical flaws. The biggest worry about AI integration in K–12 education is that it will replace human teachers in many teaching and learning tasks, leading to less face-to-face interaction between classmates, teachers, and students. Furthermore, young learners will progressively lose the ability to learn how to communicate with respectable members of society with empathy and emotion, as well as all forms of social skills, if they are forced to engage with the AI system in almost all learning activities. In a similar vein, as AI devices replace teachers in completing various educational activities, teachers will lose their socio pedagogical skills. *Karan, B., & Angadi, G. R. (2023).*

3.2 Moral and emotional concerns

According to a research titled Artificial intelligence in education: A systematic literature review, there are also moral and emotional concerns. Despite the fact that emotions play a critical role in learning in an IT-driven environment (Li et al., 2023), the majority of AIED apps now in use are weak AI with little capacity to form emotional bonds with users. User

emotions and their functions in the AI-powered learning environment can be methodically investigated in future research. rising ethical risks and concerns, such as those pertaining to algorithm biases, student and educator autonomy, and the protection of personal data, have resulted from the rising integration of AI technology in education (Akgun & Greenhow, 2022; Boulay, 2023; Wells, 2023). For example, learning analytics may promote the aggressive collection of personal data and surveillance, students may absorb biased information from ChatGPT or other AI models, and teachers may rely on analytics results to determine which students require additional support when they are having difficulties. (Boulay, 2023). *Wang, S., Wang, F., Zhu, Z., Wang, J., Tran, T., & Du, Z. (2024).*

3.3 There are problems with AI advancements The fact that AIED (Artificial Intelligence in Education) is currently experiencing a period of hype [17,58], with overconfidence in its capacity to revolutionize current education, may help to explain this ambiguity in the idea of AI. Although it is currently unknown how advancements in machine learning and deep learning could be employed in AIED, the frenzy around AIED may have been sparked by the excitement surrounding AI advancements. Even while deep learning and natural language processing (NLP) have advanced quickly, there are still problems with these methods. Both of these approaches are mired in the 90–10 problem that is typical in AI research, as Mitchell [47] pointed out. Although 90% of the strategies are resolved, the remaining 10% have the potential to seriously impair AI systems. Furthermore, sorting out the remaining 10% frequently takes longer than the initial 90% [47]. It might make sense to hold off on making investments until all relevant AI techniques are fully established and free of unexpected side effects, particularly in fields where AI systems interact with people. *Humble, N., & Mozelius, P. (2022).*

3.4 Teachers exhibit a moderate level of AI awareness

The study's findings show that instructors have a moderate awareness of AI, with significant differences according to age, years of experience, and educational background. Higher academic credentials and younger teachers typically have better practical expertise and awareness of AI. At the same time, more assistance and training might be helpful for older educators and those with less formal education. This emphasizes the value of specialized educational programs and materials to raise teachers' awareness of AI from a variety of backgrounds. Additionally, teachers are largely open to and capable of integrating AI into their teaching techniques, albeit there is still opportunity for development, as indicated by the moderate levels of belief and attitude toward AI and the integration capacity of AI. Therefore, improving teachers' AI skills requires continual professional growth and specialized training programs. *Uygun, D., Aktaş, I., Duygulu, İ., & Köseer, N. (2024).*

3.5 Ethical considerations make teachers critical of AI

The results demonstrate that Slovenian post-secondary educators are cognizant of AI's revolutionary potential. They are especially excited about AI's potential to help with administrative duties, produce educational resources, and offer pupils specialized support. This favorable view is essential because it creates the framework for broader adoption and incorporation of AI in learning environments. But there are some concerns with this optimism. According to an analysis of the interviews, ethical issues are really becoming one of the most important aspects in encouraging educators to think critically about AI, which result a more careful and intentional approach. Furthermore, the worries about teachers' perceptions of their lack of proficiency with AI tools point to a crucial. *Bezjak, S. (2024).*

3.6 Students worry about developing their holistic competencies

This study investigates how college students view generative AI (GenAI) tools like ChatGPT in higher education, emphasizing their familiarity, support, and research and analytical skills. Concerns exist, nevertheless, regarding accuracy, engagement readiness, possible advantages and difficulties, and successful integration. Research and analysis skills, writing and brainstorming support, and individualized learning support were all acknowledged by the students. Nonetheless, worries regarding truthfulness, confidentiality, moral dilemmas, and the influence on individual growth, professional opportunities, and cultural norms were also voiced. Additionally, teachers can be crucial in helping students develop their high-order skills, possibly with the use of GenAI, as noted in (Chan & Tsi, 2023), as some students have voiced worries regarding developing their holistic competencies. *Chan, C. K. Y., & Hu, W. (2023).*

3.7 **Need to align the goals of AI with those of mankind**

According to the research discussed in this excerpt, modern machines have been shown to have developed a mind of their own, and since intelligence is a quality that evolves over time, it is likely that these machines will eventually be able to develop an increasing capacity for super-intelligent capabilities. A growing number of workers are facing daily layoffs as a result of the increased adoption of AI innovations for manufacturing industries, given the current state of American workers (the high rate at which automation and IA machine simulations have resulted in the loss of most jobs in American

industries). *Wogu, I. A. P., Katende, J. O., Elegbeleye, A., Roland-Otaru, C. O., Apeh, H. A., Ifeanyi-Reuben, N. J., & Misra, S. (2020).*

3.8 Why can't AI take the position of the human commander?

While the subordinate expects the superior to demonstrate appropriate interest and a sense of importance, for instance, throughout the decision-making process, the superior expects the subordinate to support and invest in their conclusion. Because of a moral obligation, the AI was, is, and will always be impossible to take the place of the human leader. Only specific parts, stages, and activities of the command process can be relieved from the commander; it cannot take the position of the commander. However, through a variety of command systems, tools, and machinery, AI has had and will continue to have a significant impact on how diverse military operations are conducted. *Otto, S., & Mănescu, G. (2023).*

3.9 Human factors in machine learning inspire innovative technologies.

Human factors are in a unique position to evaluate, forecast, and offer some solutions for the issues that data scientists face and the techniques that they use since they study how humans interact with other parts of a system (De Winter and Hancock, 2021). An opportunity to develop new technologies, best practices, and tools to improve the model building and deployment process is presented by the insights gathered from a human factors analysis of the machine learning workflow. Thus, this effort's goal was to assess the human elements of the process that data scientists use while interacting with machine learning models. We do not suggest that understanding human variables will solve all of the issues and challenges that data scientists who work with machine learning models encounter. Instead, we suggest that as machine learning develops, human factors experts may be able to guide tool development and draw on the knowledge and theories amassed over decades of study in human factors and related fields (such as human-computer interaction). *Baweja, J. A., Fallon, C. K., & Jefferson, B. A. (2023).*

3.10 AI lacks human traits like intuition and cultural sensitivity

In order to build trust and a genuine connection, humans want a personal relationship that transcends the corporate world—something that bot technology completely lacks. Despite its accuracy, the AI lacks human traits like intuition and cultural sensitivity. No matter how precisely it is made to perform a task, it will never be able to adjust to the algorithm of human intelligence. Although AI can increase productivity and efficiency by decreasing errors and repetition and replacing manual tasks with intelligent automated alternatives, it is unable to understand human psychology. Humans can deal with unforeseen uncertainty by researching the problem, for example, by applying creative techniques and critical thinking in difficult situations. We cannot overlook the development of technology. In order to lessen human suffering, we must use technology carefully. The extent to which AI-enabled physicians can help (in diagnosis, treatment, and decision-making) address community health issues and manage the "maldistribution" of physicians in India would be interesting to observe in the future. The moment has come to test AI-powered doctors in low-resource countries. The impact of artificial intelligence on the future is undeniable. For AI to function, people need to be creative, perceptive, and aware of their surroundings. This is due to the fact that people will always add value that robots cannot duplicate. Furthermore, it is undeniable that AI will never be able to replicate human awareness, regardless of how sophisticated it becomes. *Bhattacharya, S. (2022).*

3.11 AI is not as complete as human intellect

AI and human intelligence are two distinct disciplines, each with unique advantages and disadvantages. AI is involved in a number of tasks, including learning, reasoning, and the ability to correct when needed. These tasks include visual perception, speech recognition, decision-making, and language translation. It may be generic AI or it may be more focused. However, among other things, human intelligence focuses on abilities like creativity, problem-solving, and emotional intelligence. AI performs better at specific tasks, while human intellect flourishes in complicated, ambiguous, dynamic situations. AI systems are based on algorithms and computer procedures, but human intelligence includes a variety of neural networks and biological structures found in the brain. Artificial intelligence (AI) is not as complete as human intellect, despite its ability to recognize patterns and make judgments. *Degaonkar, S. V., Kadam, Dr. S., & Rane, D. N. M. (2024).*

3.12 AI has had a major impact on education

Education's initial examples of artificial intelligence were computers and computer-related devices. Online and web-based learning platforms came next. Embedded systems have made it possible to use cobots or humanoid robots as autonomous teachers or teacher colleagues, as well as chatbots to perform activities similar to those of teachers. The use of various

platforms and technologies has enabled or improved teacher effectiveness and efficiency, leading to richer or better educational quality. In a similar vein, AI has transformed student learning experiences by enabling the customization of course materials to meet the needs and abilities of individual students. All things considered, education has been greatly impacted by artificial intelligence (AI), particularly in the areas of learning, teaching, and administration . *Chen, L., Chen, P., & Lin, Z. (2020).*

3.13 Striking a balance between AI and human expertise in programming and development

The study recognizes a gap due to concerns regarding job displacement, ethical considerations, and the need for human oversight in AI-driven systems. In order to close this gap, this paper offers a comprehensive evaluation of the benefits and drawbacks of AI in programming and development.

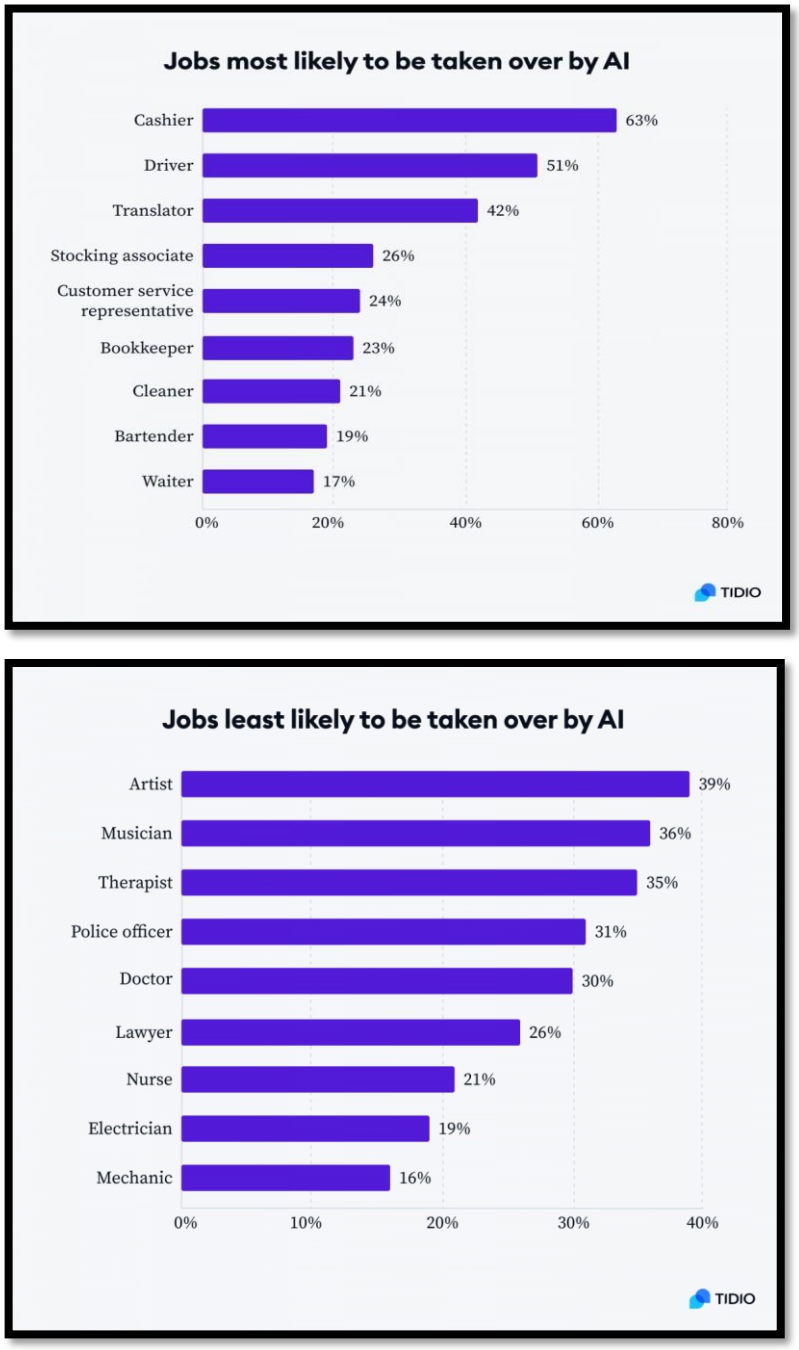

Figure2 *- Limitations and challenges associated with the adoption of AI in programming and development*

3.14 Effective use of AI in programming will increase Creativity

Another study's conclusions show that by automating repetitive operations and speeding up development processes, AI technologies have the potential to greatly increase production and efficiency. However, it is imperative to acknowledge AI's limits, especially its effects on human intuition, creativity, and job stability. The significance of finding a balance between AI and human programming and development skills is highlighted by this study. The field can fully utilize AI while guaranteeing the moral and responsible application of these technologies if it embraces AI while appreciating the special skills of human programmers. The effective use of AI in programming and development will ultimately open the door to increased creativity and productivity in the digital age.*Najmiddinov, Abboskhon. (2023).*

3.15 Institutional support is important. As per a research titled Factors Influencing Teachers' Use of Artificial Intelligence for Instructional Purposes, among the important elements that surfaced during the examination of the results was institutional support. To facilitate the adoption of AI, educational institutions must improve regulations that establish a conducive atmosphere for AI use and offer comprehensive training for this purpose (Chan, 2023; Fullan et al., 2023). According to the research findings, educational reforms are necessary to help incorporate AI literacy into current curricula. For teachers to be proficient users and implementers of AI tools, it is imperative that these instructional initiatives cover both the pedagogical and technological components of AI (Le Borgne et al., 2024). Bakhadirov, M., & Alasgarova, R. (2024).

3.16 **Teachers must be able to adapt as technology advances or be ready to get replaced.**

AI has been extensively used in a variety of educational technology platforms, including 1) Virtual Mentors, and 2) Voice Assistants, such as Google Assistant (Google), Siri (Apple), and Cortana (Microsoft), according to the results analysis. 3. Intelligent Content, 4) Translator. 5) Online courses include MOOCs, Coursera, edX, Udemy, Google AI, Alison, Khan Academy, and others. 6) Automatic Evaluation, Ruangguru, for instance, is an example of personalized learning. 7) Educational games, Intelligent computer-aided instruction (ICAI), or the Intelligent Tutoring System (ITS) are the other options. The process of creating a machine that can think and act like a person is known as artificial intelligence (AI). Future developments in science and technology will make teaching easier in areas like student attendance, correction, daily evaluations, knowledge explanation, creating administrative reports, etc. To produce a golden generation with greater character, quality, and natural intelligence, teachers only can help out—something machines cannot do—teachers can save more energy and concentrate more on non-systemic tasks. Therefore, since AI lacks emotions, it cannot replace the instructor's job of inspiring, motivating, and helping students build their character. feelings, just like people in general. Meanwhile, the human mind produces new information, particularly that of teachers. Technology only functions systemically and is automated in response to human directions. As a result, the teacher will have unparalleled intelligence. Ultimately, when it comes to technological advancements, educators need to be prepared to adjust as they happen. If they don't adapt, technology can take the position of educators (lecturers and teachers). *Fitria, T. N. (2021, December).*

3.17 Policy intervention can make AI a force of social transformation

A robust public education system that can meet the needs of everyone, particularly the underprivileged and marginalized segments of society, is crucial if education is to be both universally accessible and socially revolutionary in India. AI's greatest contribution to Indian education should be in fostering "learner-centered" learning, which would shift away from the prevalent "one-size-fits-all" approach and allow teachers to customize lesson plans and instructional strategies to the unique requirements and circumstances of each student. AI could encourage teachers to broaden their limited content and pedagogy practices by proposing contextualized and varied material and pedagogy options. Teachers and other educators must be consulted and involved in the design of AI's use, which must be suitable for educational settings. Teachers and school administrators must be trained to comprehend and use AI in the classroom, and they must play a crucial part in establishing a clear purpose for it. AI education is essential if educators and schools are to be in charge of implementing AI. A suitable legislative context is essential to ensure that AI can help education fulfill its promise of being a force for social transformation rather than bondage, even though research would help us better comprehend AI in education. *Kasinathan, G. (2020).*

3.18 The next frontier of AI is not just technological but also ethical and humanistic.

Under the general term "human-in-the-loop machine learning," researchers are describing new kinds of human-machine learning algorithm interactions. We can distinguish between three types of machine learning based on who controls the learning process: machine teaching, where human domain experts control the learning process; interactive machine

learning, where users and learning systems interact more closely; and active learning, where the system maintains control. The article concludes by reflecting on how human involvement in machine learning (ML) and the concepts of usability and usefulness in AI software have given rise to a broader movement known as Human-centered AI (HAI) (Xu 2019), which refers to applying human conditions to AI in order to approach it from a human perspective. It is crucial to remember that the first two waves of AI failed not only because no technology had been established but also because they were unable to satisfy human demands. Since AI provides a positive user experience (UX) for a variety of third-wave application scenarios, they are starting to feel content with it. When it started to offer developed business models with useful features, people started to consider including human components like ethics, interpretability, fairness, etc. *Mosqueira-Rey, E., Hernández-Pereira, E., Alonso-Ríos, D., Bobes-Bascarán, J., & Fernández-Leal, Á. (2023)*

3.19 Widespread AI Literacy is much needed

To develop AI for education, educators and education leaders must collaborate. Strong data privacy and security procedures must be implemented in order to ensure the confidentiality of private data when using AI in education. Innovative funding strategies are essential to support the ongoing development of autonomous testing and assessment of AI solutions as well as the advancement of AI algorithms. Teachers, administrators, and students must have access to training and upskilling opportunities that are customized to meet their needs to deploy AI systems as efficiently as feasible. Programs must be created with equality and inclusiveness in mind to ensure that AI literacy is taught widely. Elhussein, G., Hasselaar, E., & Lutsyshyn, O. (2024, April).

4.0 Methodology

It can be easily deciphered that students and teachers of today cannot do without technology, be it personal or professional space. Artificial intelligence is there to assist in the teaching-learning process.

4.1 As we understand There has been a major shift in the education sector throughout the past 20 years. New-age learners now have great opportunities to create more individualized and engaging learning experiences because of the growing integration of technology, especially AI-driven solutions. A survey was conducted with 95 educators taking classes in primary, middle, or senior schools, in the state of Haryana, to understand their perspectives on Artificial Intelligence. The purpose of this survey was to collect their insightful thoughts and ideas regarding how tech-based solutions, such as artificial intelligence, might improve the teaching-learning process. It is believed that suggestions given by educators could influence how education and technology develop in the future.

According to the survey, the most significant changes in the education spectrum over the last 5-10 years emerged as the integration of technology, Competency-based education, and hybrid learning methods. Also, 96% believed that technology is there to assist educators/teachers to enhance teaching & learning experience.

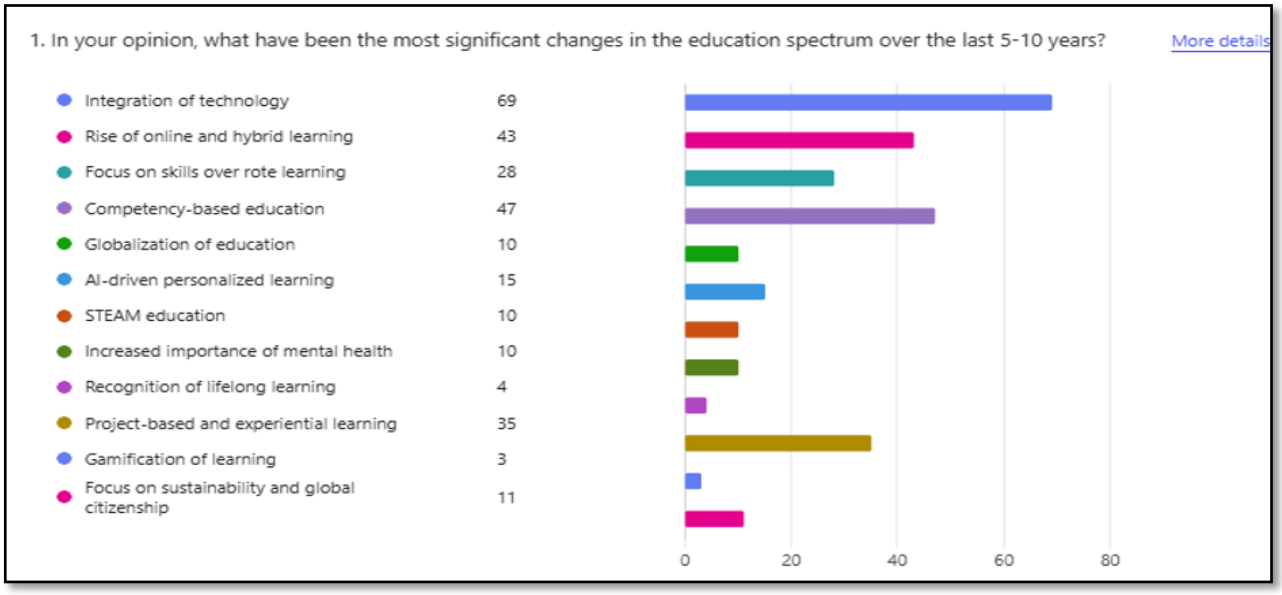

Figure 3 A, Significant changes in the education spectrum

2 When enquired from the group of educators about how Artificial Intelligence, could help them in their daily routine work, about the teaching-learning process, the response was as follows:

- As Collaboration Tools to share resources and ideas on AI-enhanced platforms-21%
- For Professional Development: Recommend training based on teachers' expertise-14%
- For Gamified Learning: Use AI-powered educational games for interactive engagement-13%
- As AI Chatbots: Provide 24/7 assistance to students with routine questions-11%
- For Predictive Insights: Forecast student performance and suggest interventions-6%
- For Behavior Analysis: Identify patterns in student behavior and emotional well-being-11%
- Feedback for Teachers: Offer actionable suggestions for teaching improvement %
- Parent Communication: Automate progress reports and emails to parents-7%
- VR/AR Learning: Make abstract concepts tangible with immersive tools -9%

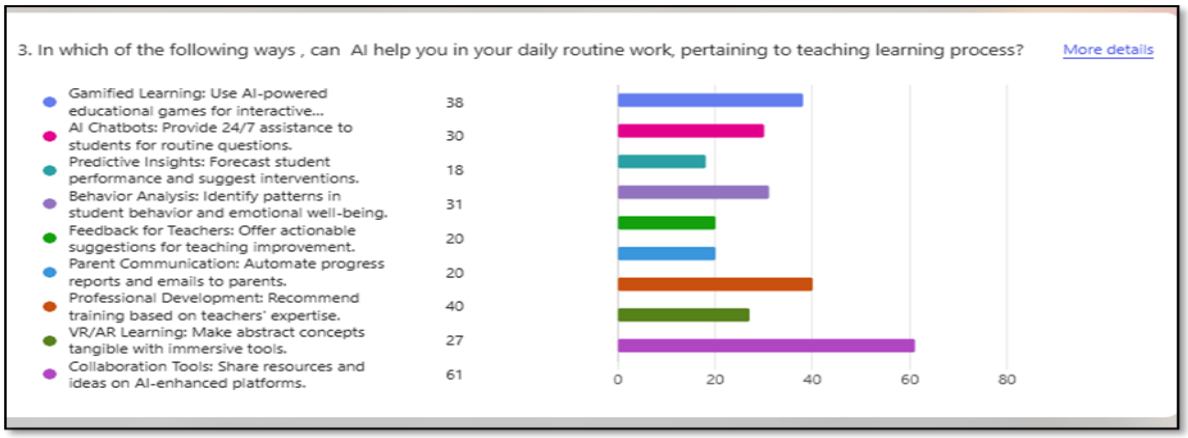

Figure 3 B, AI helping in the teaching-learning process

When enquired about their apprehensions (any 3) about the use of AI, from the list of choices given. the responses collected were as follows:

- Job Security: Fear of AI replacing teachers or devaluing their role- 6%
- Equity: Concerns about unequal access to AI tools and biases in AI systems-6%
- Quality: Worries about AI limiting critical thinking or failing to meet individual student needs-23%
- Ethical Issues: Privacy risks and lack of transparency in AI-driven decisions-21%
- Training Gaps: Insufficient training and overwhelming learning curve for educators-7%
- Student Engagement: Reduced teacher-student interaction and risk of passive learning-21%
- Algorithm Dependence: Doubts about AI accuracy, fairness, and potential over-standardization-10%
- Cost and Implementation: Budget constraints, technical issues, and reliability concerns-6%

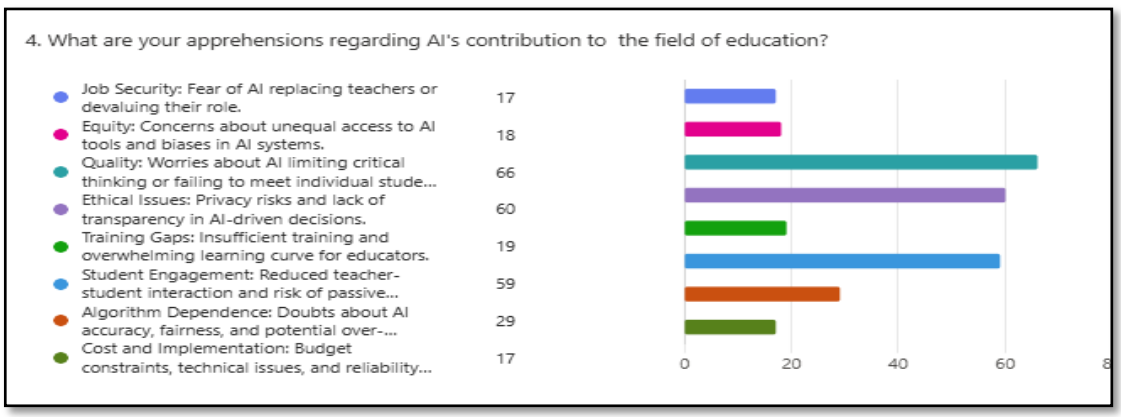

Figure 3 C, Apprehensions regarding AI's contribution

When asked about their concerns (any three) about the usage of AI by students, from the list of choices given, the following observations emerged (in percentage):

- Makes learning engaging and interactive-11 %
- Risk of overreliance, hindering problem-solving skills-16%
- Potential misuse for cheating or plagiarism-19%
- AI outputs may lack accuracy or relevance - 7%
- Could reduce creativity and independent thinking- 22%
- Raises ethical concerns about bias and privacy- 6%
- Educate students on responsible and effective AI usage- 8%
- Blend AI tools with traditional teaching methods- 9%
- Emphasize critical evaluation and analysis of AI-generated content-4%

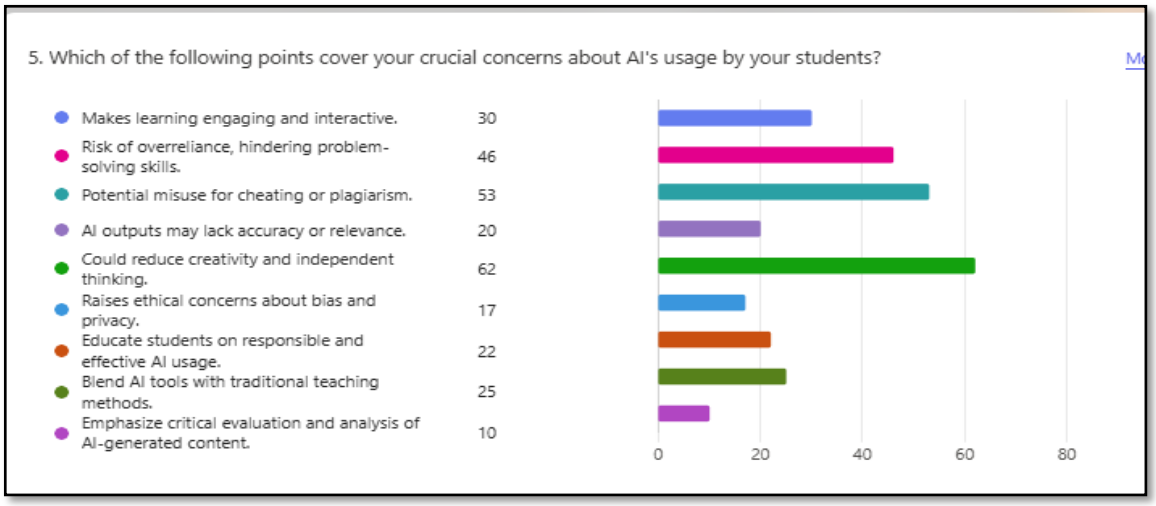

Figure 3 D, Crucial concerns expressed by teachers about the student's use of AI.

Overall, it can be said that the teachers, acknowledged AI, as an effective educational tool that promotes inclusion and skill development while providing individualized instruction, administrative job automation, and assistance for educators and learners. AI must be used responsibly and sensibly, though, so that it complements human abilities rather than taking the place of the human touch and labor that are essential to education. Although AI has the potential to improve learning efficiency and engagement, worries about over-reliance, barriers to innovation, and ethical issues underscore the necessity of integrating AI into teaching and learning procedures with caution and guidance.

4.3 The second survey was done with a group of 85 students, in a school in Haryana, India, in the age group of 14-16 years. As a disruptive force, artificial intelligence is transforming education and preparing the next generation of workers. With an emphasis on creative and optimistic possibilities, students were invited to contribute their thoughts and viewpoints on how AI-driven solutions might help create a better tomorrow.

81% of students, believed that in emerging India, Artificial Intelligence can offer solutions to our economic challenges.

The students were offered a couple of appealing options for the general applications of AI and asked to choose the best ones (any 3) at large. The response received is as follows:

- 22% liked Real-World Applications: AI powers everyday techs like voice assistants and self-driving cars-
- 20% liked Problem-Solving that AI helps tackle complex problems with smart solutions
- 11% liked Career Opportunities that AI opens diverse career paths in various industries
- 9% preferred Personalized Learning as AI adapts to individual learning needs
- 9% preferred Machine Learning as AI teaches machines to learn and improve
- 2% only were concerned about Ethical Exploration as Students engage with AI's ethical challenges, like bias and privacy
- 9% opted for Interdisciplinary Learning: Combines knowledge from tech, math, and psychology, and more

- 7% opted for Gamification: AI enhances gaming experiences with intelligent characters
- 10% believed in Cutting-Edge Tech: Students work with the latest advancements shaping the future- 10%

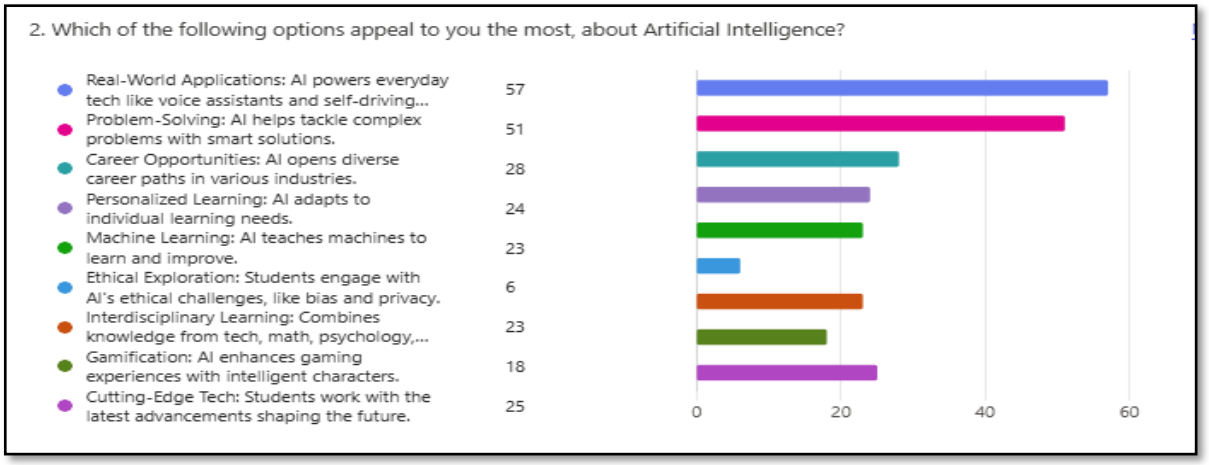

Figure 4 A, AI Options that appeal to the students

When asked about the concerns that bother them, the student's choices are as follows:

- 24% felt that Over-reliance on AI can reduce critical thinking, problem-solving, and creativity.
- 9% had Concerns about academic dishonesty and ethical issues in using AI for assignments.
- 5% Foresee Potential decline in personalized education as teachers may rely heavily on AI.
- 15% Had Fear of personal data misuse and lack of control over data collected by AI systems.
- 2% had Concerns about constant AI surveillance during online exams and activities.
- 6% felt that Unequal access to AI tools could widen educational gaps and exacerbate inequalities.
- 6% felt that Biases in AI algorithms may unfairly disadvantage certain groups.
- 7% had Anxiety about AI replacing traditional jobs and uncertainty about future-relevant skills.
- 5% felt Risks of unregulated AI use, misinformation, and lack of accountability in AI decisions.
- 2% were Stressed from competition to use advanced AI tools effectively.
- 7% had a Fear of reduced human connection and increased isolation due to AI interactions.
- 4% had Doubts about the accuracy of AI-generated information and the potential for misinformation.
- 8% had Risk of losing essential real-world skills due to overdependence on AI.

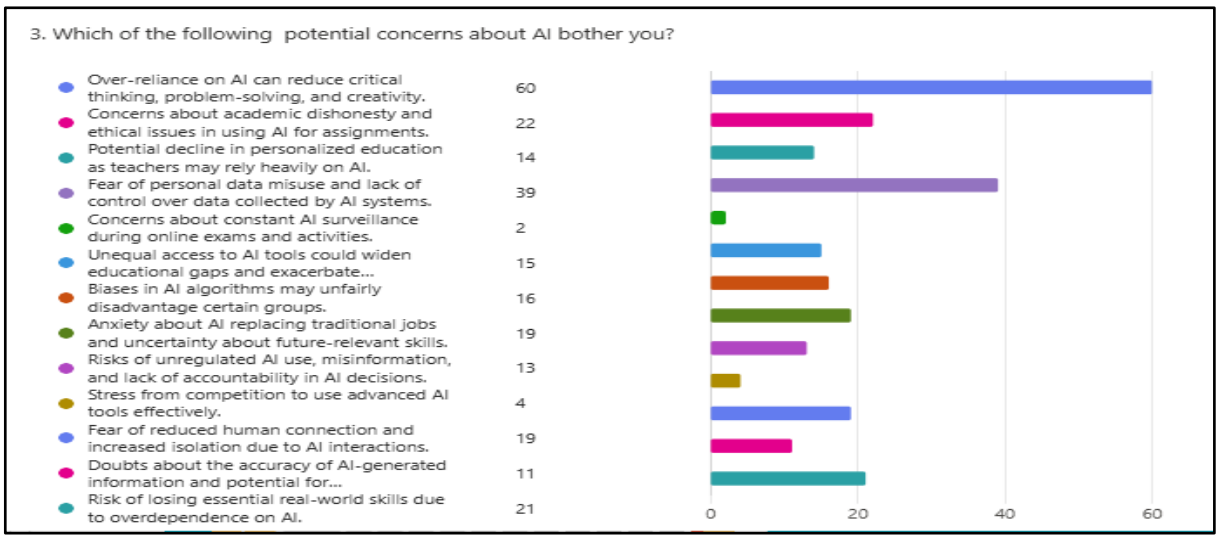

Figure 4B Student's concerns about AI

Overall the student survey revealed that although artificial intelligence (AI) can completely transform entire industries, resolve challenging issues, and provide new opportunities, it also brings up serious issues with unemployment, moral quandaries, and the effects on society. While AI can help with routine activities, increase productivity, and improve accuracy in areas like medical imaging, its abuse or over-reliance could result in the loss of critical skills and cultural deterioration. In the end, artificial intelligence (AI) should be used wisely as a tool to enhance human creativity, making sure it advances society without compromising human ideals.

5.0 Result

Here is an interesting review of the first edition of the AI competency framework for teachers developed by UNESCO in a recently published book named, AI Competency Framework for Teachers. The scaffolded progression of competency development is the second dimension of the AI CFT, which is displayed at the top of the table. The levels that teachers could potentially reach over time in each of the five competency areas that make up AI competency are represented by progression levels. Instead of laying out strict, required processes that instructors must follow, the framework promotes and outlines desired results at each level per facet, acting as a reference pathway for teacher advancement. The three stages of progression are: "Acquire," which outlines the fundamental set of AI competencies that all educators must possess in order to assess, choose, and employ AI tools in the classroom; "Deepen," which outlines the intermediate competencies required to develop significant pedagogical strategies that incorporate AI; and "Create," which outlines the advanced competencies necessary for the inventive configuration of AI systems and creative application of AI in education. The AI CFT defines fifteen competency blocks by traversing these three levels with the five characteristics of competency. All teachers, from those who know nothing about AI to those who have more experience and expertise, are intended to benefit from these competency blocks. Cukurova, M., & Miao, F. (2024). UNESCO Publishing.

Table 1. The AI competency framework high-level structure: aspects and progression levels

Aspects	Progression		
	Acquire	Deepen	Create
1. Human-centred mindset	Human agency	Human accountability	Social responsibility
2. Ethics of AI	Ethical principles	Safe and responsible use	Co-creating ethical rules
3. AI foundations and applications	Basic AI techniques and applications	Application skills	Creating with AI
4. AI pedagogy	AI-assisted teaching	AI–pedagogy integration	AI-enhanced pedagogical transformation
5. AI for professional development	AI enabling lifelong professional learning	AI to enhance organizational learning	AI to support professional transformation

Figure 5 The AI Competency Framework by UNESCO

As a result of the survey analysis done, with teachers and students and a review of the literature, I have come up with a framework that might help schools with a futuristic outlook. It can be concluded that for the creative use of Artificial Intelligence in Education, Teachers' efforts, students' active participation, and support from policymakers are necessary.

Data gathering and analysis are two examples of AI competency skills that students must learn in order to develop their capacity for efficient information management and interpretation. In order to tackle problems from new angles, students must cultivate their imagination and become creative thinkers in addition to these technical abilities. Programming and coding skills are necessary for comprehending and using algorithms, which are the foundation of AI applications. Students must also adhere to the strictest ethical guidelines in AI, making sure that their behavior respects the values of accountability and integrity while pursuing technological breakthroughs.

Teachers can use AI to further their professional development by gaining access to lifetime learning resources that provide individualized instruction and possibilities for upskilling. Teachers may save time and concentrate on more meaningful student interactions by using AI to automate administrative duties like scheduling, attendance tracking, and grading. By enabling interactive simulations, adaptive learning, and AI-driven educational platforms to meet the demands of a wide range of students, the pedagogical integration of AI enhances the classroom experience even more. To maintain the compassionate, guiding role they play in influencing students' futures, teachers must maintain ethical control and safeguard human accountability while embracing AI.

In order to prevent prejudice and protect privacy, policymakers must put ethics first by creating precise rules for the application of AI in education that guarantee openness, equity, and inclusivity. To help teachers integrate AI in the classroom, institutions must provide them with thorough training, resources, and recognition for creative approaches. To guarantee that AI technologies properly address educational objectives, teachers should be actively involved in machine learning activities, helping to build, assess, and improve these tools. A key component of policy should be equitable access to AI, which includes steps to close the digital divide, give technological subsidies to schools in need, and guarantee that all kids, regardless of socioeconomic status, gain from AI-powered innovations. Together, these initiatives support the ethical, inclusive, and significant application of AI in education.

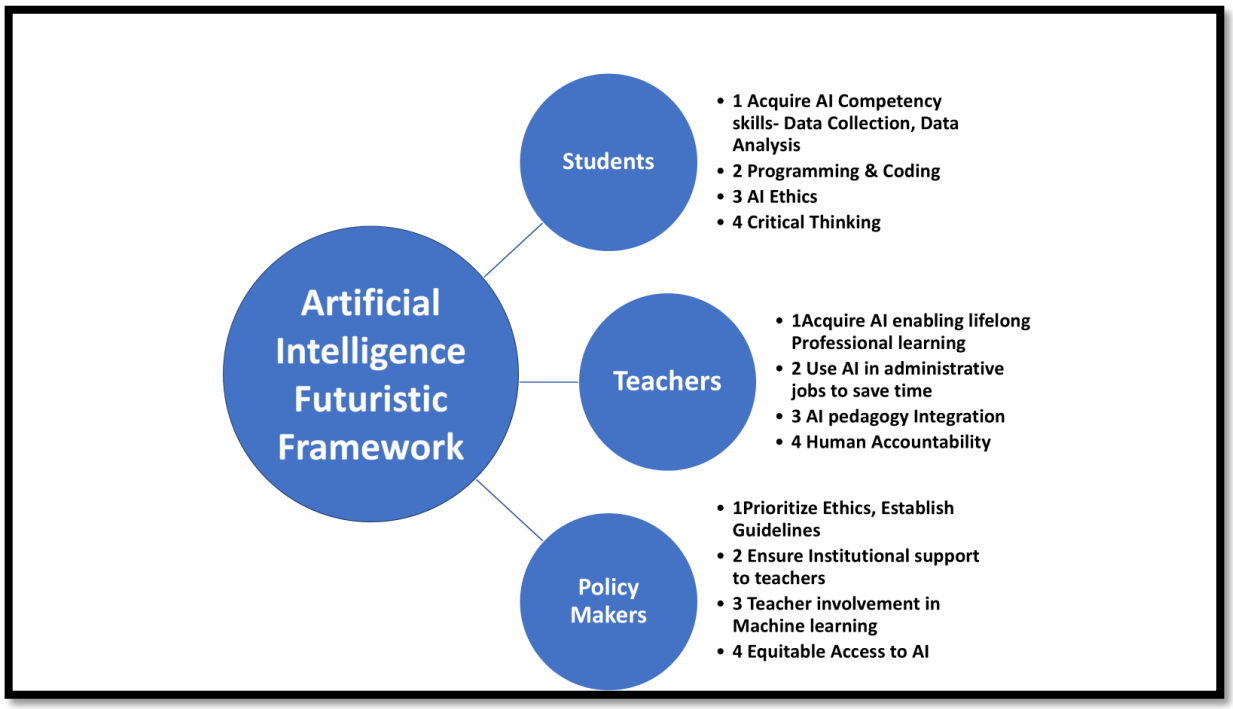

Figure 6 Artificial Intelligence Futuristic Framework

6.0 Conclusion

The incorporation of AI in education raises important ethical issues, which are addressed in this study. Teachers worry that an excessive dependence on AI technologies could lead to passive learning, which could impair critical thinking and student engagement. However, students worry about academic dishonesty and possible data exploitation, believing that the ease AI provides could result in cheating or compromise their hard work.

To debunk these myths and emphasize the advantages of AI in teaching and learning, the education community must cooperate. It is impossible to ignore AI's benefits, which include improved resource accessibility, individualized learning, and efficient administrative work. Teachers may fully utilize AI by concentrating on its ethical application and establishing explicit guidelines for its use.

The scope of the study is limited to a single school in India, and it can be further expanded to include more institutions. More studies can be done in this direction to reiterate that AI as a tool, is certainly going to help the education spectrum, provided a few careful steps are taken, and machines can never replace humans.

In summary, a human-in-the-loop strategy with active participation from educators, students, and legislators is necessary for the integration of AI in education. While teachers utilize AI to improve learning and expedite activities while still playing a guiding role, students must cultivate their AI abilities and inventiveness. Legislators must guarantee moral standards, fair access, and assistance for teacher preparation. The strategy proposed through the framework guarantees that AI improves education while maintaining human accountability, ethics, and control.

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