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Artificial Intelligence in Education

Dr. Jalpa Prajapati
Prof. Ashwini Barbate

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Preface

Dear Reader,

Artificial Intelligence in Education has become a hot topic because it changes how we learn quickly. So, what does this mean for children? Is there any shift for children due to AI being incorporated into their learning process? Artificial Intelligence in education has the potential to be a game-changer for every child. Many schools are already using AI across the country, and you must know how AI can benefit your child. In education offers personalized learning experiences, adaptive assessments, and efficient administrative tasks, enhancing both teaching and learning processes. It enables customized content delivery, real-time feedback, and data-driven insights, catering to diverse learning styles and needs. Furthermore, AI-powered tools facilitate remote learning, widen access to education, and foster collaboration among students and educators worldwide.

In this book Artificial Intelligence (AI) in education offers numerous benefits, including personalized learning experiences, adaptive assessment, and efficient administrative tasks. It enables educators to tailor instruction to individual student needs, thereby enhancing engagement and understanding. Additionally, AI-powered tools can analyze vast amounts of data to provide insights into student performance and learning trends, helping educators make data-driven decisions. Furthermore, AI can facilitate the creation of immersive and interactive learning environments, fostering creativity and critical thinking skills among students. However, it's essential to address concerns such as data privacy, equity, and the need for human oversight in the integration of AI in education.

AI can assist students with their academics and homework in significant ways. AI is a simulation of human intelligence into a computer so that it can think and work like a human. Remember the old days when we used to spend long hours on homework, learning lessons and other academic activities? Where we took hours to complete one activity, AI can help us to finish it in minutes. Teaching is a skill and no AI can do what a teacher does. However, AI has enhanced our personalized learning experience in real-time. AI can help you with every educational work. Artificial intelligence platforms like Google AI, OpenAI, and Tensor Flow have made learning effective and more engaging than ever.

In everyone’s life, education plays a vital role. In is essential if you want to have a successful life. There are a lot of changes happening all around the globe in order to improve the education system for students. These changes range from the way of teaching to the type of curriculum that is being taught. AI (Artificial Intelligence) has revolutionized the world and

is thriving. It has touched each and every field and the field of education is no exception. AI is poised to making big changes in the field of education and to some extent, it already has.

The volume contents consist of importance of Artificial Intelligence in Education. This volume include 12 research papers make a valuable contribution to understand the importance of Artificial Intelligence in Education.

We have made an effort here, so that today's young generation can read and understand the different importance of Artificial Intelligence in Education by reading this book. This is one of our effort to understanding of Artificial Intelligence in Education arise in your life.

A generous theme considered by this book, as this is the main concern of most of the researchers nowadays, directions for the future of teaching can be unified by working together – the opening chapter reveals a unified vision of authors of different national background and using different research methodology on the same challenging idea – "Artificial Intelligence in Education".

Dr. Jalpaben V. Prajapati, and
Prof. Ashwini R. Barbate

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AI in Education: A paradigm shifts in Learning and Teaching

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Introduction

Artificial Intelligence has permitted numerous sectors and education is no exception with the capability to stimulate human intelligence processes. AI has the potential to transform conventional education systems fostering an environment of individualized and optimizes learning.

This research paper explores the increasingly significant role of Artificial Intelligence in education, shedding light on its potential to revolutionize learning and teaching practices. With a focus on concept of AI, personalised learning, redictive analytics and intelligent tutoring systems, Benefits of AI in Teaching Learning Process, Some important tools and apps of AI. The paper elucidates how AI can enhance educational outcomes and improve pedagogical efficiency.

Concept of AI

AI Is the intelligence of machines or software as opposed to the intelligence of humans or other animals. AI technology is widely used throughout industry, government and science. Some high profile applications are advanced web search engines (eg. Google search) recommendation system (used by YouTube, Amazon and Netflix), Understanding human speech (such as Google Assistant, Siri and Alexa) Self driving cars (eg. waymo), generative and creative tools (ChatGPT and AI art) and superhuman play and analysis in strategy games (such as chess and Go)

The traditional goals of a research include reasoning, knowledge, presentation, planning, learning, natural language processing, perception and support for robotics.

For general intelligence, AI researchers have adapted an integrated a wide range of problem. Solving 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.

AI helps in Teaching Learning Process

I. AI and Personalized Learning:

AI's ability to gather, analyse, and interpret vast datasets enables it to offer highly personalized learning experiences. Machine learning algorithms, a subset of AI, can track student progress, identify learning gaps, and adapt teaching methods to cater to individual strengths and weaknesses. This section delves into the concept of adaptive learning platforms and how they contribute to enhanced learning outcomes.

II. Predictive Analytics in Education:

Predictive analytics, powered by AI, has the potential to improve student retention and academic performance. By analysing historical student data, these AI systems can predict future performance and timely identify at-risk students, enabling educators to intervene proactively. This section discusses the significant role of predictive analytics in transforming educational administration and student support systems.

III. Intelligent Tutoring Systems:

Intelligent Tutoring Systems (ITS) integrate AI to offer personalized tutoring, fostering an individualized and immersive learning environment. ITS can provide immediate feedback, reinforce learning, and adjust the level of difficulty based on the learner's progress. This section investigates the effectiveness of ITS and their implications for the future of education.

Benefits of AI in Education

1.Early childhood education

AI is currently being used to power interactive games that teach children basic academic skills and more.

2.Scheduling

Helping administrators to schedule courses and individuals to manage their daily, weekly, monthly and yearly schedule.

3.Chat bot

Chat bot increasingly implemented into classrooms where kids use iPads and laptops to chat with bots. Chat bot tutors helps students to learn new concepts, there may even come whenever the analysis is needed. It helps teachers in teaching learning process. Chat bot could also replace email communication between teacher and parents which parents meet also.

4. Virtual reality

Virtual reality is a three dimensional computer generated environment that, people can have explored and interact with. Virtual reality educators are finding new way to integrate

experiential learning into their classrooms with virtual reality, students and teachers both can explorer things that they may never have the opportunity to see or learn about in real life. Virtual reality is a great way to help students feel connected to each other. Increased engagement and deep understanding are two benefits for both students and teachers.

5. Robotics

Robotics with artificial intelligence in education has increased over the last few years. Robotics is vital for students because they can teach them that engineering in more than just solving problems on paper or drawing on a mat. They can see the outcomes of their efforts and the final result. Teachers can also use robotics as an instructional tool to teach lessons about current events or even math.

6. LMS (Learning Management system)

A LMS provides a centralised intuitive system for managing all of a school's online activities. These tools can be used for a variety of purposes. Teachers can provide feedback on any assignment or assessment at any time. Students have instant access to their grades without waiting until the end of a semester. LMS system can help teachers in creating content, helping parents in monitoring their child's progress It helped teacher to reduce time for classroom management.

Some important tools and apps of AI

AI tools & apps increase your productivity in the workplace.

1) Tom app

Tom is an AI powered canvas that's builds to help you shape and share your ideas. It's intelligent, flexible format let's you create anything from presentations, one pagers, landing pages, portfolios, mood boards and tons of others content

2) Carrot2

Carrot2 is an open source search results clustering engine. It can automatically cluster small collection of documents eg. search results or document abstracts into thematic categories Carrot is written in Java and distributed under the BSD licence.

3) Research pal

Research Pal is a new app designed e specially for academic writing. It has a built in search engine. You can look up papers, save them to your library and extract key insights. It can also help you with literature review and drafting your paper

4) Worldwise AI

Worldwide AI is an automated online writing assistant offering a full suite of writing and revision, tools including the AI proof-reader, AI paraphraser, AI summarizer, language translator and plagiarism checker. Worldwide AI aims to be your one stop resource for all your writing and revision needs.

5) Research rabbit

Research rabbit is an innovative "citation based on literature mapping tool" available online. The scope of such tool is to optimise your time searching for references as you start planning your essay, minor project or literature review the tool is designed to support your research without you switching between searching modes and databases.

6) ChatGPT

ChatGPT analyses learner's writing Aid in improving writing skills, particularly beneficial in large Indian classrooms. Provide suggestion for style and structure and grammar, addresses the challenge of personalised feedback for all learners.

7) YOU

You.com is AI that helps you solve your search and accomplish more all through chat. Life brings questions, you.com is AI with the answers you need. (You chat, you write and You imagine provide efficiant web search, content and image creation) and code generation with advanced machine learning.

8) LMS (Learning Management System)

ChatGPT analysis learners writing Aids in improving writing skills. Particularly beneficial in large Indian classrooms. Provides suggestions for style and structure and grammar. Addresses the challenges of personalised feedback for all learners.

Challenges

- Limited capabilities in using the chat bot
- Technology breakdowns, malfunctions and poor connectivity
- Incorrect answers are there
- Lack of clarity on how personal information would be shared and stored
- Fear of uncertainty about how the AI was operating
- Fear of losing a natural learning environment
- Fear of losing real emotions connected to learning

Conclusion:

AI is not just a technological advancement; it is a paradigm shift in education. By harnessing the power of AI, we can create a personalized, flexible, and proactive educational system that not only enhances academic achievement but also nurtures critical and innovative thinking. As we continue to explore and understand the full potential of AI in education, it is crucial to address its challenges to ensure that its benefits are accessible to all.

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An Influence of Artificial Intelligence in English Language and Literature

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Abstract

The Present study is an attempt to focus "Artificial Intelligence" (AI) as a notable impact on various fields, including English language and literature. Artificial Intelligence (AI) has a significant impact on the English language in various ways, ranging from language processing and translation to content creation and educational applications. While AI brings significant advancements to English language and literature, it also raises ethical considerations, such as issues related to bias in language models and the potential impact on human creativity and interpretation. Balancing the benefits and challenges is crucial as technology continues to evolve in this field.

Key words- Automated Content Generation, Grammar, Language Translation, Sentiment Analysis, Natural Language Processing, Character and Plot Analysis, Literary Creation, Educational Tools

Introduction

Artificial Intelligence refers to the development of computer systems that can perform tasks that typically require human intelligence. This includes learning from experience (machine learning), understanding natural language, recognizing patterns, and making decisions. AI is a multidisciplinary field that encompasses various approaches, including machine learning, neural networks, and natural language processing. It finds applications in diverse domains such as robotics, healthcare, finance, and language processing, revolutionizing how machines interact with data and the world around them. AI continues to advance, shaping the future of technology and influencing various aspects of our daily lives. Here is some ways AI has influenced and continues to shape the domain of English language and literature:

Automated Content Generation:

AI algorithms can generate human-like text, aiding in the creation of articles, essays, and other written content. This technology is often used for content marketing, journalism, and even creative writing.

Grammar and Style Checking:

AI-powered tools, like grammar and style checkers, help writers improve their writing by identifying grammatical errors, suggesting corrections, and providing style recommendations. These tools enhance the overall quality of written language.

Language Translation:

AI has significantly advanced machine translation systems, allowing for more accurate and context-aware translation between languages. This impacts the accessibility of literature across diverse linguistic communities.

Sentiment Analysis:

AI can analyse the sentiment expressed in written text, including literature. This capability is useful for understanding the emotional tone of literary works, book reviews, and other written expressions.

Character and Plot Analysis:

AI tools can analyse literary works to identify patterns, themes, and character traits. This can aid in literary analysis, helping scholars and students gain insights into the structure and meaning of texts.

AI in Literary Creation:

Some AI models have been trained to generate poetry, stories, and even entire novels. While the creativity of AI-generated literature is still debated, it raises intriguing questions about the intersection of technology and artistic expression.

Educational Tools:

AI-powered educational platforms offer personalized learning experiences for students studying English literature. These platforms may adapt content, provide feedback, and offer additional resources based on individual learning needs.

Enhanced Accessibility:

AI technologies contribute to making literary content more accessible. Text-to-speech systems, for example, allow individuals with visual impairments to engage with literary works through spoken words.

Literary Analysis and Research:

AI facilitates large-scale analysis of literary corpora, enabling researchers to explore trends, historical changes in language use, and authorship attribution.

Digital Libraries and Archiving:

AI assists in the digitization, organization, and preservation of literary texts, contributing to the development of digital libraries and archives.

Natural Language Processing (NLP):

Definition: NLP is a branch of AI that focuses on the interaction between computers and human language. It enables machines to understand, interpret, and generate human-like text.

Applications: Chatbots and virtual assistants use NLP to understand and respond to user queries in natural language.

Machine Translation:

Definition: AI-powered machine translation systems use algorithms to translate text from one language to another.

Applications: Online translation services, such as Google Translate, employ AI to provide quick and relatively accurate translations between multiple languages.

Language Learning Platforms:

Definition: AI is integrated into language learning platforms to personalize learning experiences and provide adaptive feedback.

Applications: Apps like Duolingo use AI to tailor language lessons based on individual progress and learning styles.

Speech Recognition:

Definition: AI-based speech recognition systems convert spoken language into written text.

Applications: Voice assistants like Siri and Alexa use speech recognition to understand and respond to spoken commands.

AI in Creative Writing:

Definition: Some AI models are trained to generate creative writing, including poetry, short stories, and novels.

Applications: AI-generated content raises questions about the role of machines in artistic expression and challenges traditional notions of authorship.

Educational Tools:

Definition: AI-enhanced educational platforms provide personalized learning experiences for English language learners.

Applications: Educational apps use AI to assess individual strengths and weaknesses, adapting lessons to cater to each learner's needs. Search engines like Google use AI to improve the accuracy and context-sensitivity of search results.

Conclusion

The integration of AI in the English language domain continues to evolve, influencing how we communicate, learn, and create content. As technology advances, the relationship between AI and the English language will likely become even more intricate and impactful. I can suggest general categories of sources and examples of relevant literature that you can explore for a deeper understanding of the influence of artificial intelligence in English Language and literature. Make sure to access scholarly databases, academic journals, and reputable publications for the most recent and in-depth research.

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Artificial Intelligence in Education: An Exploratory Study on Faculty Perspectives in Kolkata

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Abstract:

Artificial Intelligence is being integrated seamlessly across different industries and professions. Its introduction in education, results in Artificial Intelligence in Education and has led to considerable advancements in information processing techniques. The current study was designed to investigate the use of artificial intelligence in education. It examines the replies of 150 faculty members from prominent higher education institutions in Kolkata. The study's aims are attained via a mixed method technique. Its primary goal is to understand diverse AI paradigms by a thorough investigation of relevant secondary data. Furthermore, the second and third objectives are addressed utilising a structured questionnaire: investigating faculty viewpoints on the benefits and ethical considerations of artificial intelligence in education. The study aims to provide significant insights into the complex perceptions of educators in Kolkata on the dimensions of the current study. This comprehensive effort provides a holistic knowledge of the difficulties and opportunities connected with interactions between education and artificial intelligence, laying the groundwork for informed decision-making and policy creation.

Keywords: Artificial Intelligence; Education; Faculty; Kolkata.

Introduction:

Integrating Artificial Intelligence (AI) into education, often known as Artificial Intelligence in Education (AIEd), has seen significant advances in information processing techniques (Chen, Xie, & Hwang, 2020). This encompasses a variety of applications, such as "intelligent tutoring systems, teaching robots, learning analytics dashboards, adaptive learning systems, and human-computer interactions" (Chen, Xie, & Hwang, 2020). Over the last three decades, AIEd has worked to establish itself as an important tool for welcoming new breakthroughs in instructional design, technological development and education research. A pertinent focus has been placed on challenging traditional educational approaches (Hwang et al., 2020; Holmes et al., 2019).

AIEd offers diverse range of opportunities, potentials and challenges which influence educational innovations (Baker et al., 2019; Starcic, 2019). AIEd strengthens intelligent learning environments for "behaviour detection, prediction model building and learning recommendations" by utilising diverse techniques such as natural language processing, artificial neural networks and machine learning, to name a few (Chen, Xie, & Hwang, 2020). The potential held by AIEd for knowledge, cognition and culture is immense to say the least (Hwang et al., 2020).

It is indeed true that AI has the capacity to reshape education but achieving positive affirmations in educational outcomes necessitates more than simply deploying advanced AI computing technologies (Du Boulay, 2000; Castaneda & Selwyn, 2018). Different classes of educational technologies embody various philosophical and pedagogical perspectives, crucially influencing learning and instruction quality (Hwang et al., 2020). Although existing literature extensively categorizes AIEd, discusses approaches, research issues and their possible challenges, only select few studies explicitly explore the diverse roles of AIEd, its connections to existing educational and learning theories and the ethical perspectives of the same (Hwang et al., 2020). The current research endeavour addresses this gap by trying to comprehend the major AI paradigms and contributing valuable insights into the nuanced perceptions of educators in Kolkata regarding AIEd's potential benefits and ethical implications. The paper is structured in five sections- a brief introduction of the research topic, a concise review of literature, objectives and methodology of research, analysis of findings and a summary conclusion.

Literature Review:

AIEd grapples with fundamental challenges in general education, including addressing learner needs, determining content, timing, and empowering learners to enhance their learning journey (Du Boulay, 2000). Despite AIEd's integration of advanced computing and information processing techniques, it does not inherently ensure positive educational outcomes or high-quality learning experiences (Du Boulay, 2000; Selwyn, 2016; Castaneda & Selwyn, 2018). Effective technology use demands a close connection with educational and learning theories to guide technological development (Bower, 2019).

Critical issues in AIEd emerge from the disconnect between AI techniques and theoretical foundations, impacting the efficacy of AI implementations in education. Systematic reviews, including one examining 146 articles on AI applications in higher education (Zawacki-Richter et al., 2019), brings to light a lack of critical reflection on theoretical,

pedagogical and ethical implications. In a review of 45 impactful AIEd studies, Chen, Xie, Zou, and Hwang (2020) found that only a few studies grounded their research in learning theories such as situated learning, collaborative learning and adaptive learning. Similarly, a review of 109 articles on automated feedback systems by Deeva et al. (2021) emphasized on a general absence of reported learning theories or educational frameworks, despite their crucial role in understanding implementation contexts.

Distinct educational technologies embody different pedagogical perspectives, necessitating an examination of AI technologies' roles in education within the context of existing educational and learning theories (Hwang et al., 2020).

Research Objectives and Methodology:

Every research endeavour is undertaken to fulfil specific objectives. The current study aims to achieve the following objectives:

- To comprehend the major paradigms in AIEd
- To understand faculty perspectives on the advantages of using AIEd
- To explore faculty perspectives on the ethical considerations of AIEd

The study employs both primary and secondary data to facilitate the achievement of these research objectives. Pertinent literature in this domain, sourced from relevant research papers, articles and academic proceedings, has been thoroughly studied to gain insights into the comprehension of the first objective. For the second and third objectives, a structured questionnaire was distributed among faculty members from various higher educational institutions in Kolkata, spanning diverse disciplines. Out of the total 156 responses received, six had to be excluded due to incompleteness. Analysing a sample of 150 responses, valuable insights were gleaned into faculty perspectives regarding the advantages and ethical considerations of AIEd.

Analysis and Findings:

4.1 AIEd Paradigms

AIEd has experienced notable paradigm shifts, which could be primarily outlined into three distinct paradigms: AI-directed, wherein AI takes charge of cognitive learning and learners play a passive recipient role; AI-supported, where AI supports learning while learners actively collaborate; and AI-empowered, where AI enables learning and learners assume an active leadership role (Ouyang & Jiao, 2021). In the first paradigm, AI directs cognitive learning, treating learners as recipients of AI services. In the second paradigm, AI supports learning, fostering collaboration between AI and learners. In the third paradigm, AI empowers

the learning process, allowing learners to take control and actively lead their educational journey.

Paradigm One: AI-Directed, learner-as-recipient

Paradigm One is characterized as AI-directed, where the learner is a passive recipient. Here, AI represents domain knowledge, directs learning processes, and learners follow predefined pathways. The theoretical foundation is behaviourism, which highlights structured content sequences for correct performance (Skinner, 1953). Paradigm One views learning as reinforcement through programmed instructions, offering immediate feedback and maximizing positive reinforcement (Greeno et al., 1996). Learners react to predetermined knowledge sequences, follow set procedures and execute activities determined by AI (Burton et al., 2004). It lacks learner-centeredness and resembles earlier Intelligent Tutoring Systems (ITSs) like the ACT Programming Tutor and non-intelligent Stat Lady. In Paradigm One, AI directs learning entirely, raising questions about learner information requirements and potential stereotyping of learner capabilities (Kay, 2000; du Boulay, 2019). Questions have also been directed towards struggles with ill-defined problems (Pinkwart, 2016). To address these issues, learners become collaborators in Paradigm Two, actively engaging with AI.

Paradigm Two: AI-Supported, learner-as-collaborator

Paradigm Two is identified as AI-supported, with the learner taking on the role of a collaborator. Here, the AI system gives up control to become a supportive tool, fostering collaboration with the learner for individualized learning processes. Grounded in cognitive and social constructivism, Paradigm Two views learning developing organically with interactions with people, information and technology in socially situated contexts (Bandura, 1986; Liu & Matthews, 2005). The AI system and the learner actively interact, with the AI system collecting emerging, collecting customized information to adaptively optimize the student model. Learners act as collaborators, communicating with the AI system for more efficient learning. Unlike Paradigm One, Paradigm Two emphasizes learner-centered human learning through sustained collaboration. AI implementations, like dialogue-based tutoring systems (DTSs) and exploratory learning environments (ELEs), enhance mutual interactions. However, a possible challenge in Paradigm Two is the integration of learners' information into the AI system for adaptive, AI-supported learning. Continuous communication and dynamic, real-time data analysis are crucial in addressing this issue. To further empower learners, Paradigm Three envisions them as leaders.

Paradigm Three: AI-Empowered, learner-as-leader

Paradigm Three in AIEd is characterized by learner agency, where AI is viewed as a tool to enhance human intelligence (Bandura, 2006; Law, 2019). Aligned with complexity theory, Paradigm Three views education as a complex adaptive system, highlighting collaborative interactions among entities like learners, instructors and technology (Mason, 2008). Within Paradigm Three, AI assists learners and instructors by providing transparency, accuracy and effectiveness (Riedl, 2019; Yang et al., 2021). Paradigm Three represents the core goal of AI application in education—to augment human intelligence, capability and potential (Tegmark, 2017; Gartner, 2019). The challenge lies in addressing the complex nature of learning processes, AI systems and educational contexts. The future of AIEd should prioritize constant communication, aligning AI models with human values and fostering a learner-centered approach (Knox et al., 2019; Rowe, 2019; Segal, 2019). This paradigm also emphasizes the need to consider different dimensions- pedagogical, social, cultural, technical and ethical, for sustainable development (Pedro et al., 2019; Zawacki-Richter et al., 2019; Hwang et al., 2020). In summary, Paradigm Three aims to empower learners, optimize AI techniques for real-time insights and help navigate the learning changes brought by AI in interconnected learning systems.

4.2 AIEd- Advantages: Faculty Perspective

In terms of the demographics of our selected sample, among the 150 responses included in our study, the majority (approximately 40%) belonged to the field of pure sciences, with social science and humanities closely following at 36% and 23%, respectively. Nearly 50% of our participants held the position of Assistant Professors, with a smaller percentage holding the designation of Professor. Notably, over 50% of our respondents reported having more than 10 years of experience in academia.

Approximately 46% of the respondents demonstrated a high level of familiarity with the concept of AI, while only three respondents indicated being very unfamiliar with it. Interestingly, the concept of AIEd has not permeated all levels of academia, with almost 38% of respondents stating that they were not familiar with this term. Unfortunately, it was noted that 42% of respondents reported their institutions lacking the necessary infrastructure to incorporate AIEd.

The major advantage of incorporating AIEd, as highlighted by respondents, was personalized learning, followed by improvements in learning outcomes, teaching assistance, student engagement, and resource allocation. The accompanying diagram provides a more comprehensive visualization of this situation. Additionally, more than 50% of respondents

expressed agreement that AI, if effectively implemented, has the potential to enhance teaching effectiveness.

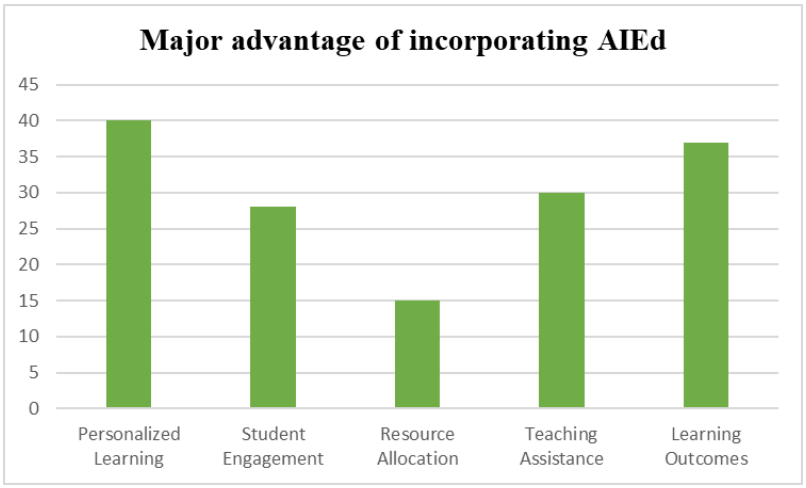

Figure 1: Major Advantage of Incorporating AIEd

4.3 AIEd- Ethical Considerations: Faculty Perspective

Among respondents aware of AIEd, nearly 56% demonstrated a high awareness of the ethical considerations associated with AI. Approximately 40% expressed moderate concerns regarding potential biases in AI systems affecting educational outcomes. Student data privacy emerged as a notable concern, with a significant majority expressing moderately high levels of apprehension in this regard.

The primary ethical consideration in AIEd was identified as privacy concerns, with transparency and accountability, and equity closely following, each garnering 25 responses. The accompanying diagram offers a comprehensive visualization of this scenario. Lastly, slightly over 80% of respondents affirmed the necessity of faculty receiving training on ethical considerations related to AIEd.

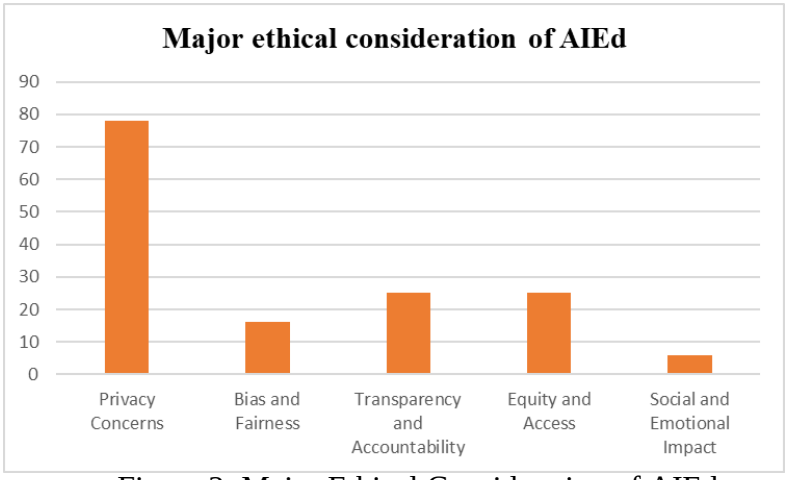

Figure 2: Major Ethical Consideration of AIEd

Conclusion:

The current study represents an explorative endeavour aimed at examining the impact of AIEd by understanding various AI paradigms and comprehending the associated benefits and ethical considerations. The focal point of this investigation was the faculty, notably, one of the pivotal stakeholders in this discourse. The study played a vital role in illuminating the three prominent AI paradigms, as discussed in pertinent literature. The faculty's viewpoint identified personalized learning as the principal advantage of integrating AIEd, while privacy concerns emerged as the major ethical consideration.

To enhance the study's robustness, future endeavours could benefit from broadening the respondent base and employing more sophisticated statistical tools and techniques to unveil intricate associations within the findings.

Furthermore, prospective future research dimensions are proposed below:

- Evaluating the effectiveness of different contexts on AIEd, taking cultural and socioeconomic considerations into account
- Studying the impact of AIEd on learning and development
- Exploring successful faculty training methodologies and pedagogical approaches towards integrating AIEd
- Examining the impact of AIEd on serving the needs of specially-abled students and encouraging inclusion
- Learning about ethical considerations and contributing to governance systems and policies

These dimensions aim to optimize AIEd, establish ethical guidelines and enhance its effectiveness across diverse educational contexts.

Lastly, certain policy implications are discussed below to strengthen AIEd:

- Developing ethical frameworks for AIEd to address privacy, bias and transparency challenges, assuring responsible data use and unbiased learning outcomes
- Implementing comprehensive teacher training programmes to equip educators with necessary skills for successful AIEd integration
- Enforcing policies for equitable access to AIEd technology, addressing socioeconomic inequities and promoting universal educational opportunities
- Monitoring and analysing the impact of AIEd installations on student learning over time

- Encouraging interdisciplinary collaboration among educators, policymakers, technologists and stakeholders to develop and adapt policies that align with evolving AIEd technologies and promote a responsive education environment

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Role of Artificial Intelligence in Education

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Abstract:

Education is the key to connect universe. On the Global platform, it is need to update any system to deal with up with the recent scenario. The 21st century has been regarded as the era of information and technologies. Traditional classrooms often struggle to accommodate students' diverse learning pace and styles. As we know that every coin has sides i.e. advantages and disadvantages. AI in education aims to achieve optimum outcomes for students by combining the strengths of Machines and Teachers. The integration of AI in education has showcased remarkable potential, reshaped traditional methods, and brought forth a new era of personalized learning and innovation. The present paper aims to focus on Role of AI in Education.

Keywords: Artificial Intelligence, Education, Technology

AI in education is not about humanoid robots as a teacher to replace human teachers, but it is about using computer intelligence to help teachers and students and making the education system much superior and effective.

Education is an essential part of life for everyone, and a good education plays a vital role to have a successful life. In order to improve the education system for the students, there are always a lot of alterations happening around the world, ranging from the approach of teaching to the kind of curriculum. Artificial Intelligence is a thriving technology that is being used in almost every field and is changing the world.

Education need adaption of new technologies. Artificial Intelligence in Education is emerging new elucidations for teaching and learning for different situations. In this day and age, AI is being used by different schools and colleges across different countries for making teaching more effective. AI in education has given a completely new perspective of looking at education to teachers, students, parents, and of course, the educational institutions as well in future, the education system will have lots of AI tools that will shape the educational experience of the future.

As an ardent believer in the untapped potential of the human mind and its remarkable capacity for growth, I passionately recommend the integration of artificial intelligence (AI)

with the education sector. Implementation AI as a collaborative tool can pave the way for making education accessible to all in entire platform. Teacher should empower students to harness their cognitive abilities and unlock a brighter future for themselves on the Global platform.

Following are few analyzed benefits where AI can revolutionize education:

1. **AI can automate basic activities in Education like Grading:** In the education system, there are numerous activities which take lots of time of teachers such as grading tests and home-works. These tasks necessitate lots of time and effort, while this time could be used in interacting with students, letting them know their errors, teaching new things, and many more**.** To save this time, Artificial Intelligence can be used.
2. **Identifying and bridging learning gaps:** In India, we face differences in access to quality education in diverse regions. AI can help us to bridge this gap. By analyzing data, AI can pinpoint areas where students need more support and resources. This insight allows policymakers to allocate educational resources more efficiently, ensuring that every student has an equal opportunity to succeed.
3. **Additional Support for students with AI tutor**: There are various AI-driven tutoring programs that can help students in learning the basics of mathematics, writing, and other subjects. In traditional education, students often follow a standard curriculum, regardless of their individual strengths and weaknesses. With AI, this can be changed. AI can understand how each of us learns and adapts the learning process accordingly. This means that teachers can focus on our unique needs and abilities, helping us excel at our own pace.
4. **AI could change the role of the teacher:** Teachers always have a precise role in the education system, but this role and its requirement may change with the new technologies. As in the above points, we have already discussed that Artificial Intelligence can automate different tasks such as grading, reports, help students while learning, and may also be an option of real-world tutor in some cases. AI can be included in different aspects of teaching. AI systems can be programmed for providing expertise to students, a place where students can ask their doubts and could take the place of teacher for teaching basis course materials. In such cases, AI could change the role of the teacher as a facilitator.
5. **Better Engagement**: With personalized learning, custom tasks, and digital visualization, the study becomes more interactive and engaging. Personalized learning and great experience with AI-driven programs make students feel much confident and

smarter as they can explore many things apart from their syllabus without any hesitation or fear of asking. All these things and new AI technologies are increasing the interest of students in studies. With AI-driven digital Learning, students can learn anywhere, anytime. Every learner is free to plan their schedule, rather than being linked to a specific place only. Everyone can make their learning easier and effective as per their most productive hours.

Conclusion

Artificial Intelligence (AI) plays a significant role in every aspect of life. One such important sector is AI in education. The goal of using AI in education is to enhance the learning experience, improve the effectiveness of instruction, and provide learners with more personalized and efficient education. One of the key assistances of AI in education is its ability to provide personalized learning experiences. Artificial intelligence and its uses in our lives are growing day by day in many segments. In the field of education, AI has started showing its influences and working as a helping tool for both the students and teachers and supporting the learning process. But still, the use of AI in education is not adapted by all the colleges completely, and it will take a long journey to do this. However, studies show that in the near future, AI will have a good impact on the education sector. AI-powered tools can identify specific challenges and adapt learning strategies to accommodate individual needs. Artificial Intelligence (AI) has the potential to address some of the biggest challenges in education today.

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Importance of Artificial Intelligence in Education

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Introduction

AI-powered language learning platforms allow learners to work at their own pace, repeating topics and emphasizing things they have trouble with, engaging them with the tasks they're best at, appealing to their interests, and taking into account such factors as cultural background.

Artificial intelligence (AI) is persistently penetrating our daily lives. AI is already an integral part of the ecommerce, marketing, Financial Technology, manufacturing, and automotive industries. It's about time we started implementing AI into foreign language learning and education as well. For many years, we've tried to modernize the learning process with AI language learning. But since the advent of online learning, nothing groundbreaking has happened in the industry. Using neural network capabilities together with an AI-powered language learning will revolutionize education for students and teachers as well as the enterprise sector.

Key words: Artificial Intelligence for language learning - Providing instant feedback with AI - No fear of failing by using AI - A redefined role for teachers - Deeper involvement in the learning process - Applying AI to language learning - Language bots – Personalized textbooks - Machine translation

Artificial Intelligence for language learning

Artificial intelligence algorithms have the potential to advance eLearning in every field. Large corporations can use language learning solution to develop their employees' knowledge. Individual learners can use AI language learning to study anytime, anywhere. Traditional schools can incorporate artificial intelligence language learning to diversify the opportunities of students. The advantages of implementing artificial intelligence in eLearning are astounding. Here are just some of the Benefits of machine learning in education.

In a classroom of 25 students, it's virtually impossible for a teacher to find the right approach for everyone. But thanks to using an AI for learning a new language, the needs

of each individual student can be taken into consideration. With AI integrated into the learning process, educators can collect tons of data about learners, their interests, their abilities, and so on. When analyzed, this data can pave the way for personalized education.

AI-powered language learning platforms allow learners to work at their own pace, repeating topics and emphasizing things they have trouble with, engaging them with the tasks they're best at, appealing to their interests, and taking into account such factors as cultural background. Data also allows teachers to understand what's going on in the minds of their students and predict their future performance.

Providing instant feedback

With artificial intelligence language learning, feedback comes quickly. When you've worked hard on an important test, waiting for the results can be intense. And when a week later you see the mistakes you made, you might not actually remember how or why you made them. AI language learning platform can grade tests and even evaluate essays automatically right after you've turned them in, pointing out errors and suggesting ways to avoid them in the future. This allows students to instantly take action to correct their mistakes and probably do better on future tests. As far as teachers are concerned, AI language learning solutions can pinpoint weaknesses in their curriculum and help them see what can be improved in their lectures or practical assignments, what questions are misleading, and which learners need additional guidance.

No fear of failing

It's okay to make mistakes – that's how people learn. Unfortunately, when students make mistakes, get low grades, or fail to answer questions, they often feel ashamed or even scared: "What will the teacher say?" AI in language learning won't reprimand or criticize learners, tell them they're not smart enough in front of the whole class or threaten them with reports to their parents or a visit to the principal. AI can evaluate learners without judging them.

A redefined role for teachers

No, AI will not make teachers lose their jobs, but it will redefine the role of teachers. Instead of being the sage on the stage, teachers will become the guide on the side, meaning that technology will cover teachers' mundane tasks while they will become more like advisers to learners. With AI language learning doing the grading and the paperwork, teachers will have more time to coordinate the learning process and mentor students. Teachers who are more tech-

savvy may also try on the role of data scientists, analyzing and using the data gained from the learning process.

Deeper involvement in the learning process

Thanks to AI used for learning a new language, learners will be able to study from any place in the world at their own pace, set their own goals, and follow a customized syllabus. Teachers won't have to go over the same material each year thanks to a personalized approach to learning that varies from student to student. Plus, AI will help develop engaging games, quizzes, and other learning and exploratory activities that combine programs of study with students' interests.

Applying AI to language learning

Learning a new language is difficult yet rewarding. New acquaintances, business opportunities, travel, and access to tons of information are just a few of the perks. But can you really understand the peculiarities of a language without talking to locals? Artificial intelligence thinks you can.

Language bots

Chat bots have come a long way from often useless dummies to intelligent assistants that can trick you into thinking you're actually communicating with a real person. With chat bots getting smarter, people have started using them in learning foreign languages. All you have to do is engage in a dialog with an AI boot and learn through the process of communication. AI-powered language learning chat bots provide customized answers in response to your messages and can even grade your performance or give tips on what you need to improve. And the best part? You don't have to face the anxiety of failure that you might when you're talking to a real person.

Machine translation

Artificial intelligence technologies like neural machine translation have allowed machine translation to take a giant leap forward. Along with the improved quality of translations, neural machine translation can help incorporate machine translation into foreign language learning. Machine Translation as a Bad Model is a pedagogical method whereby learners identify inconsistencies and errors in machine-translated text and correct them. This helps students understand a language and its peculiarities better and improve comprehension, sentence composition, and vocabulary in the target language.

Personalized textbooks

Because people learn in different ways and at different speeds, expecting everyone to follow the same textbook and be equally successful is unreasonable. That's why personalized textbooks make so much sense. When a language learning solution knows your progress and adapts to your needs based on your personal data, it can provide you with the learning materials you need.

Textbook customization can also be of value to teachers. If teachers could upload their educational programs into an artificial intelligence system, the system could generate textbooks customized for a specific school, course or even group of students.

Learn how Experts developed an app for language learning that offers personalized textbooks for schools, universities, and the enterprise sector

AI language learning algorithms commonly used in Education Technology

There are hundreds of algorithms uniting AI and foreign language learning that help computers get smarter. Some of them, like Decision Tree, K-Means, Naive Bayes, and dimensionality reduction algorithms can be successfully applied in education. The Decision Tree is used for – you guessed it – helping AI systems make smart, data-driven decisions. And AI should be able to classify data by itself, which is what K-Means and Naive Bayes are for. Finally, AI needs to think fast, and dimensionality reduction algorithms can help out when there's too much data.

Natural language processing (NLP), collocation extraction, and point mutual information (PMI) are also used to help AI become a valuable tool for language learning. NLP allows machines to read and understand human language; collocation extraction can be used to retrieve information, classify documents, and solve language generation problems; and PMI can measure how much one word tells about another.

AI for language learning

When it comes to implementing artificial intelligence in language acquisition, Experts knows how to do it right. Together with Alphary, we created a set of smart Android, iOS, and an NLP learning app that help students acquire English vocabulary. These applications use the Oxford suite of Learner's Dictionaries and an integrated AI named FeeBu (Feedback Butterfly) to mimic the behaviour of a human English tutor who gives automated, intelligent feedback.

The app accesses a huge corpus of authentic English texts to provide contextualized vocabulary practice. FeeBu (Feedback Butterfly) uses four basic criteria to evaluate learner success in language acquisition: grammar, spelling, meaning, and word choice.

Experts of AI implemented a component that automatically generates gap exercises and answer options when given a headword and semantic context. We also created a system that automatically evaluates writing and analyzes it for grammatical mistakes.

For fluency feedback, we implemented a server-side component that performs natural language processing (NLP) analysis of students' answers. Corpus analysis with an n-gram model, collocation extraction, and point mutual information allowed us to extract collocations from a huge English corpus to provide reliable feedback on fluency. Experts worked on semantic word comparison based on the word space model (or distributional semantics) and semantic fingerprints.

The application that Experts built with Alphary proved so successful that Oxford University Press, the largest publisher of English learning materials in the world, purchased it and licensed the technology for worldwide distribution. On top of that, Experts created another app for Oxford University Press based on the approaches used in the native app but with a unique branded interface.

Once artificial intelligence and education combine, the learning experience for students as well as teachers will reach a new level. Personalization, instant feedback, and adaptation to learner needs will help students flourish. Artificial intelligence technologies will also enhance language learning with the use of language bots, machine translation, and personalized textbooks. This is why AI software development companies are investing in smart educational applications.

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Use of Artificial Intelligence in Education: Pros and Cons

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Abstract

Artificial intelligence is developing at a breakneck rate and finding its way into our daily lives. This is a result of the last ten years' worth of technology advancements and the widespread adoption of digitalization in many fields. Information and communication technology are also a necessary component of daily life in the field of education. Therefore, it is inevitable that the field of education will overlook artificial intelligence. Both teachers and students can benefit from a range of artificial intelligence-based technology. However, there are risks associated with over-digitalization, so how much will artificial intelligence help with education? In this paper, the advantages and disadvantages of Artificial Intelligence have been explained in detail, as AI systems develop further, its advantages and disadvantages will also increase. Here, it is attempt to provide an answer to this query and explore the advantages and possible drawbacks of artificial intelligence by looking at the findings of numerous international research investigations.

Introduction

Artificial intelligence (AI) is rapidly changing the world around us, and training is no exception. AI is being used in education to personalize learning, provide feedback, and automate responsibilities. Similarly, we are also getting into the habit of creating new mastering stories which were not viable earlier. Artificial Intelligence (AI) is a field that is growing rapidly and having a significant impact on our work, lifestyle and society. Nowadays AI can be used in many different ways, and it has many benefits. If AI technology is used for the right purpose, it can become the biggest source of development in the 21st century. But if misused AI technology can also cause destruction. Artificial Intelligence (AI) is being used in countless fields such as finance, education, robotics, healthcare and security. We all are using AI in some form or the other, be it the smart camera of our phone or our voice assistant Siri or Alexa works with the help of AI.

Artificial Intelligence in Education is developing new solutions for teaching and learning for different situations. Nowadays, AI is being used by different schools and colleges

across different countries. AI in education has given a completely new perspective of looking at education to teachers, students, parents, and of course, the educational institutions as well. AI in education is not about humanoid robots as a teacher to replace human teachers, but it is about using computer intelligence to help teachers and students and making the education system much better and effective. In future, the education system will have lots of AI tools that will shape the educational experience of the future. In this context, here it is attempt to explain the advantages and disadvantages of artificial intelligence in education.

Pros and Cons of Artificial Intelligence

Artificial Intelligence (AI) is being used in countless fields such as finance, education, robotics, healthcare and security. We all are using AI in some form or the other, be it the smart camera of our phone or our voice assistant Siri or Alexa works with the help of AI. With the help of Artificial Intelligence, even the most difficult tasks can be done easily in less time. Artificial intelligence is no longer a new concept. We are using it in our daily life through half a dozen apps that provide us with information based on our preferences. Technology has made its place in almost every field. And education is one sector that will benefit tremendously from AI. However, many schools and professors have been reluctant to incorporate AI into their teaching methods. The main reason for this is the lack of awareness about AI and how it can help the education system. Artificial Intelligence has countless advantages but it also has some disadvantages. In this article, a closer look at the pros and cons of introducing AI in education.

Pros of Artificial Intelligence in Education

Artificial Intelligence (AI) is a field that is growing rapidly and having a significant impact on our work, lifestyle and society. AI can be used in many different ways these days, and it has many benefits. If AI technology is used for the right purpose, it can become the biggest source of development in the 21st century. Artificial Intelligence (AI) is a rapidly evolving technology that is having a profound impact on many aspects of our lives. Although AI has countless benefits, in which some of the main benefits in education of Artificial Intelligence are as follows:

Systematic Information: These days it is rare for teachers and students to visit the library for any material. Today, thanks to Google, we can access whatever we want at the tap of our fingers. Whether you want to find resources for your assignment or use an essay writing service to finish your citation, the Internet has the answers for you. However, finding these resources is a task in itself. Today, platforms like Quizlet can help students by providing exactly what

they are looking for. They give you relevant study material, taking out the guesswork needed in developing personalised study plans.

Personalised Education: Artificial Intelligence helps to find out what a student does and does not know, taking into account the knowledge gaps and designing an individual study program for each learner. In such a situation, AI studies according to the specific needs of the students, thereby increasing their efficiency. To do this, many companies train their AI equipped with Knowledge Space Theory to define and present knowledge gaps, taking into account the complexity of scientific concepts' relationships between each other (learning from each other can encourage or become the basis for) filling the gap). AI can be used to personalize knowledge acquisition for each student. This means that students can learn at their own pace and recognize the areas where they need the most help. Its benefit is to help mostly overwhelmed teachers with personalized reporting that can help teachers optimize their lessons.

Perhaps the most impactful use of AI in education is personalized learning. More and more schools are shifting from comprehensive lesson plans to personalized learning experiences for students. There is a limit to the number of teachers who can attend to all students individually in a class. Instead, these AI solutions can collect data on students' abilities with permission from their parents. AI can better offer curriculum and challenge students based on their strengths and weaknesses. Kidaptive and Century Tech are platforms that are specifically developed to provide personalized learning plans to students. At best, they can also perform predictive analytics on students' academic performance based on underlying patterns.

Better for Students with Special Needs: AI is playing an important role in improving the lives of people with disabilities. Along the lines of personalized learning, one area where AI really excels is in providing better resources to the disabled. Speech recognition software, like Nuance, can help type words for students who have writing difficulties or limited mobility. These solutions can help teachers provide better study material to students that meets their unique demands like never before.

Immersive Learning: Our system has long been focused on student retention rather than understanding. AI can help you change this. Combined with virtual and augmented reality, AI can bring a dynamic learning environment to the classroom. Students can explore galaxies, visit world monuments and more. Virtual humans, such as avatars and digital assistants, can extend this learning experience outside of classrooms.

Intelligent Tuition System: ITS is not a new concept, but AI has helped polish its rough edges. Intelligent moderation allows teachers and tutors to analyse information better. This will

improve the grading system and in turn, help them be more efficient in the classrooms. AI systems can also identify patterns and alert teachers about them. This way teachers can learn more about students' habits and create a new study program that will work best with their needs. The constantly evolving individual study program takes into account students' shortcomings during individual lessons. Individual tutoring and support for students outside of the classroom helps learners keep up with the curriculum and saves their parents from struggling to explain algebra to their children. AI tutors are great time savers for teachers, as they do not need to spend extra time explaining challenging topics to students. With AI-powered chatbots or AI virtual personal assistants, students can avoid getting embarrassed by asking for extra help in front of their friends.

Personalised Material: One advantage of AI is that you can use the study material as per your convenience. You can set its difficulty level as per your understanding. Like when there is a lecture in the class then nothing special is stopped for any child but here you can stop it. You can rewind it again and again and understand it in an easier way. If any step is in four bars, then it can be understood by breaking it into eight bars under the Lendi process.

Feedback and Virtual Test: Here it is not only helpful in preparation but by giving tests in between, one can also see how far the preparation has reached. From here you get the right feedback in less time. It quickly tells you where and what mistakes you are making. Along with this he takes the test and does not make one wait long for the result. It not only catches your mistakes but also tells you how to correct them. AI can be used to provide college students with comments on their paintings. This feedback will be personalized and timely, helping college students improve their studies. Teachers can use these reports to assign lessons to students individually.

Prepare Smart Content: Many times, everything from notes to other study material is so spread out, entangled and entangled that a lot of time is spent in shortening it and arranging it properly. You can also arrange it here properly, as per the order. This is especially helpful where the notes are very long. There are many subjects and it is difficult to arrange them topic wise. Similarly, these notes or study material can not only be arranged properly with its help but can also be found with a single click whenever the time arises.

Automatic Liability: AI can be used to automate duties related to grading papers and growing lesson plans. This can free up teachers' time as a way to provide characterful attention to students as well as focus on more important tasks.

New Mastering Reviews: AI can be used to create new insightful reports that were not possible before. For example, AI can be used to create virtual reality simulations that allow college students to experience particular historical events or scientific phenomena.

24/7 Access to Learning: With online based AI helpers, students always have access to learning. They are free to plan their day without being tied to any specific place. They can study on the go, at any place and time they want. They can create their own schedule based on their most productive hours.

Better Engagement: Individual schedules, custom tasks, interaction with digital technologies and personalized recommendations are part of the personalized approach each student receives using AI. Furthermore, a personalized approach helps students feel special, increasing their engagement and thus interest in studies.

Low Pressure: Lessons tailored to the needs of different learning groups allow students to stop comparing them to each other. Before this, a student had to ask the teacher for help in front of the class. Now, it is enough to type a query using the personal virtual assistant and get instant clarification. These opportunities offered by AI tools bring out individual progress, thereby reducing pressure in the classroom. Less pressure means less stress and more enthusiasm towards studies.

Create Smart Content: 1. Digital Text - Digital learning interfaces with customization options, digital textbooks, study guides, bite-sized lessons and much more can be generated with the help of AI. **2. Information Visualisation -** New ways of understanding information, such as visualization, simulation, web-based learning environments, can be powered by AI. **3. Learning Material Updates -** Additionally, AI helps create and update the content of lessons, keep information up to date, and adapt it to different learning stages.

Contribute to Task Automation: Simplification of administrative tasks: Grading, evaluating and answering students is a time-consuming activity that can be optimized by the teacher using AI. Do you remember how Gmail provides prompts in the messages you compose based on an overview of your current and past messages and the essentials of business terminology? It would be great to have such an option on any learning management system or learning platform that envisions feedback. Handing over a set of routine tasks to AI helps teachers make room for something more important: focusing on grading impossible tasks to hand over to Artificial Intelligence, self-learning, upgrading the quality of lessons.

Aids in Research and Data Analysis: AI can be used to aid in research and data analysis. For example, AI is being used to find patterns and trends from massive data sets.

All Time Available: Like normal classes, these classes or video tutorials or any study material related to it is available 24x7. You can access it whenever you want. In this way you can study at your pace, your speed and as per your convenience. There are no restrictions that this class will take place only at this time, otherwise it will not be possible. You can ask your questions whenever and as many as you want and get their answers in a short time. It is safe and free from any kind of doubt. In this way, if you study through AI, you can perform better than others.

Cons of Artificial Intelligence

A common benefit of AI is based on cognitive task replication. However, it has no morality or experience. The most significant harms arise from this lack of morality. While Artificial Intelligence offers many advantages, some drawbacks need to be considered. Therefore, it is essential to evaluate the merits and demerits of artificial intelligence to harness its potential while addressing ethical concerns and potential biases. Now discuss some negative aspects to the use of AI in education:

Information in the Wrong Hands: Nowadays there is no other way than making information digital. But like any other technology, students' data can also be at risk of being hacked. Schools always run the risk of misuse of personal information if it falls into the wrong hands. The potential of AI is undeniably exciting. There is always an argument that the disadvantages outweigh the advantages. The question is why? Now is the time that our educational system needs reform, and AI can take us in the right direction. At the same time, it is paramount that we draw lines over how much control we give machines and their intelligence.

Implementation is Expensive for Teachers: Another disadvantage of AI in education is that it can be expensive for teachers to implement. Not all schools and educational institutions have a dedicated budget to invest in AI tools and technologies. Also, the cost of implementing AI in schools on a large scale may be very high at this time. If the teacher is the one bearing the cost, it may be expensive and challenging to maintain.

The more brilliant AI is, the more expensive it is. Not only is the price of the product high but the maintenance and repair costs are also high. As AI requires more digital devices, the amount of electricity required to run schools will increase exponentially. Schools will have to expand their budgets to cover the expenses. Apart from this, they also have to find alternatives to balance the power consumption. Thus, at the moment, only well-funded schools can benefit from AI. AI can be expensive to implement and maintain. This can be a hindrance for colleges with limited budgets.

Displacement from Job: AI automation could potentially replace some roles, leading to unemployment and economic disruption. However, it is important to note that AI also creates new job opportunities that require skills in managing and developing AI systems. The biggest feature of Artificial Intelligence (AI) system is its accuracy and efficiency. This means that it can do any work in less time and with more accuracy than humans. Due to this quality of Artificial Intelligence, nowadays AI systems are being used in place of humans in many areas like factories, hospitals and finance. AI system may cause unemployment in the coming times. According to a report, 300 million jobs may be lost worldwide due to Artificial Intelligence. Although AI system will impact all types of jobs, but it will impact jobs like graphic designing, finance, media, market research and analysis, teachers, translators and customer service the most. AI systems can automate some responsibilities that are currently done through trainers. This should lead to activity displacement for teachers, although it may also create new jobs in the development and renovation of AI structures.

Addiction: As we rely on machines to make everyday tasks more efficient, we run the risk of technology addiction.

Lack of Personal Contacts: While smart machines improve the education experience, they should not be considered a substitute for personal interactions. Relying too heavily on these machines to grade or tutor can lead to breakdowns in academic oversight that harm learners more than help.

When we turn fully to AI for the educational experience, these programs could replace teachers in many aspects. A big part of school is the relationships between teachers and students and how personal relationships can shape behaviour. Instead of making teaching more efficient, we may become completely dependent on technology. If we aren't already addicted to technology, AI can only propel us forward.

Dependency on Technology: Another potential downside of AI is over-dependence on the technology. While AI systems can bring many benefits, relying too heavily on them can raise significant concerns if the system fails or malfunctions. This can be especially troublesome in critical industries like health care or finance, where errors can have devastating effects. Additionally, the absence of human control in some AI systems may lead to unpredictable results. This is because AI systems are only as good as the data they are trained on, and if that data is biased or inadequate, it can lead to incorrect choices or actions. It is important to balance the advantages and disadvantages of AI while maintaining some human oversight to ensure that it is used responsibly and ethically.

Lack of Interpersonal Skills: Students need some guided assistance while learning, especially the youth who need to develop holistically. AI alone cannot meet the needs of young learners and hence teachers are needed to ensure a holistic learning experience for students.

Threat to Teacher's Job Security: First on the list are threats to teachers' job security. This is not happening yet, but there is concern that the advancement and adoption of AI may impact the need for certain job roles in education. As AI continues to automate more aspects of the education process, demand for human teachers may decrease, leading to both improved productivity and potential job losses.

Inhumane Learning Experience: The biggest disadvantage of AI in education is that it can dehumanize the learning experience. With AI algorithms creating content and dictating the pace of lessons, students may miss out on the nuanced perspective that a human teacher can offer. Additionally, AI algorithms can perpetuate bias, meaning they may fail to provide an inclusive and diverse curriculum that is tailored to the needs of each student.

Partiality: AI systems may be biased, leading to unfair treatment of college students. It is important to carefully compare AI constructs to ensure that they are no longer biased.

Confidentiality: AI structures acquire numerous records about college students. These records can be used for the development of music students, however can also be used to track their non-public habits and preferences. It is important to protect students' privacy when using AI structures.

While the software industry is growing rapidly, AI may soon replace many school employees. From administration management to teaching, AI has a solution for everything. With online learning, there is no limit to class size. And AI could be the last straw that leads to massive unemployment in the educational sector.

Are there more advantages or disadvantages to the use of Artificial Intelligence in education?

As we approach our conclusion, both the advantages and disadvantages of AI are acute; But as a teacher, should you restrict yourself from using AI for educational purposes? Definitely not. Our world is evolving, and we need to accept that the power of Artificial Intelligence can bring more benefits than harm, so you can expect its adoption not only in education but in every industry. We just have to learn to use it in moderation and establish a good image for our students to not rely completely on Artificial Intelligence. Trust in your expertise, confidence in your skills and good judgment are the keys.

Conclusion

Artificial Intelligence (AI) is still in its early stages, which can have both positive and negative consequences. No matter how developed the machine is, it can never replace the qualities of human sensitivity, emotions, difference between good and bad etc. Machines created by Artificial Intelligence (AI) should not be controlled but proper arrangements should be made for their monitoring and regulation.

Overall, the emerging role of AI in education provides both opportunities and challenges for teachers. By being proactive in their approach to this technology, teachers can leverage AI to improve student outcomes and promote equity in the classroom, while recognizing the unique role that teachers play in fostering growth, development, and learning in their students. If we follow suit, we can still preserve it. That is why it is still essential for teachers to include the use of AI-powered edtech tools as a part of their teaching strategies.

If Artificial Intelligence is used in the right direction, then this technology can play an important role in the development of our society. Artificial Intelligence has the potential to take our education system, production and healthcare to a different level. But if AI system is misused, the entire human society may have to suffer huge consequences. To reduce the harm caused by AI technology, there is a need to implement strict guidelines and rules for its development and use, along with this, this technology should be made so safe that no one can misuse it.

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A study on the impact of Emotional Intelligence on the professional performance of teaching personnel in various departments of Silver Oak University, Ahmedabad

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Abstract

This study examines the relationship between teaching staff members' professional performance in a variety of disciplines at Silver Oak University in Ahmedabad and their emotional intelligence (EI). The study, which has 75 respondents, is to evaluate the emotional intelligence levels of teaching staff members and investigate the factors affecting their effectiveness in the workplace. The research aims to identify minor links through thorough analysis and correlation, offering academic institutions important insights to improve teaching efficacy and provide the best possible learning environment. It is expected that the results will add to the larger conversation about how important emotional intelligence is in forming educators' professional performance.

Keywords: Emotional Intelligence, Professional performance, Teaching personnel.

Introduction

The current education system is working hard to provide quality education for students. Education is said to be best imparted by teachers and educators. It has been proved that teachers are just as important as the architects of our future generations and that this great profession should only be open to the best, smartest, and most capable members of our society. Teaching is the fundamental duty of a teacher and it has to be made effective to make a successful teacher.

Performance is the ability of employees to accomplish work-related goals and expectations in accordance to certain predetermined work standards. As the pillar of the education arch, the teacher's qualities, abilities, competencies and personality play a significant role in how well the educational process works. Teachers cannot be effective in performing this duty if they are especially trained specially in terms of Emotional intelligence. Emotional intelligence is an important psychological factor that effect on employees' ability and performance. Previous study has shown that emotional intelligence contributes to specific outcomes in the workplace. However, there is little evidence, particularly in the field of education, that emotional intelligence is linked to successful work-related results.

Background of Emotional Intelligence

- 1930- Edward Thorndike described the concept of "social intelligence' as the ability to get along with other people.
- 1950- Humanistic Psychologists such as Abraham Maslow described how people can build emotional strength.
- 1987-In an article published in Mensa Magazine, Keith Beasly used the term "emotional intelligence". It has been suggested that this is the first published use of the term. Although Reuven Bar-On claims to have used the term in an unpublished version of his graduate thesis.
- 1990-Psychologists Peter Salovey and John Mayer published their landmark article, "Emotional Intelligence", in the journal imagination, cognition and personality.
- 1995-The concept of emotional intelligence was popularized after the publication of psychologists and New York Times science writer Danial Goleman's book Emotional Intelligence. Why It Can Matter More Than IQ?

Goleman's model of Emotional Intelligence

In 1995, Daniel Goleman published the seminal book "Emotional Intelligence," credited with popularising emotional intelligence. "Abilities such as being able to inspire oneself and survive in the face of frustrations; to regulate impulse and defer pleasure; to manage one's feelings and keep distressed from swamping the ability to think; to sympathize and to hope," he said of emotional intelligence. Therefore, "the capacity for detecting our own feelings and those of others, for motivating ourselves, and for managing emotions well in ourselves and in our relationships" is the definition of emotional intelligence (Goleman, 1998, p 317). The four primary emotional intelligence constructs are described in Goleman's paradigm.

Self-awareness, the first quality, is the capacity to perceive one's emotions and their effects while using intuition to inform judgments. The second construct, self-management, is managing one's emotions and impulses as well as responding to changing situations. The third component, social awareness, refers to the capacity to see, grasp, and respond to the emotions of others while being aware of social networks. The fourth construct, relationship management, is the ability to influence, mentor, and grow people while handling conflict (Goleman, 1998).

Each component of emotional intelligence in the paradigm contains a set of emotional competencies. According to Goleman, emotional skills must be developed and practiced in order to perform at a high level. They are not innate qualities.

	SELF PERSONAL COMPETENCE	OTHER SOCIAL COMPETENCE
RECOGNITION	**SELF-AWARENESS** Emotional Self-Awareness Accurate Self-Assessment Self-Confidence	**SOCIAL AWARENESS** Empathy Service Orientation Organizational Awareness
REGULATION	**SELF MANAGEMENT** Self-Control Trustworthiness Continuousness Adaptability Achievement Drive Initiative	**RELATIONSHIP MANAGEMENT** Developing others Influence Communication Conflict Management Leadership Change Catalyst Building Bonds Teamwork and Collaboration

Role of Emotional Intelligence in Education

Before, the general IQ of the students was thought to be the primary factor in determining whether or not a student would perform well in school. But it is now a well-known fact that students can succeed in the classroom if they have high emotional intelligence scores in addition to high IQ scores. The crucial components of interpersonal and intrapersonal

connections, flexibility, moods, and stress management skills are all included in emotional intelligence. They all significantly impact students' academic progress. According to Barron (2000), students' academic performance can increase if appropriate attempts are made to address their emotional and social needs.

Academic achievement of students and key emotional intelligence elements as self-motivation, self-awareness, self-regulation, social consciousness, and social skills were found to be significantly linked by Joibaria and Mohammadtaherib (2011). A positive association between Ei and academic performance was noted by Vernon et al. (2008), Abdullah, Elias, Mahyuddin, and Uli (2004), Rozell, Pettijohn, and Parker (2001), and Panboli and Gopu (2011). On a sample of 650 students in British secondary education, Peridisa, Fredericksonb, and Furnham (2002) examined the impact of trait emotional intelligence on academic achievement and disruptive behaviour at school. The findings showed that students with individual's high EI scores had lower odds of being excluded from school and having unnecessary absences.

Rationale of the study

The purpose of this study is to investigate how Silver Oak University teachers' performance is affected by their emotional intelligence. We seek to ascertain the degree of emotional intelligence among teaching staff and comprehend its relationship to their professional performance, given the importance of emotional intelligence in education, particularly for effective teaching. This study, which included 75 respondents, aims to offer useful insights that help enhance the calibre of instruction and enhance the university's overall learning environment. The straightforward applicability of the study to improving instructional strategies and creating a supportive learning environment accounts for its simplicity.

Literature review

- **Meher, Venkateswar, et al. (2021) "An Analysis of Emotional Intelligence and Academic Performance of Four-Year Integrated B.Ed. Trainees." Shanlax International Journal of Education, vol. 9, no. 2, 2021, pp. 108-116.** The targets of the look at had been to analyze the emotional intelligence rankings of four-year Incorporated B.Ed. Trainees, to examine the emotional intelligence scores of 4-year incorporated B.Ed. Trainees, in phrases in their sex, to evaluate the academic performance rankings of college students Having high and occasional emotional intelligence scores and to investigate the connection between the Emotional intelligence rankings and academic performance ratings of students. To accomplish the Targets of

the prevailing examine, descriptive survey cum comparative cum correlational methods Had been used to perform the goals. In the present look at, 50 4-yr included B.Ed. Trainees have been taken randomly, so the examine pattern consisted of a hundred and fifty 4-yr integrated trainees of Gangadhar Meher college as a whole. To accumulate facts from the sample corporations Emotional Intelligence Scale developed through Nicola S. Schutte, John M. Malouff and Navjot Bhullar in 2008 Changed into used, which includes 33 gadgets in a 5-factor scale having Cronbach's alpha reliability of Ninety and the test-retest reliability of .78. At the side of that, educational overall performance ratings of the Last semester of college students have been taken. The findings of the observe found out that about 6% of college students Had high emotional intelligence rankings and 94% had above-average emotional intelligence ratings. The have a look at found out no good sized difference among the emotional intelligence ratings of boys and Girls. It changed into additionally located that the academic fulfillment scores of college students having excessive emotional Intelligence ratings were more in comparison to the scholars having low emotional intelligence Rankings. The take a look at also stated a significant fine correlation among emotional intelligence and the academic performance of college students.

- **G. P. Bahubali, Reddy G. L. (December 2017), Emotional Intelligence and Academic Achievement of B. Ed. Teacher Trainees: Correlation Study, International Journal of Creative Research Thoughts, volume 5, ISSN: 2320-2882,** The prevailing paper is aimed to have a look at the relationship among emotional intelligence and Educational achievement of B.Ed. Trainer trainees. It additionally studies the emotional intelligence of students with Excessive, common and coffee instructional success. A sample of a hundred and twenty B.Ed. Trainer trainees selected randomly from B.Ed. Schools affiliated to Bangalore university was the subject of present observe. The researchers used score Scale to assess the emotional intelligence of B.Ed. Instructor trainees and for academic fulfillment the marks Acquired via the semester I examination of B.Ed. Path. Facts collected were analyzed statistically by using Karl Pearson Product-moment coefficient of correlation and t test look at. The findings of the examine found out that Emotional intelligence is considerably high-quality and correlated with the instructional success. The instructor Trainees with excessive emotional intelligence scored better in educational success than the trainer trainees with Low emotional intelligence.

- **Haq., U., A., M., A., et.al., (2017), Asrar-ul-Haq, M., Anwar, S., & Hassan, M. (2017). Effect of emotional intelligence on trainer′ s overall performance in better schooling institutions of Pakistan.** Destiny enterprise journal, three (2), 87-97. This studies paper aims at investigating the impact of emotional intelligence on teachers' job overall performance in the education quarter of Pakistan. The sample length includes 166 teachers from universities within the place of imperative Punjab, Pakistan. Theories of emotional intelligence proposed by means of Salovey and Mayer (1989-1990) had been used as the conceptual framework and its dating with the activity overall performance of teachers become tested, reliability and validity of variables have been examined thru measurement fashions of finding found out that emotional intelligence self-awareness, self-assurance, achievement, growing others and warfare management have a wonderful and good sized dating with instructor's process performance.
- **R. Bhardwaj (January 2017), The role of Emotional Intelligence of Teachers in Emerging Education Scenario, Journal of Advances and Scholarly Researches in Allied Education, vol. 12, issue No. 2, ISSN 2230-7540.** In olden days it became believed that a person with high Intelligence Quotient (IQ) might be a A success teacher however now teaching career has become so hard that a teacher with excessive IQ Might not achieve success until she or he has emotional intelligence. To begin with Emotional Intelligence (EI) Become considered because the construct of psychology. Because the trade is the regulation of nature so teaching Profession is managed through numerous outside factors consisting of magnificence length, range of teachers in organization, Operating hours, profits and allowances and education coverage. The intrinsic elements inclusive of mastery of Challenge, fashion of coaching, communique skill and personality of teacher additionally affect teaching getting to know Method. Emotional Intelligence (EI) has its root within the discipline of psychology however steadily it moved into the Field of education via the human useful resource improvement theories. Since the evolution of the time period "Social Intelligence", many researches were carried out on Emotional Intelligence until date, however within the Present research article the writer has attempted to take out the gist of those comparable researches performed to date on the Emotional Intelligence.
- **Anjum, A., & Swathi, P. (2017). A study on the effect of emotional intelligence on fine of existence amongst secondary faculty instructors.** Global journal of Psychology and Counseling, 7(1), 1-thirteen. This examine is all approximately to

discover the relationship among emotional intelligence and satisfactory of lifestyles. Within the present look at, the sample includes 60 second teachers from Hyderabad within the age variety of 20 to 60 years. They were divided into 30 teachers with excessive emotional intelligence and 30 with low emotional intelligence using emotional intelligence scale via Shutte,1998. Then, the pleasant of lifestyles scale given by using WHO changed into administered to these two-relational relational analysis and t-ratio had been used to giant difference inside the high-quality of life levels in two businesses. It turned into proved that instructors with low emotional intelligence have bad great of and the academics with excessive emotional intelligence have excessive excellent of existence. The ration additionally shows a high quality correlation between emotional intelligence and best of lifestyles.

- **Zeeshan Ahmed, Sarseat Sabir, Zia ur Rehman, MIshal Khosa, Anyl Khan, (November 2016), The Imapact of Emotional Intelligence on Employee performance in Public and Private Higher Education Institutions of Pakistan, Journal of Business and Management (IOSR-JBM), e- ISSN:2278-487X:2319-7668, Volume 18, Issues 11.** Inside the employment field, work stress, anxiety, employee's pressure, agitation, melancholy or irritability all are associated with the different factors of emotional intelligence. These kind of emotional intelligence signs could damage worker's overall performance. It can direct either a higher or decrease degree of morale, a good way to in the long run impact employee's performance in a positive or terrible way. This studies paper sheds mild to realise the performance degree of personnel in educational institutions of Dera Ghazi Khan, Multan and Bahawalpur, Pakistan. This research study focuses on spotting emotional intelligence factors and employees of the academic institute and its relation to their activity performance degree. Research data (N= 235) for the existing observe have been gathered through floating questionnaires that respondents have been employees of better academic institutions. The limitations for this studies examine were assets and time limitations, which bond the present day study to only three cities of Pakistan. Correlation and regression evaluation changed into used to locate the results and located a positive dating among emotional intelligence and worker's process performance. To look at emotional intelligence in element, this examine will look at the factors of emotional intelligence, its downside and propose a few strategies on how academic institutions can growth their employee's performance.

- **Baksh Baloch, Q., Saleem, M., Zaman, G., & Fida, A. (2014). The effect of Emotional Intelligence on employees' performance.** Magazine of Managerial Sciences, 8(2). This studies paper sheds light to recognize the overall performance stage of employees in academic institutions of Dera Ghazi Khan, Multan, and bahwalpur, Pakistan. This research examines focuses on recognizing emotional intelligence elements and employees of tutorial institutes and their relation to their job overall performance level. Studies information for the present take a look at had been accumulated with the aid of floating questionnaires the respondents had been employees of better instructional establishments. The limitations of this studies observe have been resources and time limitations, which bond the contemporary have a look at to simplest 3 cities in Pakistan. Correlation and regression analysis became used to find the end result and discovered a fine dating among emotional intelligence and employee process overall performance. This look at also test worker overall performance.
- **Mehta, S., & Singh, N. (2013). A Review paper on emotional intelligence: Models and relationship with other constructs. International Journal of Management &Amp; Information Technology, 4(3), 342–353.** The concept of emotional intelligence is of unparalleled interest in both the popular literature and within academia. Much work is being done to discover exactly what emotional intelligence encompasses and how it would be most effectively applied. The paper has attempted to review the literature surrounding emotional intelligence (E.I.). It studied the construct of E.I. by reviewing the different models, the measures used to assess them, and the relationship between these models and other similar constructs. Further, it has reviewed the applicability of the E.I. construct to applied academic settings and has propose how future research in this area could be applied to various levels to enhance teacher effectiveness.

Research methodology

Statement of the problem

The purpose of this study is to investigate how Silver Oak University in Ahmedabad's teaching staff's professional performance is impacted by emotional intelligence (EI). Although the value of emotional intelligence (EI) in education is well recognised, little is known about how EI specifically affects performance in a range of areas. By providing insights that can improve teaching strategies and contribute to a better learning environment, the research aims to close this gap.

Objective of the study

1. To study the level of emotional intelligence and teaching performance among teaching personnel of the silver oak university.
2. To check the attributes of the professional performance of teaching personnel by knowing the relationship between emotional intelligence and professional performance.

Hypothesis Framing

For Objective 1 (Studying the Level of Emotional Intelligence and Teaching Performance): Null Hypothesis (H0): There is no significant correlation between emotional intelligence and teaching performance among teaching personnel at Silver Oak University. Alternative Hypothesis (H1): There is a significant positive correlation between emotional intelligence and teaching performance among teaching personnel at Silver Oak University.

For Objective 2 (Checking the Attributes of Professional Performance by Understanding the Relationship Between Emotional Intelligence and Professional Performance): Null Hypothesis (H0): Emotional intelligence does not significantly influence any attributes of professional performance among teaching personnel at Silver Oak University. Alternative Hypothesis (H1): Emotional intelligence significantly influences one or more attributes of professional performance among teaching personnel at Silver Oak University.

Research Design: Descriptive Design

Unit of Analysis: Teaching Personnel at Silver Oak University, Ahmedabad

Research Area: Silver Oak University**,** Ahmedabad

Sample Design: Convenient Sampling Design

Sample Size: 75 Respondents

Data Sources: Primary Data

Data Collection Instrument: Questionnaire via Google form

analysis and interpretation

For Objective 1

Table: Correlation

	Professional Performance
Emotional Intelligence	**0.000**

Source: SPSS 25 Output

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The table, presenting a correlation coefficient of 0.000 between Professional Performance and Emotional Intelligence, suggests a lack of linear correlation between these two variables as per the SPSS 25 Output. A correlation coefficient of 0.000 typically indicates no linear relationship between the two variables, implying that changes in one variable do not predict or correspond to changes in the other variable in a systematic way. In this context, the absence of correlation suggests that there is no straightforward or linear association between the professional performance and emotional intelligence scores in the dataset. It's important to note that while a zero correlation suggests no linear relationship, there could still be other complex or non-linear relationships between these variables that are not captured by this specific correlation measure.

For Objective 2

Table: Correlation

		Various attributes of professional performance											
Various Attributes of Emotional Intelligence		I look after and respect student	I greet my student by name	I smile frequently during my class	I can laugh at myself	I use movement to maintain interest & attention	I become dramatic while teaching	My students have opportunities to be creative	I am concerned about student success	I believe that I would enjoy being a student in my class	Generally, I demonstrate the correct way to solve a problem	I believe Students learn best by finding solutions to problems on their own	Students should be allowed to think of solutions to practical problems themselves before the teacher shows them how they are solved
	I am always aware of my feelings and their causes	**0.001**	**0.000**	**0.023**	0.050	0.280	0.473	**0.012**	**0.006**	0.210	**0.001**	0.084	**0.038**
	I realize the links between my feelings and what I think, do, and say	**0.002**	**0.001**	**0.020**	0.343	0.077	0.406	**0.006**	0.097	**0.000**	**0.006**	**0.001**	0.103
	I recognize how my feelings affect my performance	**0.000**	**0.015**	**0.002**	0.053	**0.003**	0.327	**0.006**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**
	I have a guiding awareness of my values and goals	**0.000**	**0.011**	**0.027**	0.235	**0.000**	0.135	0.092	**0.009**	**0.008**	**0.001**	**0.045**	**0.005**
	I deal with difficult issues straightforwardly	**0.000**	**0.003**	**0.000**	0.058	**0.006**	**0.004**	**0.003**	0.087	**0.004**	**0.001**	0.174	0.137

	I listen well, seek mutual understanding and fully welcome sharing information	**0.000**	**0.003**	**0.005**	**0.016**	**0.000**	0.194	**0.005**	**0.000**	**0.003**	**0.000**	**0.018**	**0.000**
	I encourage open communication and remain responsive to both positive and unpleasant news	**0.001**	**0.006**	**0.000**	**0.001**	**0.001**	0.060	0.050	**0.002**	**0.011**	**0.001**	**0.018**	**0.000**
	I'm sensitive to feelings and have good listening skills	**0.000**	**0.039**	**0.004**	**0.002**	**0.000**	**0.017**	**0.001**	**0.014**	**0.000**	**0.001**	**0.016**	**0.000**
	I show sensitivity and understand students' perspectives	**0.000**	**0.000**	**0.000**	**0.002**	**0.028**	**0.047**	**0.010**	**0.019**	**0.002**	**0.001**	**0.023**	**0.000**
	I help out based on understanding other people's needs and feelings	**0.000**	**0.001**	**0.000**	**0.047**	**0.000**	**0.003**	**0.000**	**0.000**	**0.000**	**0.000**	**0.001**	**0.000**
	Despite challenges and setbacks, I am determined in pursuing my goals	**0.000**	**0.000**	**0.000**	**0.003**	**0.000**	0.063	**0.004**	**0.000**	**0.036**	**0.001**	0.146	**0.002**
	I operate from the hope of success rather than fear of failure	**0.002**	**0.004**	**0.005**	**0.029**	**0.025**	**0.038**	**0.017**	**0.044**	**0.009**	**0.007**	**0.001**	**0.000**
	I see setbacks as due to manageable circumstances rather than a personal flaw	**0.007**	**0.002**	**0.000**	0.201	0.236	0.114	**0.011**	**0.037**	0.103	**0.014**	0.295	**0.014**
	I manage my impulsive feelings and distressing emotions well]	**0.000**	**0.000**	**0.000**	**0.004**	0.184	**0.005**	**0.001**	**0.001**	**0.000**	**0.000**	0.029	**0.001**
	Even in difficult situations, I remain calm, upbeat, cool and collected	**0.002**	**0.006**	**0.000**	0.077	0.085	**0.010**	**0.001**	**0.014**	**0.001**	**0.000**	0.174	**0.023**
	I think clearly and stay focused under pressure	**0.000**	**0.011**	**0.000**	**0.002**	0.101	**0.036**	**0.009**	**0.006**	**0.005**	**0.000**	0.081	**0.000**

	I regularly uphold ethical principles and am seen as above reproach	**0.000**	**0.001**	**0.000**	**0.029**	**0.005**	**0.001**	**0.004**	**0.003**	**0.000**	**0.001**	**0.005**	**0.002**
	I gain trust by being dependable and sincere	**0.000**	0.313	**0.000**	**0.002**	**0.026**	**0.031**	0.160	0.240	**0.001**	**0.039**	0.065	**0.007**
	I admit my own mistakes and challenge unethical actions in others	**0.000**	0.061	**0.008**	**0.010**	**0.007**	**0.003**	**0.002**	0.057	**0.013**	**0.000**	0.180	**0.002**

Source: SPSS 25 Output

The numerical values in the table collectively depict a nuanced and interconnected view of an individual's professional performance and emotional intelligence, revealing correlations across various attributes. High scores in student interaction (ranging from 0.280 to 0.473) correlate with a strong commitment to student well-being, fostering engagement, and creating an enjoyable learning environment. The teaching approach, indicated by movement (0.280) and drama (0.473), correlates with a dynamic teaching style aimed at sustaining student interest. Emotional intelligence attributes showcase correlations, with self-awareness scores (ranging from 0.001 to 0.473) correlating with an understanding of the links between feelings and actions (ranging from 0.001 to 0.406) and the impact of emotions on performance (ranging from 0.000 to 0.327). A correlation is observed between a guiding awareness of values and goals (ranging from 0.000 to 0.235) and positive social awareness and communication skills (ranging from 0.000 to 0.194). Resilience, reflected in determination scores (ranging from 0.000 to 0.146) and a preference for hope over fear of failure (ranging from 0.000 to 0.044), correlates with coping with setbacks (ranging from 0.000 to 0.295) and managing emotions under pressure (ranging from 0.000 to 0.174). Upholding ethical principles (ranging from 0.000 to 0.240) correlates with building trust through dependability and sincerity (ranging from 0.001 to 0.313), highlighting the interconnected nature of positive relationships, emotional intelligence, dynamic teaching, and ethical professionalism.

Findings and conclusion

- Lack of a Clear Connection: The correlation coefficient of 0.000 indicates that there may not be a direct relationship between an individual's emotional intelligence and their level of professional performance.
- Not Predictable: There doesn't appear to be a consistent correlation between shifts in professional performance and changes in emotional intelligence.
- It's Complicated: Just because we can't see a clear-cut relationship doesn't mean one doesn't exist. It is possible that there is a more nuanced or intricate relationship that is missed by the current approach.
- Be Wary of Assumptions: Reliability of strong emotional intelligence as a predictor of job performance is not established. The truth is probably more nuanced.
- Further Investigation Needed: In order to have a deeper understanding of the relationship, we may need to take into account additional variables or employ alternative analytical techniques.
- Perspective: The data in the table paints a clear picture of the relationship between professional performance and emotional intelligence.
- Student Interaction: A strong dedication to students' involvement, well-being, and a positive learning environment is correlated with higher ratings in this area.
- Teaching Approach: Dynamic instruction that strives to maintain students' attention is indicated by movement and drama scores.
- Emotional Intelligence Attributes: Self-awareness scores are correlated with knowledge of how emotions affect performance and the relationships between feelings and actions.
- Values and Goals: Good social awareness and communication skills are correlated with having a guiding understanding of values and goals.
- Resilience: Coping with setbacks and controlling emotions under duress are correlated with determination scores and a preference for hope over fear of failure.
- Ethical Professionalism: Maintaining moral standards is associated with establishing credibility by being dependable and truthful.
- Interconnected Nature: The results demonstrate the connections between dynamic instruction, emotional intelligence, ethical professionalism, and positive relationships.
- Essentially, the analysis highlights the interdependence of multiple dimensions of emotional intelligence and professional performance, underscoring the significance of adopting a comprehensive approach to comprehend and enhance these characteristics.

Suggestions and scope for further research

Even while there appears to be no clear linear association between professional performance and emotional intelligence (a correlation coefficient of 0.000), it is important to see this lack of correlation as a chance for a more nuanced understanding. The complexity of these aspects is shown by the complex relationships that have been found across a variety of traits, including the interplay of emotional intelligence dimensions, dynamic teaching approaches, and strong correlations in student engagement.

This offers a promising direction for further investigation, promoting a thorough examination of the ways in which teaching strategies, emotional intelligence, and ethical professionalism all work together to influence a teacher's overall effectiveness. Taking a holistic approach to improving professional efficiency and emotional intelligence in educational settings can be facilitated by adopting this integrated perspective.

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Role of Artificial Intelligence in Education

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Abstract:

The contribution of computer science (AI) within the field of education has invariably been important. From robotic teaching to the event of an automatic system for answer sheet analysis, AI has invariably helped each the lecturers and also the students. during this research we've got done thorough analysis of the assorted analysis developments that were applied across the world like computer science techniques applied to education sector thus on summarize and highlight the role of AI in teaching and student's analysis. Us study shows that AI is that the backbone of all the information science enabled intelligent tutor systems. These systems help in developing qualities like self-reflection, responsive deep queries, partitioning conflict statements, generating artistic queries, and choice-making skills.

Introduction

Artificial Intelligence (AI) is present in our lives and is progressing with efficiency in modern times. the start of AI is often derived to the 1956 Dartmouth summer scientific research on computer science. Today, AI work is performed in police investigation cancer, reducing the danger of plane collisions, and developing autonomous vehicles, etc. AI-equipped robots have outperformed human surgeons in stitching up cuts; acting search and rescuing missions; providing take care of kids, seniors, and hospital patients; aiding master card firms with fraud detection. AI technology has been applied to education within the recent twenty years. The Intelligent Tutoring Systems (ITS) cowl all major AI topics (e.g., data illustration, machine learning, tongue, planning, reasoning, explanation), and therefore the systems have shaped a motivating test-bed to formalize psychological feature theories and to experiment with their operationalization. AI in education has been applied to numerous domains, like physics, programming, writing essays, and reading yet because the development of educational systems. the foremost typical AI applications within the academic field involve data illustration, intelligent tutoring, tongue process, and autonomous agents. AI in education has created powerful learning environments and positive interactive experiences for college students over the decades.

The fast advancement of technology, like computer science (AI) and artificial intelligence has compact all industries, together with education. A recent report from IBM,

Burning Glass and Business Education Forum shows that the quantity of job opportunities for knowledge and analytics skills can increase by 364,000 to 2,720,000 in 2020. which means that the gap between offer and demand of individuals with AI skills is growing, with one report showing worldwide base of three hundred,000 AI professionals, however with several opportunities obtainable, and this gap is leading to even higher salaries for those during this field.

Artificial intelligence is changing the teaching-learning process in education! Since the origin of the establishment of education, the strategies of teaching and also the bond shared between learners and educators have evolved considerably. Teaching strategies across the world became additional structured to administer higher, additional efficient results. This transformation will be majorly attributed to the continued intervention of technology. On the rear of continuous technological advancement, we tend to square measure witnessing a paradigm shift within the teaching-learning method. the connection between educators and students is dynamical, wherever educators became additional approachable and far higher at understanding their students' views. Technology has created learning additional cooperative, as academics and students square

Roles of Artificial Intelligence in education

1. AI can automate basic activities in education, like gradin While AI might not ever be ready to actually replace human grading, it's obtaining pretty shut. It's currently potential for academics to alter grading for nearly every kind of multiple alternative and fill-in-the-blank testing and automatic grading of student writing might not be so much behind.

2. Students could get additional support from AI tutors. These programs will teach students fundamentals, however up to now aren't ideal for serving to students learn high-order thinking and creative thinking, one thing that real-world lecturers square measure still needed to facilitate. nonetheless that shouldn't rule out the likelihood of AI tutors having the ability to try to these items within the future.

3. AI-driven programs can give students and educators helpful feedback. AI cannot solely facilitate academics and students to craft courses that are bespoke to their wants, however it may give feedback to each concerning the success of the course as an entire. These sorts of AI systems enable students to urge the support they have and for professors to search out areas wherever they'll improve instruction.

4. It could change the role of teachers. There will always be a job for teachers in education, but what that role is and what it entails may change because of new technology within the type of

intelligent computing systems. As we've already discussed, AI can take over tasks like grading, can help students improve learning, and should even be a substitute for real-world tutoring.

5. Data powered by AI can change how schools find, teach, and support students. Smart data gathering, powered by intelligent computer systems, is already making changes to how colleges interact with prospective and current students. From recruiting to helping students choose the foremost effective courses, intelligent computer systems are helping make every a neighbourhood of the faculty experience more closely tailored to student needs Latest Applications of Artificial Intelligence recent trends real world.

There are various fields where AI has an impacted on it

- **AI in Marketing:** Customer data is being used with the help of Machine learning to predict a person's actions and helps for easy segmentation for the marketers.
- **AI in Banking:** Fast growing approach where many banks are using the AI driven techniques to detect fraud of credit cards, detect anomalies and provide Customer support via Electronic Virtual Assistant.
- **AI in Finance:** DS uses this approach to detect patterns in market in very short span of time. These machines keep a view on past data patterns and predict future insights of the data
- **AI in Agriculture:** Use of some automation approach it helps farmers for the better yield of their crops and also to protect them from weeds.
- **AI in Healthcare:** It uses complex algorithms to detects and emulate complicated human conditions and provide medication in advance.
- **AI in Gaming:** for generation of adaptive and intelligent behaviour for Players.
- **AI in Space Exploration:** AI and ML is the best way to handle and process data in this scale. This AI is being used for NASA'S next Mission Mars 2020.
- **AI in Autonomous Vehicles:** AI System collects data from the vehicles radar, cameras, GPS, and cloud services to produce control signals that operate the vehicle.
- **AI in Chat Bots:** Virtual Assistance are being widely used in every house today, such as Siri, Alexa, Cotona. It can be used to control devices in house, Book Cabs, Order food etc.
- **AI in Artificial Creativity:** Artificial Creativity such as Social Platforms like Facebook. AI uses Machine learning and Deep Learning algorithm techniques for Face detections and Automatic Tagging, design feed based on our interest, detect hate speech and Negative Content.

AI and Future Workforce

The World Economic Forum estimates that, by 2022, an outsized proportion of firms can have adopted technologies like machine learning, and thus powerfully encourages governments and education to concentrate on apace raising education and skills, with attention on each STEM (science, technology, engineering and mathematics) and non-cognitive soft skills, so as to full fill this close at hand want. Microsoft's recent study shows that, by 2030, students can have to be compelled to have down pat 2 sides of this new world by the time they graduate:

- Know how to employ changing technology, such as AI, to their advantage
- Understand a way to work with people during a team to drawback solve effectively

Preparing students to figure aboard AI within the future will begin early. As most youngsters are snug with digital technology by the time they're of faculty age, teaching them the abilities they'll have to be compelled to thrive during a digital work is vital. Add the inclusion of AI in education, and also the force of the longer term is going to be higher ready to face the unknown challenges of the work of tomorrow.

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Smart Libraries: Challenges and Opportunities in the Age of Information Technology

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Abstract

This article explores the landscape of smart libraries in the information technology era, examining their definition, development, characteristics, and the technology that underpins their development. Smart libraries take advantage of advanced information and communications technology, turning the traditional library model into a dynamic, user-cantered canter. The integration of technologies such as smart library cards, mobile applications, smart content information technology, and various smart services is pushing these libraries into an era of innovation and responsiveness.

The article delves into the historical context of library development, details the transition from traditional libraries to smart libraries, and highlights key characteristics. It also provides an overview of successful case studies and identifies challenges facing smart libraries, such as technological, financial, and legal considerations, as well as the need to urgent need to narrow the digital divide. The article focuses on the role of technology, such as 5G, IoT and AI, in reshaping library services, and describes emerging opportunities and innovations in smart libraries. Case studies highlight the transformative impact of social media and the Internet of Things in library services. It also addresses the challenges that libraries face in the digital age, including financial constraints, the digital divide, and legal and ethical considerations. The growing role of the librarian is explored, emphasizing the need for continuous learning and adaptation to a technology-driven environment.

Keywords: Smart libraries, Smart services, Information Technology, Digital Library.

Introduction

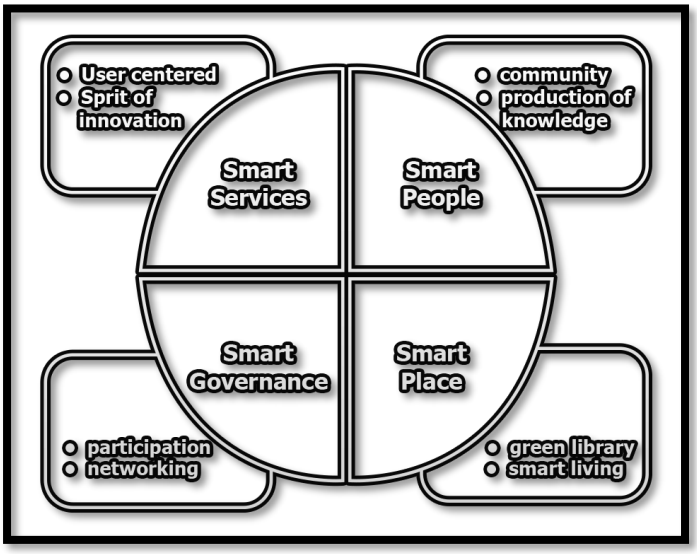
Definition of Smart Libraries

A library equipped with 'Smart Library' technology can operate unstaffed, thanks to remote management of the facility. This includes automated control over doors, lighting, self-service kiosks, and public computers. As a result, the library's operational hours are greatly expanded, making it more accessible to a wider audience at times that suit them best.

A smart library is a system combining both hardware and software that offers extensive capabilities for finding and delivering relevant information to online users based on their specific queries and needs.

Drawing on the insights of Shah & Bano (2020), Baryshev & Babina (2016), and Li & Dong (2016), a "Smart Library" can be conceptualized as an amalgamation of diverse electronic resources and bespoke library services. This amalgamation is characterized by its reliance on advanced information and communication technologies, which facilitate interactive, innovative, and responsive services tailored to the evolving needs of users and the library's infrastructure.

Smart Libraries, as described by Nahak and Padhi (2019), signify a significant evolution in library services, transitioning towards a global network of interconnected libraries known for their user-centricity and autonomous operation. These libraries are equipped with features like automated entry, lighting systems, and self-service stations, enabling round-the-clock access without requiring on-site staff. In this new era, librarians transform into 'smart librarians', focusing more on service orientation and addressing the varied needs of users, especially in academic environments. They are responsible for developing smart services, managing staff, and upholding smart governance in libraries. Complementing this, Pagore and Chalukya (2020) emphasize the synergy between smart libraries and smart cities, viewing libraries as vital cultural and scientific components within smart cities. Their research proposes a novel framework for smart libraries, which includes aspects like smart services, citizens, locations, and governance. This framework represents smart libraries not as static entities but as dynamic, creative, and innovative in their approach to services.



Four Dimensions of Smart Library

(source: https://limbd.org/smart-library-definition-and-four-dimensions-of-the-smart-library/)

Overview of the Evolution of Libraries in the Digital Age

The evolution of libraries in the digital age, detailed by Wang (2013) and Jerkov, Sofronijevic, and Stanisic (2015), showcases a significant shift from traditional models to interconnected, digitally-enhanced structures. Wang's analysis focuses on the development of smart libraries in Asia, particularly in China, highlighting collaborative and strategic approaches to embracing digital resources for improved regional knowledge access. Jerkov, Sofronijevic, and Statistic discuss how libraries have transitioned into dynamic hubs within sustainable smart cities, extending beyond traditional roles to actively engage in technology-driven information literacy enhancement. These studies collectively underscore the transformation of libraries in response to technological advancements and changing community needs, particularly evident in Asia's dynamic landscape and the broader trend towards sustainable urban living.

Features of Smart Library

Smart Libraries are characterized by several distinct features:

- They equip the library community with the skills and resources necessary to effectively manage cyber challenges and maintain the benefits of digital engagement.
- Designed to be adaptable and versatile, Smart Libraries cater to a variety of library types, including regional, rural, educational, community, metropolitan, remote, and mobile libraries, offering valuable guidance for all.
- They represent an evolution of a proven model tailored to the current digital era.
- By leveraging smart technology, these libraries play a crucial role in bridging the digital divide, enhancing the knowledge and skills of both users and staff in the digital realm.
- Smart Libraries consolidate the most relevant and practical cyber-safety resources and tools in one accessible location.

Technology used for smart Library

The development of smart libraries is fundamentally linked to new information and communication technologies, with key technologies including:

- **Smart Library Card:** This card is issued to each user, who activates it by scanning at the library's entrance and entering a PIN. The card stores detailed information about students and researchers and facilitates the borrowing and returning of books.
- **Mobile Application Usage:** These applications are software designed to run on mobile devices, performing various tasks for the user. They provide concise information summaries on mobile devices.

- **Content Information Smart Technology:** This involves structuring digital scientific content based on ontology, thus enhancing library content with semantic relationships. The accuracy and relevance of this content are often reliant on expert opinions.
- **Smart Services:** Inspired by the innovative spirit of smart cities, smart libraries have evolved to offer a range of technologically advanced services. These include RFID, mobile and wireless access, remote assistance, semantic web capabilities, and artificial intelligence. Additionally, they integrate technologies such as the Internet of Things, machine translation, voice and image recognition, natural language processing, and augmented reality, all aimed at enriching user experiences, particularly in appreciating cultural heritage.

Purpose and Scope of the Article

This article aims to investigate the complex challenges and opportunities associated with the emergence of smart libraries in the information technology era, drawing on significant scholarly research. Garoufallou and Gaitanou (2021) offer insights into the integration of Big Data in libraries, highlighting the evolving roles of librarians and the necessity for libraries to adopt data-driven methodologies. Their review from 2012 to 2018 frames an understanding of how libraries are adapting to a landscape transformed by Big Data, emphasizing the need for innovative visualization tools and enhanced retrieval systems. Kwanya, Stilwell, and Underwood (2014) critically analyse the transition in library models from Library 2.0 to Library 3.0, marking a shift from libraries as passive book repositories to active information facilitators. Their study introduces the concept of 'apomediaries' in intelligent libraries, envisioned as personalizable entities fostering user, librarian, and expert interaction. This research forms the basis of this article, which seeks to provide a comprehensive analysis of the current state of smart libraries, exploring the impact of technological advancements, financial and legal challenges, and the evolving role of library professionals. It also aims to delve into case studies and best practices to offer insights into the future of smart libraries in an advancing technological landscape.

The Emergence of Smart Libraries

Historical Context and the Shift from Traditional to Smart Libraries

The transformation from traditional to smart libraries, as described by Adetayo, Adeniran, and Gbotosho (2021), is driven by the challenges posed by rapid technological advancements and a surge in information volume. Their analysis highlights the impact of disruptive technologies on traditional libraries, leading to decreased usage and necessitating a

reinvention of library services. They explore the integration of big data analytics and smart technologies as key strategies for enhancing library services and maintaining relevance. The role of librarians is emphasized as crucial in guiding various sectors in leveraging these technologies, with a focus on understanding how software tools can process large datasets. The paper also discusses the need for change management and alternative funding models to support this transformation. The study concludes that libraries are progressively focusing on big data and smart capabilities, marking a shift towards more efficient, personalized, and data-driven services. This evolution is pivotal in the emergence of smart libraries, reshaping the library landscape to meet modern demands.

Key Features of Smart Libraries

The key features of smart libraries are detailed in the studies by Baryshev, Verkhovets, & Babina (2018) and Cox, Pinfield, & Rutter (2019). Baryshev and colleagues focus on the integration of classical library services with modern needs in university settings, particularly highlighting the development at the Siberian Federal University. They emphasize the establishment of a dynamic information space, incorporating enhanced resource aggregation, improved search engine capabilities, and interactive platforms for seamless resource access. This study underscores the necessity for libraries to evolve alongside information technology advancements. Cox, Pinfield, and Rutter (2019) examine the influence of artificial intelligence (AI) on academic libraries. Their research, based on insights from library directors and education and publishing experts, indicates that AI is reshaping fundamental library concepts, including collections, service delivery, and librarian skill sets. They identify challenges like technological marginalization and the need for increased data literacy. The conclusion of their study posits that while AI will coexist with traditional academic libraries, it will drive significant changes in library management and operations, centered on data analytics and IT proficiency.

Case Studies of Successful Smart Libraries

The case studies by Isaac and Omame (2020) and Mohammadi and Yegane (2018) provide valuable insights into the adoption of digital tools in smart libraries. Isaac and Omame explore how social media and video conferencing have revolutionized user interaction in libraries. They note the widespread adoption of platforms like Facebook, Twitter, WhatsApp, Zoom, Skype, and Google Hangouts, which enhance direct and efficient communication between librarians and users. Emphasizing the importance of a strong internet infrastructure

and librarian training, they advocate for active social media engagement and dedicated video conferencing spaces to facilitate user engagement.

Mohammadi and Yegane delve into the impact of the Internet of Things (IoT) on library services, especially in academic environments. Their study highlights the potential of IoT in various library functions, including building management, collection management, and instruction. IoT applications are shown to optimize space, improve visitor experiences, and enhance collection preservation through intelligent environmental controls. However, they also caution about the dual nature of these emerging technologies, stressing the importance of addressing security and privacy issues when implementing IoT in libraries.

Challenges Faced by Smart Libraries

Technological Challenges

Jiahui, NingXing, and Chao (2020) and Wang (2021) provide critical insights into the integration of advanced technologies like 5G and IoT in smart libraries. Jiahui and colleagues focus on the potential integration of 5G technology, discussing how its convergence with AI, VR, AR, and human-computer interaction techniques could transform library service management. They envision a future smart library with features like 3D real-time book tracking, VR experiences, and intelligent mobile services, aiming to enhance the patron experience. However, they also highlight challenges such as the need for infrastructure upgrades and the complexity of managing these technologies. Wang (2021) explores the integration of IoT situational perception information fusion technology in libraries. This study proposes a framework involving data collection, processing, event triggering, and updating user preferences, aiming to enhance library environments and personalize services. While acknowledging the benefits in terms of service personalization and space utilization, Wang also addresses challenges in data fusion and the importance of maintaining security and privacy in the deployment of IoT technology in libraries.

Financial and Budgetary Constraints

Gundakanal and Naik (2023) delve into the financial and budgetary challenges confronting smart libraries in the context of integrating new technologies and infrastructure. Their study emphasizes the significant investment required for adopting advanced technologies such as IoT, AI, and cloud computing in libraries. Key expenses include upgrading infrastructure with smart shelving, lighting, real-time tracking systems, and smart lockers. Additionally, enhancing user experience with digital services like e-books, online tools, and media production resources, as well as creating physical spaces like maker spaces, demand

considerable financial resources, potentially straining the budgets of many libraries. The research underscores the necessity for continuous investment in technology and infrastructure as libraries transition from traditional book-lending institutions to dynamic centers of knowledge and community engagement. This essential transformation is accompanied by financial challenges, particularly for libraries with limited budgets. Gundakanal and Naik highlight the financial hurdles in maintaining and updating digital platforms, training staff in new technologies, and ensuring the accessibility and user-friendliness of digital services.

Bridging the Digital Divide

According to Asif et al., (2020), The digital divide in smart libraries, accentuated during the Covid-19 pandemic, presents several challenges. Firstly, the pandemic has heightened reliance on digital resources, accelerating a shift that may exacerbate the divide, especially for those lacking digital devices or reliable internet access. Ensuring accessibility is crucial; smart libraries must make their digital services available to all population segments, potentially requiring resources in various formats and languages, and even offering devices and internet access in underserved areas. Equally important is the provision of training and support to both staff and users, particularly to enhance digital literacy. Despite the focus on digital services, maintaining a balance with traditional, physical services remains vital for addressing diverse user needs. Finally, tackling the digital divide necessitates appropriate policy support and funding, advocating for resources to expand digital services and infrastructure.

Legal and Ethical Considerations

Legal and ethical considerations are vital for the operation and management of smart libraries. Key aspects include data privacy and security, where adherence to data protection regulations is essential to safeguard user data, particularly sensitive information. Copyright and intellectual property issues are prominent due to the extensive volume of digital content handled by smart libraries, posing challenges in legal navigation while providing diverse resources. The ethical use of AI and big data is crucial, with a focus on responsible usage, avoiding biases, and upholding ethical norms in information access. Accessibility and inclusivity are also imperative, ensuring that library services are equitable and cater to all users, including those with disabilities. Finally, legal compliance and active engagement in policymaking are necessary to keep pace with the changing legal landscape in digital rights management and information dissemination.

Library Professionals in the Digital Age

The evolving role of librarians in the digital age is comprehensively explored in the studies by Shen (2019), Orji and Anyira (2021), and Berek (2021). Shen's research at Virginia Tech highlights the transformation of libraries into hubs for data exploration and community knowledge, necessitating librarians to develop skills in data science and management systems. The study envisions librarians as key facilitators in data experiments, designing interactive learning spaces, and adapting to technology-driven environments. Orji and Anyira address the continuous learning and professional development needs in smart libraries. They identify challenges in implementing smart libraries, such as insufficient skills and funding shortfalls, especially in contexts like Nigeria. They advocate for improved funding, ICT frameworks, and continuous training in smart technologies to overcome these obstacles. Berek discusses the critical role of librarians in embracing smart technologies and leading digital transformation in libraries. He emphasizes librarians' roles in advocating for digital resources, leading technological integration, and guiding digital transformation to align with library goals. Together, these studies underscore the need for librarians to adapt to rapidly changing library landscapes, focusing on data management, community engagement, interactive learning, and leadership in digital transformation.

Academic Libraries in the Digital Age

The adaptation of academic libraries to digital formats is explored through various studies. Isaac and Omame (2020) emphasize the transformative role of social media and video conferencing in enhancing library services, advocating for active social media engagement and video conferencing spaces to improve user interaction. They stress the need for robust internet services and the importance of training librarians in these technologies. Kwanya, Stilwell, and Underwood (2014) discuss the evolution of library models, distinguishing between Library 2.0 and Library 3.0, where the latter repositions librarians as 'apomediaries' in intelligent libraries, fostering an interactive ecosystem with users and experts. This model represents a sophisticated framework for the modern information landscape, signifying a shift towards more personalized and intelligent library services. Jiahui, NingXing, and Chao (2011) explore the integration of 5G technology in libraries, envisioning smart library models that combine 5G with AI, VR, and AR to enhance library functionality and the research and learning experience. They highlight the need for collaboration between libraries and technology experts in developing these innovative models. Similarly, Singh (2019) investigates the role of QR codes in modernizing library services, focusing on digital literacy enhancement. The study outlines the

development of a user-friendly application for managing library transactions, which aids in both accessibility and information literacy. These studies collectively illustrate how academic libraries are adapting to the digital age, highlighting the integration of modern technologies and the evolving role of libraries and librarians in meeting the complex demands of digital learners

Opportunities and Innovations in Smart Libraries

The integration of advanced technologies in smart libraries is highlighted in the works of Jiahui, NingXing & Chao (2011) and Singh (2019). Jiahui and colleagues discuss the incorporation of 5G technology into library services, emphasizing its potential to enhance functionality and service delivery, particularly in university libraries. They envision smart libraries utilizing AI, VR, AR, and human-computer interaction techniques, leading to the creation of innovative library models that incorporate big data, cloud computing, and information communication technologies. Key features of their proposed design include a 3D real-time book tracking system and VR experiences. Singh's study presents the development of a Smart Library Management System using QR codes, offering a cost-effective and efficient approach to modernize library services. This system allows patrons to independently manage various library functions, with future developments focusing on a web interface and a machine learning-based recommendation system. Although the literature survey does not specifically mention papers on international cooperation in smart libraries, it can be inferred that such collaboration is essential. Smart libraries, equipped with advanced technological infrastructure, are ideally positioned for global networking, sharing resources, and best practices, contributing to a global community of library professionals and users.

Case Studies and Best Practices

Orji and Anyira's (2021) study on "What is 'Smart' About Smart Libraries?" offers a comprehensive analysis of smart libraries, emphasizing their key components as Service, Methods, Automation, Resources, and Technologies (S.M.A.R.T.). They stress the importance of libraries evolving alongside digital educational advancements to meet user demands. Highlighting the challenges faced in Nigeria, such as skill shortages, funding gaps, and inadequate ICT policies, the study underscores the need for strategic development of smart libraries globally. Key strategies for success include establishing ICT frameworks, enhancing internet infrastructure, and continuous education and training for both users and librarians. The study also emphasizes the necessity of adapting to user needs to prevent obsolescence and considers the specific challenges and contexts faced in different regions like Nigeria. This

insight is crucial in understanding the global perspective and varied challenges in developing smart libraries.

Future Perspectives

Future trends in library science and technology, drawing from the insights of Jiahui, NingXing & Chao (2011) and Singh (2019), point towards the integration of advanced technologies like AI, VR, AR, and 5G, transforming libraries into dynamic data and information hubs with enhanced user experiences. There will be an increased emphasis on digital literacy for both patrons and staff, necessitating adaptation to new technologies and an evolving digital landscape. Personalization and user-centric services will become more prominent, leveraging machine learning and data analytics. Global collaboration and resource sharing will expand, driven by the interconnectedness of libraries. To navigate these trends, libraries need to invest in technology and infrastructure, focus on staff training and development, build partnerships with various institutions, and foster a culture of innovation. Community engagement and soliciting feedback will also be crucial in keeping library services relevant and responsive.

Conclusion

This article comprehensively explores the concept and evolution of smart libraries, drawing from a range of scholarly sources. It examines the transition from traditional libraries to their smart counterparts, focusing on the integration of advanced technologies and the changing role of librarians, as discussed in works by Pagore & Chalukya (2020) and Nahak & Padhi (2019). Technological innovations such as 5G, AI, and QR codes, highlighted in papers by Jiahui, NingXing & Chao (2011) and Singh (2019), are reshaping library services and enhancing user experiences. The article addresses various challenges, including technological updates, financial constraints, and legal issues, referencing studies like Gundakanal & Naik (2023) and Orji & Anyira (2021). It underscores the ongoing evolution of libraries towards more technologically advanced, user-centric services and their role as hubs of digital innovation and community engagement. For library professionals, the article emphasizes the need for continuous learning and proactive involvement in the transformation process, as noted in Shen's (2019) research, and adaptation to user needs, as discussed by Berek (2019). This holistic view highlights libraries' transition in the digital age, focusing on digital literacy and the integration of emerging technologies.

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Customers Perception towards Implementation of Technology in banking with special reference to Mobile Banking

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Abstract

Mobile banking has played a very important role in the banking industry. The study has been conducted on the customers Opinion towards Mobile Banking. The banking system in India is becoming more and more advanced and several changes have been taken place in the Indian banking sector. Indian banking system has the large structure and powerful base and by this it can be possible to make fully digitalization in the finance sector. There are some factors which influence on the technology and also have some threads. Therefore, it is important to know the problems of the technological changes to suggest the measures to overcome the problems and also to know the present and future aspect of the technological changes in the banking sector. The users of Mobile banking are increasing day by day in India therefore the study is concerned with the mobile banking and its present and future status and problems and prospects.

Keywords: Banking, Mobile banking, Mobile Application, Customer Satisfaction, Technology

Introduction

Implementation of two technological advancements called internet and mobile phone have profoundly affected human behaviour in the last decade. Now-a-days banking is known as innovative banking. Developments in Information Technology have given a rise to innovations in the product and service designing and their supply in the banking sector and finance industries. Mobile Banking is growing at a remarkable speed around the world. Mobile banking enables customers to access their bank account, check their balance or conduct financial transactions through a mobile device. Asia Pacific markets have seen a shift towards digital banking during the past few years. The number of mobile banking users in four Asia-Pacific (APAC) countries - India, Indonesia, the Philippines and Vietnam - could increase by some 209 million in three years by 2023, according to latest forecasts by international financial group Una Financial.

Mobile banking is a system which facilitate to the customer to make the financial activity from any remote area by using mobile devices. It is the system which works for 24*7 and anywhere customer can pay bills, buy product, transfer money etc. Basically mobile banking provides these services by making mobile application which is suitable to use in the mobile devices like mobile phone, tablet etc. Indian Banking system has launched the earliest mobile banking services based on SMS and it is known as SMS banking. The smart phones are the basic device for the new age mobile banking therefore in 1999 the smart phones were introduced with WAP support enabling the use of the mobile web. The first European banks started to offer mobile banking on this platform to their customers.

Mobile banking before 2010 was most often performed via SMS or the mobile web. Apple's initial success with i-Phone and the rapid growth of phones based on Google's Android (Operating System) have led to increasing use of special mobile apps, downloaded to the mobile device. With that said, advancements in web technologies such as HTML5, CSS3and JavaScript have seen more banks launching mobile web based services to complement native applications. These applications are consisted of a web application module in JSP such as J2EE and functions of another module J2ME.

In 2014 RBI allowed mobile banking to the 10 to 14-year age group child. And now it is becoming essential part of banking facility and society. All the banks are now moving toward the mobile banking because of the convenient use.

Mobile Banking

With technological innovation and changes in life styles, business interactions between consumers and banks are gradually changing from physical banking and in person banking to Internet banking or mobile banking which satisfied immediate need of customer. Mobile banking is the provision of banking services using the mobile phone. In keeping with the advancement in technology, commercial banks have in the recent past undergone major technological leaps in the provision of banking services by adoption of mobile banking technology. Mobile is already the largest banking channel by volume of transactions and its adoption by new customers is entering an exceptionally rapid phase. (Singapore, F.,2016) Mobile banking has a lot of advantages for both providers and those who avail the services. It has really become multi beneficial. Banks do not require much investment and they do not even have to modify their existing infrastructure.

The global mobile banking market was valued at $715.3 million in 2018 and is expected to reach $1,824.7 million by 2026, registering a CAGR of 12.2% from 2019-2026 (Global

Mobile Banking Market, 2020) Mobile banking is a service provided by a bank or other financial institutions, allowing users to conduct financial transactions remotely using a mobile device. The devices such as smartphones or tablets are used for mobile banking, primarily for transferring money from one account to another and depositing a check by taking a picture, which is prominently provided features for mobile banking in the market (Formats, www.alliedmarket research.com, 2020).

Mobile Banking in India

The Banking industry is one of the oldest in the world. The Indian Banking Industry has not remained a totally passive spectator of the Information Technology revolution that has taken place around the world. Banking industry in India has undergone radical changes under the umbrella term 'web Revolution'. In the modern computer world, all the activities of banking transactions are made through computers and electronic mediums. (2017) in the year 2002 Mobile Banking was started in India by way of SMS Banking. Now it is becoming a new generation platform in India. In India, almost 94% of the people have access to mobile phones and India is the second largest telecom market in the world, which is having high potential for expanding banking services using mobile. In the development of Indian Economy, the Banking sector plays a very important and crucial role. With the use of technology there had been an increase in penetration, productivity and efficiency. It has not only increased the cost effectiveness but also has helped in making small value transactions viable. It also enhances choices, creates new markets, and improves productivity and efficiency. It has been noticed that financial markets have turned into a buyer's markets in India and Mobile banking has gained much prominence in the current banking scenario and effectively greater significance has been felt after demonetization.

Research Methodology:

The paper is based on observation and secondary Data which are available on the website of RBI Ks and KPMG report and other reports relegated to the research topic.

Objectives:

The research is made to know the progress and the factors which influences to the mobile banking in India. The objective of this paper is to highlight the importance of mobile banking in bringing out financial inclusion in a developing country like India. Although we will emphasize its relevance in the Indian context, it should be applicable to the poor in general residing in similar conditions elsewhere. To make it happen we propose a tripartite institutional arrangement involving one of the largest networks in the country i.e. India Post. Malviya, S.

(2015). The mobile and wireless market has been one of the fastest growing markets in the world and it is still growing at a rapid pace. Mobile devices are the most promising way to reach the masses and to create stickiness among current customers, due to their ability to provide services anytime, anywhere, with a high rate of penetration and potential to grow. Mobile phones provide a platform for the bank to perform banking transactions in the form of Mobile Banking. The high penetration of mobile phones in India is the biggest driver for mobile banking in India. Most of the leading banks such as ICICI, HDFC, SBI, etc., have successfully launched their mobile banking operations in India. Mobile banking services offer great potential to expand financial services, particularly payment services, to the poor. They also provide a convenient and cost effective way to access bank accounts. This paper constitutes a first attempt to explain statistically what factors contribute to mobile banking usage, with a particular focus on the regulatory framework.

Benefits of Mobile Banking:

1. The GSM mobiles works across the entire world so no application installation is required on the mobile handset and the service also has an interactive menu.
2. Round-the-clock availability even functional and holidays (24*7 and 365 Days).
3. Provides a variety of banking and value-added service.
4. In Mobile banking no GPRS is required, it works only on voice connectivity.
5. Additional channel for banking and a key catalyst for spreading financial-inclusion reach.
6. Customer don’t need to pay additional charges while roaming.
7. Easy access to your finances.

Adaption Factors:

Following are the observable Factor Influencing the Mobile banking in India:

- Speed
- Accuracy
- Privacy
- Cost Reduction
- Higher Productivity
- Profitability
- Convenient

Observable factors that to avoid the Mobile banking:

Mobile banking is founded on the observation.

1. The first barrier is to avoid the mobile banking is the literacy of the people toward digitalization.
2. The female mobile banking users are less than male users due to our social ethics.
3. The security reason is also important part to avoid the use mobile banking
4. The problems regarding mobile banking is that people still believe that the traditional banking is safe in compare to the internet and mobile banking
5. Other reason is that in the area of the rural main reason is the non-availability of the network.
6. Mobile security and customers trust towards online digital banking can also be considered as the factors.

Forecast number of mobile users worldwide from 2020 to 2025*(in billions)*

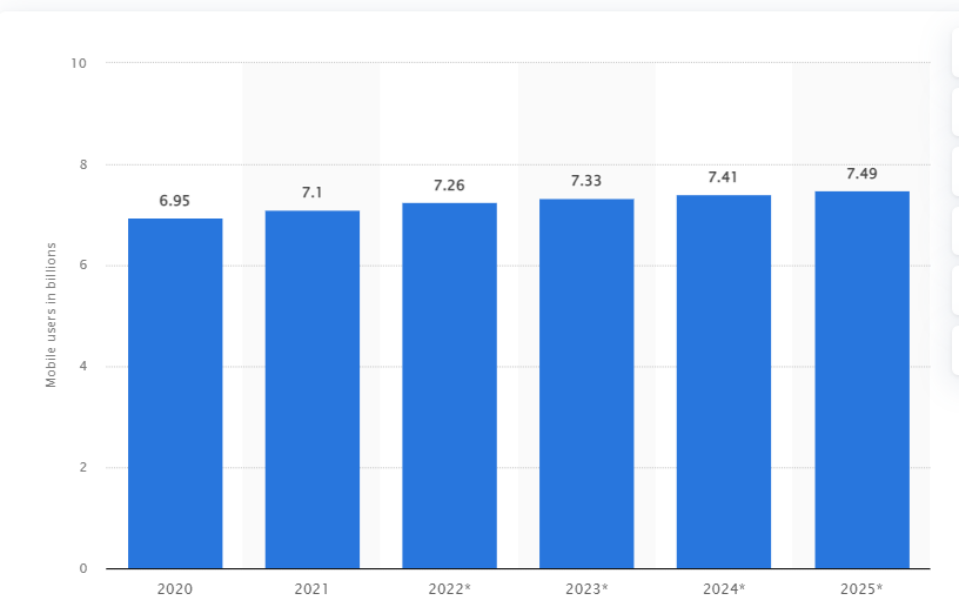

Fig.1 Source https://www.statista.com

If we think worldwide use of the mobile internet it is observed that it is increasing gradually over every year. The fact behind it is that each one has their personal mobile in the family. In the world mobile banking is becoming famous due to huge number of users of mobile phones and smart phones.

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Number of smartphone users in India in 2010 to 2020, with estimates until 2040 *(in millions)*

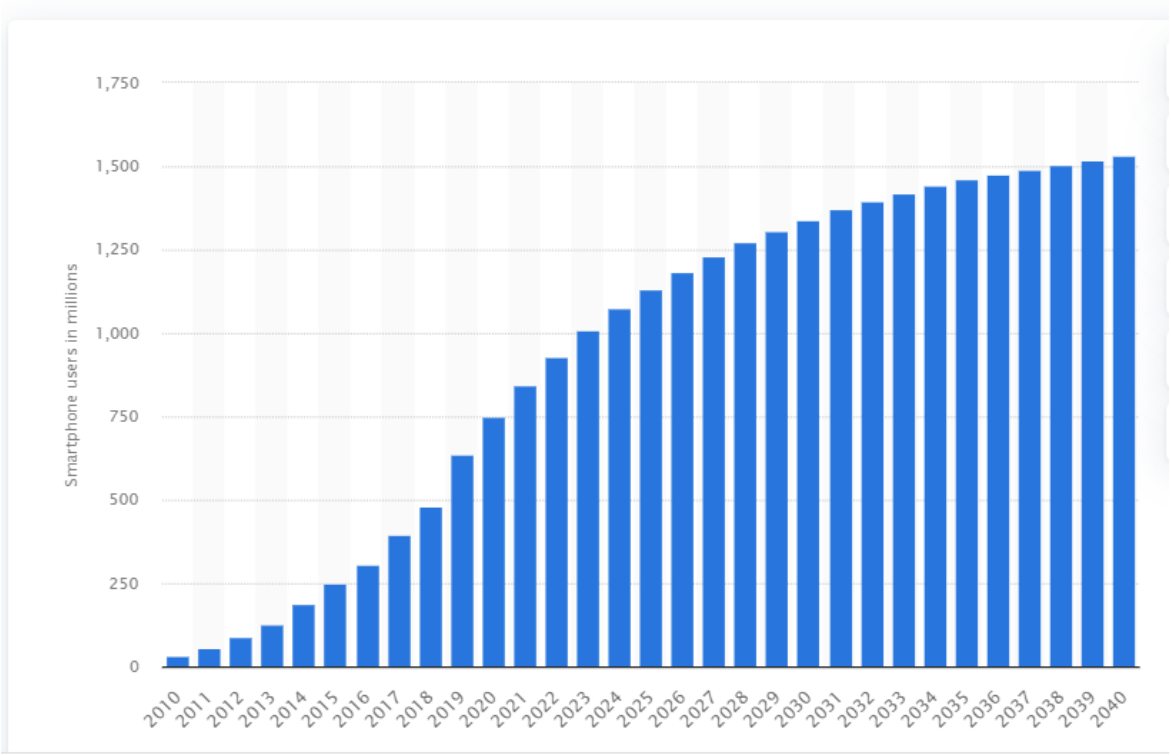

Fig. 2 Source https://www.statista.com

The use of Mobile phones in India is showing increasing trends because of in 2010 there was only 34 million users but after 5 years only the population of user has been reached to the 250.66 million. The number of smartphone users in India was estimated to reach over 750 million in 2020, with the number of smartphone users worldwide forecasted to exceed to 1.5 billion users in 2040.The use of Mobile banking first important factor is mobile devices and therefore is important to know the mobile phone users in India.

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Mobile banking transaction in India by month: Volume Vs. Value

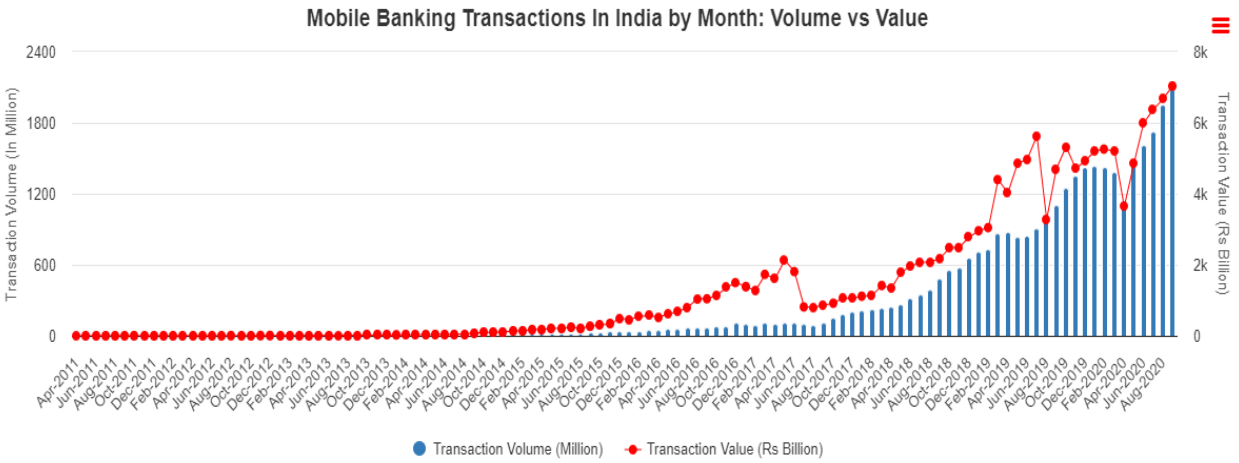

Fig: 3 Source https://dbie.rbi.org.in/DBIE/dbie.rbi?site=home

The graph represents the total volume and value of mobile banking transactions in India by month. In October 2019, the number of transactions completed through mobile banking in India reached an all-time high of 1,252.54 million, valued at Rs 5,327.31 billion.

The above graph represents the total volume and value of mobile banking transactions in India by month. The usage of mobile banking services in India has constantly been increasing for the last few years. In October 2019, the number of transactions completed through mobile banking in India reached an all-time high of 1,252.54 million, valued at Rs 5,327.31 billion. That represents nearly 13% month-over-month growth in both, the volume and value of mobile banking transactions in India.

India Mobile Banking Transactions: Volume

2011 - 2023 | MONTHLY | UNIT MN | RESERVE BANK OF INDIA

India Mobile Banking Transactions: Volume data was reported at 8,737.484 Unit mn in May 2023. This records an increase from the previous number of 8,359.517 Unit mn for Apr 2023. India Mobile Banking Transactions: Volume data is updated monthly, averaging 108.456 Unit mn from Apr 2011 to May 2023, with 146 observations. The data reached an all-time high of 9,289.637 Unit mn in Mar 2023 and a record low of 1.080 Unit mn in Apr 2011. India Mobile Banking Transactions: Volume data remains active status in CEIC and is reported by Reserve Bank of India.

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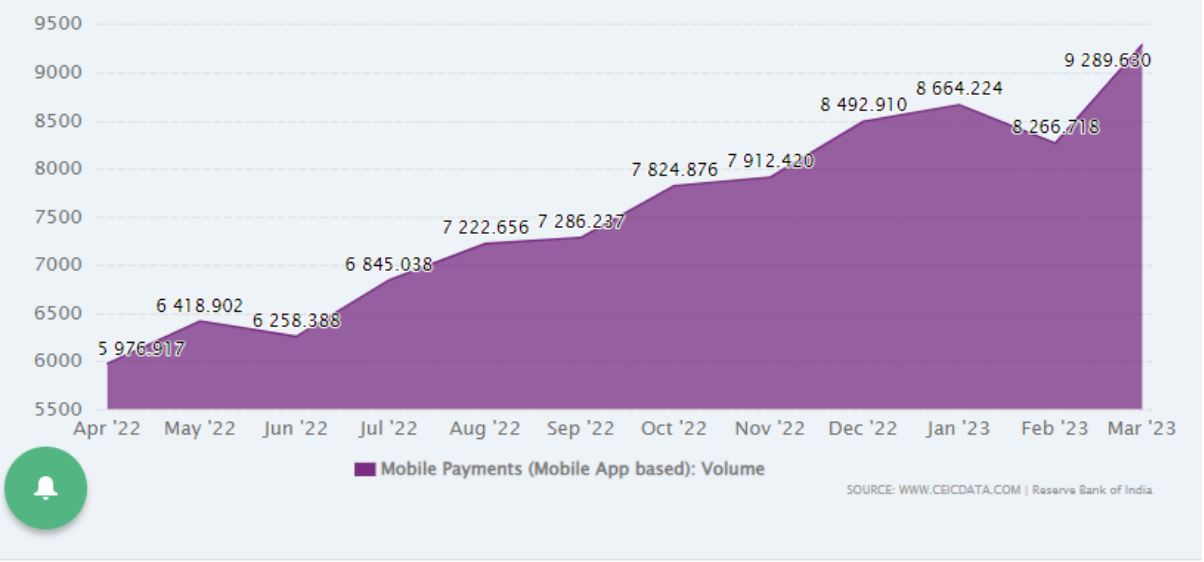

Fig: 4 View India's India Mobile Banking Transactions: Volume from Apr 2011 to Mar 2023 in the chart

Conclusion:

Mobile Banking is well recognized due to its huge potential of conducting financial transactions. The greatest advantage of mobile banking is to reach up to the remote area where branch scope is limited. For this, all stakeholders like Regulators, Governments, and medium service suppliers, and mobile device makers have to be compelled to build efforts in order that penetration of mobile banking reaches from high-end to low-end users and from metros to the centre cities and rural areas. With the implementation of mobile banking its safety and security is also upgraded and updated in India gradually. Due to having the awareness regarding the use of mobile banking number of users are increasing day by day and it has created the atmosphere of satisfaction among customers. Nowadays with the efficient use of mobile banking the branch is representing a bank as a whole.

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Artificial Intelligence Education

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ABSTRACT

As teachers, we spend a considerable amount of time observing children, tracking progress, and planning developmentally appropriate activities that help scaffold learning for our children. This article explores how we could use AI to help us save time on administrative work and thus focus on more meaningful activities, such as taking care of ourselves and fostering deeper connections with our young learners.

As you read through this article, remember that the goal is not to replace the human touch that is so essential to teaching, but rather to support and enhance it.

INTRODUCTION

Artificial Intelligence (AI) is characterized by machines that possess specific aspects of human intelligence, and encompass capabilities such as perception, learning, reasoning, problem-solving, language interaction, and even creative output. Over the past decade, AI has been integrated into the education space. It is being used to streamline students' performance data in schools. For example, in Uttar Pradesh, the Nipun Assessment Test (NAT) is leveraging AI to assess the skills of 1.6 crore students across grades 1 to 8. AI also allows translation from one language to another, and provides individualized learning tools to students.

In the last year or so, a subset of AI—generative AI—has been gaining traction. Generative AI uses deep learning to analyses existing sets of data to create new outputs. Unlike its predecessors, generative AI also has reasoning capabilities. ChatGPT, which can produce human-like responses to text prompts, and DALL-E, which can create images and artworks from text prompts, are popular examples of generative AI.

The rise of generative AI has raised curiosity and piqued interests. It's early days and there's no clear verdict, but its potential has opened up many possibilities. This article looks at

some of these possibilities and highlights how generative AI can be effectively adopted in the education sector.

GENERATIVE AI IN EDUCATION

Generative AI can help bridge many gaps in a country like India that has vast cultural and social differences and barriers of inequality. It can be beneficial to various sets of stakeholders in the education system, be it students, teachers, or parents.

Recognizing the importance of developing AI skills for children, CBSE has introduced AI as a skill module in classes 6–8 and as a skill subject in classes 9–12. Additionally, there are several organizations that are creating virtual assistants for students, teachers, and parents to enable them to learn and teach better. Many such initiatives are now being seen across a diverse set of use cases.

Here are some potential ways in which generative AI can be used:

1. Parents can leverage virtual assistants to figure out activities they can do with their child to help enhance their reading and comprehension skills. For example, parents can narrate stories generated by the AI to the child or get the child to read aloud a story. This can be especially useful for parents who aren't literate but want to be involved in their child's education.
2. Generative AI can help teachers follow the prescribed guidelines for teaching in an efficient way without spending hours going through multiple reading materials. A virtual assistant built on generative AI can assist a teacher in planning unique and engaging classroom activities by referring to a selection of carefully chosen documents and expert insights and suggesting methods that may work in a class setting.
3. This technology can adapt to the unique needs of a child and so, under the assistance of a caring adult (teacher, parent, or community member), it can be extremely helpful in early childhood education where learning pace and approaches vary from one child to another. It can be useful in developing foundational literacy and numeracy and teaching basic language skills.
4. Generative AI can assist with speech-to-text, text-to-speech, and speech-to-speech translations, and also adjust the tone and cultural context while translating. This will help in making education more inclusive for children from various linguistic and sociocultural backgrounds.
5. Generative AI can help create virtual labs on smartphones, especially for students in senior grades and colleges. This will be particularly useful for students from

marginalized backgrounds who may not have access to a physical lab to perform science experiments or learn vocational skills. AI can aid in helping them understand these skills and concepts.

6. Virtual assistants can be used to resolve students' doubts and queries and also help them in developing skills such as critical thinking, creativity, problem-solving, and communication. It can be a function of how one trains the virtual assistant to aid students in developing these skills. Students can speak with the virtual assistant in their local language, write and scan text, or type into it directly. Similarly, a school app that uses virtual assistants can be customized for students, teachers, and parents to track assignments, attendance, results, etc.

APPROACHES FOR EFFECTIVE ADOPTION

While there are many possible ways to implement it, currently the adoption of generative AI in the education space remains minimal and experimental. In order to incorporate it in our Programmes more effectively, the following things need to be kept in mind:

Picking the right problem

Amid the myriad of potential applications for generative AI, it's crucial to ensure that our focus is directed towards solving and addressing the correct issues. For example, it is important to identify the real problems that a teacher faces while teaching a class or managing it. Can there be more constructive methods of doing so? What's the most practical way for a teacher to do this without giving up their own agency? Are the suggestions contextual and relevant for the teacher to implement? In the early stages, it is also useful to ensure that Programmes are undertaken in a low-stakes manner. This means that evolution goes through stages with appropriate checks and balances. To avoid undesirable results, one can always figure out the value proposition at a smaller scale.

Building the ecosystem

Most organizations working in the education space are not equipped to build or leverage generative AI. For example, if an organization wants to build a storytelling application that narrates stories to children in the local dialect, they would need a diverse set of experts from the technology ecosystem, besides domain experts. This calls for greater synergy between the education space and the tech space and a conducive ecosystem that supports them. However, fostering such collaborations requires resources, money, permissions, and access. Therefore, without the support of funders, policymakers, and a larger ecosystem, this synergy is not possible.

Figuring out who takes responsibility

When an organization engages technology experts to develop applications on their behalf, the issue of responsibility and ownership becomes quite complicated. For instance, if an organization collaborates with a state government and a technology expert to implement a new application, the following questions arise: Who assumes the charge of managing and monitoring the app? Who rightfully claims ownership of the technology and shoulders the onus of data governance? Who accepts accountability for any setbacks? This requires careful crafting of policy guardrails and guidelines, governance structures, and clarity in the roles and responsibilities of those involved so that stakeholder interests can be safeguarded. There needs to be a clear policy on how the data is coming in, whether it is anonymized, and what this data is being used for.

Checking for bias

Since generative AI is heavily dependent on the data it is being fed, biases are a pertinent threat. These biases can be detrimental to a child's education or can lead to exclusion. While building models, it is important to ensure that no inherent bias is getting introduced and that the impact of the tool on the child has been evaluated. The onus should also extend to other players in the space including parents, teachers, and the community. For this, models should be tested thoroughly with smaller cohorts to identify and address such biases before deploying them at scale.

So far, generative AI has elicited a range of responses—either it is being hailed as the biggest technological breakthrough of the century or being met with vehement criticism. However, for wider adoption, its potential benefits need to be recognized while also acknowledging the challenges it presents. Generative AI can help in overcoming the challenges to education in India only if it has an ecosystem that innovates and supports its growth, participates in its evaluation, and assumes responsibility for failures. This ecosystem should comprise community members; social, private, and public sector organizations; experts; thought leaders; and funders, and demand active participation from each of these stakeholders.

CYBERCRIME

Generative AI's ability to create realistic fake content has been exploited in numerous types of cybercrime, including phishing scams. Deep fake video and audio have been used to create disinformation and fraud. Former Google fraud czar Shuman Ghose Majumdar has predicted that while deep fake videos initially created a stir in the media, they would soon become commonplace, and as a result, more dangerous. Additionally, large-language models

and other forms of text-generation AI have been at a broad scale to create fake reviews on e-commerce websites to boost ratings. Cybercriminals have created large language models focused on fraud, including WormGPT and FraudGPT.

Recent research done in 2023 has revealed that generative AI has weaknesses that can be manipulated by criminals to extract harmful information bypassing ethical safeguards. The study presents example attacks done on ChatGPT including Jailbreaks and reverse psychology. Additionally, malicious individuals can use ChatGPT for social engineering attacks and phishing attacks, revealing the harmful side of these technologies

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Artificial Intelligent in Education

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Artificial Intelligence in Education

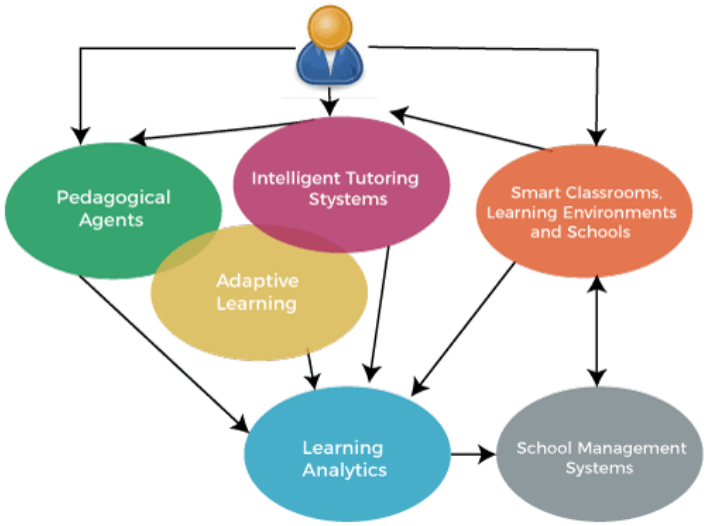
Education is an important part of life for everyone, and a good education plays a vital role to have a successful life. In order to improve the education system for the students, there are always a lot of changes happening around the world, ranging from the way of teaching to the type of curriculum. Artificial Intelligence is a thriving technology that is being used in almost every field and is changing the world. One place where artificial intelligence is poised to make big changes is (and in some cases already is) in education.

Artificial Intelligence in Education is developing new solutions for teaching and learning for different situations. Nowadays, AI is being used by different schools and colleges across different countries. AI in education has given a completely new perspective of looking at education to teachers, students, parents, and of course, the educational institutions as well. AI in education is not about humanoid robots as a teacher to replace human teachers, but it is about using computer intelligence to help teachers and students and making the education system much better and effective. In future, the education system will have lots of AI tools that will shape the educational experience of the future. In this topic, we will discuss the impact and application of Artificial Intelligence on Education. To better understand this topic, let's first understand what AIED is?

Overview of AIED (Artificial Intelligence in Education)

Artificial Intelligence (AI) is a simulation of human intelligence into a computer machine so that it can think and act like a human. It is a technology that helps a computer machine to think like a human. Artificial Intelligence aims to mimic human behaviour. AI has various uses and applications in different sectors, including education.

In the 1970s, AIED has occurred as a specialist area to cover new technology to teaching & learning, specifically for higher education. The main aim of AIED is to facilitate the learners with flexible, personalized, and engaging learning along with the basic automated task. Some popular trends in AIED include Intelligent tutor systems, smart classroom technologies, adaptive learning, and pedagogical agents. Below diagram shows the relationship between all these trends:



Application/roles of Artificial Intelligence in Education

Automate basic activities in education with AI

In the education system, there are various activities which take lots of time of teachers such as grading tests and home-works. These tasks require lots of time and effort, while this time could be used in interacting with students, letting them know their errors, teaching new things, and many more.

To save this time, Artificial Intelligence can be used. With AI tools, it is possible to automate the grading system for nearly all types of MCQ (Multiple choice questions) and fill-in-the-blank, and they are very close to being able to grade written responses. However, AI is still not possible to truly replace human grading, but it's getting improving day by day. By using AI, teachers will get more time to fill the gap in their classroom rather than investing their time in these tedious tasks.

Additional Support for students with AI tutor

As it is obvious that teachers can't be present with students all the time while they study, as teachers in colleges have fixed timings. But each student is not smart enough to grasp all the

things at once, and they need additional supports from someone to help them in the understanding study material. This additional support can be provided by the AI tutors.

Currently, there are various AI-driven tutoring programs that can help students in learning the basics of mathematics, writing, and other subjects.

With these AI programs, students can learn fundamentals, but still, they are not suitable to learn high-level concepts of any subject. In order to learn such complex concepts, students still require a professor. However, in future, it is possible that AI might be able to help students with complex problems also that require analytical thinking and reasoning.

Helpful feedback to students and teachers with AI-driven programs

AI is not only helping the students to learn the customized course as per their requirements, but it can also give feedback to both the teachers and students about the success level of the course. Some online course providers are currently using such feedback-based AI systems to analyse the progress of the student and also alert the professors for the critical performance issue of the student.

These type of AI-driven systems enables the student to get the proper support, and professors can determine the areas of teaching where it requires improvement. Instant feedback to students helps them understand where they are going wrong and how they can do it better.

Finding improvement required in course with AI

In the education system, it is very hard to find out the gaps in learning. Teachers have limited time to teach in the classroom, and they may not always know where the students are lacking and what concepts have confused the student. To solve this problem, AI-driven programs can help the education system.

Courser and some other learning platforms are already using AI-driven programs in practice. For example, when a large number of students are found to submit the wrong answer to a homework assignment, the system alerts the teacher and gives future students a customized message that offers hints to the correct answer. Such type of programs helps in filling the gaps while learning that can occur in courses, and also ensures that each student understands the concepts successfully. With AI, instead of waiting for feedback from the professor, students get an immediate system generated response, which helps them to understand a concept and remember their mistakes, and also how to do it correctly the next time around.

AI could change the role of the teacher.

Teachers always have a critical role in the education system, but this role and its requirement may change with the new technologies. As in the above points, we have already

discussed that Artificial Intelligence can automate different tasks such as grading, reports, help students while learning, and may also be an option of real-world tutor in some cases. AI can be included in different aspects of teaching. AI systems can be programmed for providing expertise to students, a place where students can ask their doubts and could take the place of teacher for teaching basis course materials. In such cases, AI could change the role of the teacher as a facilitator.

Personalize education with AI

The main aim of Artificial Intelligence in education is not to completely replace teachers. Instead, it aims to act as helping hands for teachers as well as students.

AI systems can be programmed to provide personalized learning to students. With personalized learning, each student can have their own way of learning as per their level of understanding and need. By understanding the needs of every student, teachers can come up with a tailor-made study plan for every student. As AI is developing day-by-day, it is possible that machines can identify the facial expressions of students while learning the concepts can understand if they are finding any difficulty in learning, and according to that make changes in the way of teaching. However, currently, such things are not possible, but they might be possible in the near future with AI-Powered machines and software.

Generating Smart content with AI

With AI, it is possible to generate smart content in three ways:

a. Digital Lessons: Nowadays, everything is becoming digital, and so the education. Digital learning is being preferred in colleges with customization options, e-books, study guides, bite-sized lessons, and many other things with the help of AI.
b. Information Visualization: Visualizing things rather than listening is much more efficient to understand in a better way and keep in mind for a long time. With Artificial Intelligence, the study information can be perceived in new ways of visualization, simulation, web-based study environment.
c. Learning content Updates: Moreover, AI also helps in preparing the content of lessons, keeping information up to date, and make it adaptable as per different learning curves.

Ensure Access to Education for Students with Special Needs

Life is full of challenges for those students who have some learning disabilities such as deaf or hard of hearing, visually impaired, etc. Such students may face various difficulties while learning and studying. Moreover, they also need extra care & time. With the adoption of

innovative AI technology, there will be new ways of interacting with such students. AI-enabled tools can be successfully trained to help a group of students with special needs.

Universal Access

One of the great uses of Artificial Intelligence of digital learning in education is universal access to study material. Each student has his own grasping capability, and with the use of universal access, they can learn anywhere and anytime. Students can explore things whenever they want to learn without waiting for the tutor. Moreover, students get the facility of high-quality courses and material from all over the world at their place only without travelling away from their home.

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