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Completely Revised an

Last Minute Revision

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Prepared as per the new syllabus for 100 marks pattern Under Choice Based Credit, Grading and Semester System which is into effect from the academic year 2018–2019.

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PREFACE

It gives us great pleasure to place the special edition of Mumbai University.

The syllabus has been covered in depth to enable the students to have a detailed insight about the topics included in the syllabus.

The special features of this book are :

- Objective Questions at the end of each chapters.
- Simple language.
- Informative and interesting contents with latest available data.

Special thanks to Shri. Kirit Sheth and Shri. Deepak Sheth of M/s. Sheth Publishers Pvt. Ltd. for taking untiring efforts to ensure that the book sees the light of the day.

Suggestions about ways and means of improving the book from teachers and students are most welcome.

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Accountancy and Financial Management-I

F.Y. B.Com. Semester-I



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T.Y. B.F.M. Semester-V





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Prasanna S. Choudhari

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Mutual Fund Management

T.Y. B.F.M. Semester-VI



Prepared as per the new syllabus for 75:25 pattern Credit Based Semester and Grading System which is into effect from the academic year 2018–19.

(Elective Courses (EC))

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Mutual Fund Management & Wealth Management

M.Com. (Advanced Accountancy) Semester-I

> Prasanna Shripad Choudhari Yogita Prashant Mahimkar



Prepared as Per Syllabus Under Credit, Grading and Semester System with Effect from Academic Year 2023-2024.



(As per NEP 2020)

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IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON LIBRARIES

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Abstract:

Libraries are greatly impacted by artificial intelligence (AI), which ushers in a new era of efficiency, accessibility, and personalised services. Artificial intelligence (AI) technology have enhanced traditional library operations by automating monotonous tasks like cataloguing and classification, freeing up librarians' valuable time for more strategic, user-focused work. The use of AI has significantly enhanced the search and discovery experiences for customers. Understanding the benefits and drawbacks of AI and machine learning is essential for improving user experience and implementing these technologies in libraries and information centres. Information professionals will be able to leverage these innovative, cutting-edge technologies to improve their services and make it easier for users to identify and access specific information. Artificial intelligence (AI) is changing the way that information is processed and searched for. The advantages and disadvantages of AI for libraries are covered in this paper.

Keywords: Artificial Intelligence, Libraries, Benefits of AI, Demerits of AI.

Introduction:

Modern approaches to information management and user services are being completely transformed by artificial intelligence (AI), which has become a disruptive force in libraries. Ex Libris (2019) claims that because machines are built to perceive and internalise patterns accurately on far larger scales than humans, they possess intelligence, which not only allows them to learn but also allows them to evolve with use to perform tasks more finely without needing to be explicitly programmed. Libraries are progressively utilising artificial intelligence (AI) technologies to improve the efficacy and efficiency of their operations as knowledge stewards and learning facilitators. AI is changing the library scene by delivering creative answers to enduring problems, such as automating cataloguing procedures and providing personalised suggestions. AI integration improves user experience and optimises resource management, making library services more responsive, accessible, and customised to each user's needs. The combination of AI with libraries, in this age of digital transformation, shows a dedication to flexibility and creativity and guarantees that these ancient establishments continue to be active centres of knowledge in our ever-evolving society.

Artificial Intelligence (AI) has a significant impact on libraries, bringing in a new era of effectiveness, accessibility, and customised services. By automating repetitive chores like cataloguing and classification, artificial intelligence (AI) technologies have improved traditional library operations and

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freed up librarians' valuable time for more strategic, user-focused work. Customers' search and discovery experiences have been greatly improved by the incorporation of AI, which uses sophisticated machine learning and natural language

processing algorithms to deliver more relevant and accurate results. AI-powered personalised recommendations that are based on user preference analysis make for a more customised and interesting user experience and help people form stronger bonds with library resources.

Artificial intelligence applications in library systems included subject indexing, shelf reading, collection development, shelf reading, shelf reading, reference services, and information retrieval systems, among other things. Knowledge-based services and natural language processing (NLP) have been targeted by this. The development of artificial intelligence programming has made the creation of an intelligent library not only possible but also inevitable. This claim is supported by Croke (2013), who demonstrates how artificial intelligence researchers and academics are developing intelligent systems that can anticipate needs and behave like librarians—library robots.

Libraries may make well-informed decisions about collection development and resource allocation by utilising AI for predictive analytics, which guarantees that resources are in line with user wants and emerging trends. Even with these developments, there are still issues that need to be carefully navigated, like privacy concerns and ethical issues. However, there is no denying that AI has had a profoundly transformational overall effect on libraries, redefining them as dynamic, adaptable establishments in the digital era.

Benefits of Artificial Intelligence in Libraries:

1. Automated Cataloging and Classification:

AI can streamline the process of cataloging and classifying library materials. Machine learning algorithms can analyze content and assign appropriate metadata, making it easier for librarians to organize and manage collections.

2. Enhanced Search and Discovery:

AI-powered search engines can significantly improve the efficiency of searching for information within the library's catalog. Natural Language Processing (NLP) can be employed to understand user queries better, leading to more accurate and relevant search results.

3. Personalized Recommendations:

AI algorithms can analyze user preferences, borrowing history, and reading habits to provide personalized recommendations. This helps users discover new materials that align with their interests, creating a more engaging and tailored experience.

4. Chatbots for User Assistance:

Implementing chatbots with AI capabilities can enhance user support services. Chatbots can answer routine questions, provide information on library hours and policies, and guide users in navigating digital resources.

5. Data Analysis for Collection Development:

AI can assist librarians in analyzing data related to the usage of library materials. By identifying trends and patterns, libraries can make informed decisions about collection development, ensuring that the most relevant and popular materials are available.

6. Preservation and Conservation:

AI technologies, such as computer vision, can be used for the preservation and conservation of rare and fragile materials. Automated systems can identify damage, assist in restoration efforts, and help in maintaining the integrity of valuable collections.

7. Efficient Resource Management:

AI can optimize resource allocation by analyzing usage patterns. Libraries can use predictive analytics to anticipate demand, ensuring that resources are allocated efficiently and reducing unnecessary expenses.

8. Accessibility Improvements:

AI can play a role in making library resources more accessible to individuals with disabilities. Textto-speech and speech-to-text technologies can be integrated to assist users with visual or auditory impairments.

9. Security and Fraud Detection:

AI can enhance security measures within the library system by detecting unusual patterns of behavior, preventing unauthorized access, and identifying potential security threats. This is crucial for protecting both physical and digital collections.

10. Automation of Repetitive Tasks:

AI can automate routine and repetitive tasks, allowing library staff to focus on more complex and value-added activities. This can lead to increased productivity and efficiency in library operations. While AI offers numerous benefits, it's important to address ethical considerations, data privacy, and ensure that the implementation aligns with the mission of the library to serve its community effectively. Additionally, user education is crucial to help patrons understand and make the most of AI-enhanced library services.

Demerits of Artificial Intelligence in Libraries:

While Artificial Intelligence (AI) offers numerous benefits to libraries, there are also potential demerits and challenges associated with its implementation. It's important to consider these aspects to ensure responsible and ethical use of AI in library settings. Some of the demerits include:

1. Bias in Algorithms:

AI algorithms may inadvertently incorporate biases present in the data used for training. This can result in biased recommendations and search results, reinforcing existing inequalities and limiting diverse perspectives in the materials recommended to users.

2. Privacy Concerns:

Implementing AI systems involves the collection and analysis of user data. Libraries must be diligent in protecting user privacy and ensuring that data is handled in accordance with privacy regulations. Users may be concerned about the extent to which their reading habits and preferences are tracked.

3. Dependency on Technology:

Over-reliance on AI systems may lead to a decreased emphasis on human expertise and intuition. Libraries should strike a balance between leveraging AI tools and maintaining the essential role of human librarians in understanding the nuanced needs of their community.

4. Cost of Implementation:

Implementing AI technologies can be costly, and libraries, especially smaller ones with limited budgets, may face challenges in acquiring and maintaining sophisticated AI systems. This could potentially lead to disparities in AI adoption among different libraries.

5. Resistance to Change:

Some library users and staff may resist the integration of AI technologies due to a lack of familiarity, trust issues, or concerns about job displacement. Effective communication and training are crucial to overcoming resistance and promoting acceptance.

6. Technical Challenges:

AI systems may encounter technical challenges, such as errors in natural language processing or inaccuracies in automated cataloging. These issues can affect the reliability and trustworthiness of AI-driven services.

7. Lack of Customization:

AI algorithms may struggle to provide truly personalized experiences for users, especially in cases where users have diverse preferences and needs. Libraries need to ensure that AI recommendations are adaptable to different user profiles.

8. Ethical Considerations:

Libraries must grapple with ethical considerations related to the use of AI, such as the responsible handling of user data, transparency in algorithmic decision-making, and ensuring that AI aligns with the library's mission and values.

9. Loss of Human Touch:

AI systems may lack the human touch and understanding that librarians bring to user interactions. Personalized recommendations and user assistance may not fully replace the interpersonal connections that librarians can establish with patrons.

It's crucial for libraries to carefully consider these demerits and address them proactively when implementing AI technologies. A thoughtful and ethical approach, combined with ongoing assessment and user feedback, can help libraries harness the benefits of AI while mitigating potential challenges.

Challenges of Implementing Artificial Intelligence in Libraries:

The implementation of Artificial Intelligence (AI) in libraries comes with several challenges, and addressing these challenges is crucial to ensure the successful integration of AI technologies. Some of the key challenges include:

1. Costs and Budget Constraints:

The initial investment and ongoing maintenance costs associated with AI implementation can be substantial. Libraries, particularly smaller ones with limited budgets, may find it challenging to allocate resources for the adoption of AI technologies.

2. Data Quality and Bias:

AI systems heavily rely on data for training, and if the data used is biased or of poor quality, it can result in biased algorithms and inaccurate predictions. Libraries must ensure that their data is diverse, representative, and free from biases.

3. Privacy and Security Concerns:

Libraries handle sensitive user information, and the implementation of AI raises privacy and security concerns. Protecting user data and ensuring compliance with privacy regulations is essential, requiring robust security measures and ethical data handling practices.

4. User Acceptance and Resistance:

Users, including both library staff and patrons, may be resistant to AI implementation due to fear of job displacement, concerns about privacy, or simply a lack of familiarity. Libraries need to address these concerns through education and transparent communication.

5. Staff Training and Skill Gaps:

Library staff may lack the necessary skills and expertise to understand and effectively use AI technologies. Training programs are essential to bridge the skill gaps and empower staff to leverage AI tools in their daily operations.

6. Ethical Considerations:

The ethical implications of AI, including issues related to bias, transparency, and accountability, need careful consideration. Libraries must establish ethical guidelines for AI use and regularly evaluate the impact of AI on users and communities.

7. Integration with Existing Systems:

Many libraries already have established systems and workflows. Integrating new AI technologies seamlessly with existing systems can be challenging and may require significant customization and technical expertise.

8. Limited Understanding of AI:

Some library staff may have a limited understanding of AI concepts and functionalities. Providing educational resources and training programs is essential to ensure that staff members can make informed decisions about AI implementation.

9. Complexity of AI Algorithms:

The complexity of AI algorithms can make it challenging for non-technical staff to understand how these systems work. Libraries need to find ways to present AI-driven insights and recommendations in a user-friendly manner.

10. Continuous Evaluation and Improvement:

AI systems require continuous evaluation and improvement to remain effective and avoid obsolescence. Libraries must allocate resources for ongoing monitoring, assessment, and updates to keep pace with evolving technologies.

11. Legal and Ethical Compliance:

Libraries must comply with various legal and ethical standards when implementing AI, especially concerning intellectual property rights, data protection laws, and user consent. Ensuring compliance with these regulations is crucial.

Overcoming these challenges requires a strategic and collaborative approach involving library administrators, staff, technology experts, and users. Clear communication, ongoing training, and a commitment to ethical AI practices are essential for successfully integrating AI into library services.

Conclusion:

To sum up, the incorporation of Artificial Intelligence (AI) in libraries is an exciting and thoughtprovoking process that brings both opportunities and challenges. Unquestionably, AI has improved library services by improving accessibility, optimising workflows, and providing users with individualised experiences. However, the ever-changing field of AI in libraries necessitates cautious navigation to handle issues like privacy concerns, potential biases, and the requirement for continuing financial investments. Libraries' futures depend on maintaining the human-centered ideals that have guided these establishments for centuries while also embracing technological advancement. In order to ensure that these intellectual havens continue to grow while staying true to their mission of serving diverse communities and promoting a love of knowledge in the digital age, libraries must embrace the opportunities that artificial intelligence brings. To do this, they must uphold the principles of inclusivity, privacy, and ethical use.

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GLOBALISATION-IT'S ROLE & IMPACT ON HIGHER EDUCATION

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Abstract:

Globalization provides many opportunities for the transformation of education while also posing many challenges. In India, through the adoption of the National Education Policy, we have initiated the process of rising to meet the changing global scene. With a focus on holistic, flexible and multidisciplinary approach, India will produce a highly skilled labour force. Through cross-border exchanges of best practices and mutually beneficial collaborations, there will be an improvement in the teaching-learning process, improving learning outcomes.

Keywords: Globalisation, Higher Education, NEP, Skill-Based Learning

Introduction:

Globalization has made a significant impact on how we view the modern world. Global communication and the integration of individuals, organizations, and government have begun. The quality of education has improved as a result of globalization.

Globalization in education denotes the cross-border exchange and interdependence of ideas, information, and resources. Through cooperation, innovation, and the exchange of best practices, it has made it easier for educational systems all over the world to integrate. New opportunities for India's educational development and advancement have been made possible by globalization.

Review of Literature:

There is no single, universally accepted definition of globalization. Similarly, there seems to be no consensus about its benefits. According to Stiglitz (2002), globalization is inherently neither good nor bad since it all depends on how it is managed. This force has affected economics, politics, trade and finance. Education too has not been free from its influence. While the effect of globalization on education has been widely studied, Dodds (2008), focuses attention on the influence of education on globalization and the important role of HEIs in encouraging cross-border flows and global trends such as marketization. While some academics propose an accommodating attitude towards globalization, the naysayers propose that HEIs have an important responsibility in critiquing it.

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The increasing competition among HEIs due to globalization results in their growing differentiation in order to create a distinct market profile and offer product differentiation. There is also a growing trend towards the development of transnational higher education consortia. This has led to the corporatization of the University whereby their very structure and ethos have changed in order to compete more effectively in the global marketplace.

Healey (2008) views higher education as an important export sector. Universities now attract international students. In actively seeking international partners and franchising degree provision, many universities have set up campuses in other countries. It is thus becoming an important form of foreign direct investment. However, as the process of internationalization of the student body is much faster than the process of internationalization of the faculty, there is a growing perception that universities have adopted a corporate structure.

Globalization has undoubtedly increased inequalities. In a global economy, there are more opportunities for countries with high levels of education (Stewart, 1996). Foreign investment and technology are attracted to countries with good human resources, high savings and favorable economic policies. Developing nations have realized that in order to compete with the more developed nations, it is essential to invest in quality education, skills and training. When education raises productivity levels, these countries can supply skilled but low-cost labour, thus cementing their position in the global market.

Since economic failures are generally linked to poor human resources, it is imperative to increase investment in quality education. However, the neo-liberal policies encouraged by globalization reduces the role of the State and increases the role of the market. This brings about a downward pressure on government expenditure with the result that public investment in education is steadily declining whereas private investment is on the rise. Hence, questions of access and equity have to be given careful consideration if a country like India is to reap the benefits of its demographic dividend. Collier (2007) opines that corruption, political instability, and mismanagement of economic resources result in the problems faced by the world's poorest. The degree to which a country can build its indigenous industries and compete in world markets will be determined by the education and skills of its people (Amsden, 1992) implying the significant role of education in building institutions that promote economic growth.

The competence of those that negotiate the most favorable terms for a country to benefit from crossborder transactions is determined by education. Illustrating this fact with the example of Japan and the East Asian tiger economies, Little & Green (2009), draw attention to the positive role of education in producing a cadre of well-educated and extremely competent civil servants who plan and implement industrial policies and the complex mechanisms required to implement successful strategic training policies. China's achievements in education enabled it to meet the rising demand for skills in higher end manufacturing and service sectors. In case of India, major investment in university education, focus on science and technology and the growth of public and private sector technical colleges provided the skills required by heavy industries while also unknowingly creating the skills required for the

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subsequent ICT revolution. Ayyar (1996) stresses the need to find more resources for education when fiscal austerity measures adopted by the State results in dwindling investment in education. These resources must then be optimally allocated among the different stages in education.

Vavrus (2004) expresses a note of caution about the influence and assimilation of 'foreign' educational ideas and practices into local contexts as shown by the histories of colonialism, which may perpetuate colonized disparities through cultural incursions. The borrowing of educational models from foreign countries may be used to leverage controversial changes within a home country. Similarly, Bengtsson & Ostman (2012) point out the concern that globalizing ideologies may be a threat to sustainable development. The sovereignty of national pluralism may be undermined by aligning educational policy with economic development objectives.

Geographical marginalization is another important fallout of globalization (Brown et al, 2017). Youth in regional towns though exposed to discourses of neo-liberal globalization through education and media, are unable to enjoy its benefits due to regional isolation. This may be overcome only through migration to metropolitan cities or beyond. Students pursuing their higher education outside of their home region will become highly skilled

migrants. Higher education students and highly skilled professionals are generally more mobile than low skilled workers and other vulnerable migrants (Lo et al 2023). Declining population and labour shortages in the West coupled with declining funding for public universities lead to intense competition for foreign students. Disparities in socio-economic development between the Global North and the Global South continue to drive international student migration from developing to developed countries. The global hierarchy of countries and entrenched geo-political powers thus continue to be perpetuated. Against this backdrop may be viewed the Guiding Principles of the National Educational Policy, appropriately named Nipun Bharat Mission. The Indian word, nipun, refers to an expert or skilled person. Nipun Bharat thus refers to skilled India (Gupta, 2022). The policy's mission is to develop a population of skilled experts. If this objective is realized then India will succeed in competing at the global stage and reap the maximum benefits from globalization.

Role of Globalisation in Education:

- Globalization has improved the quality of education. Globalization made it possible for countries to see and then emulate the best educational systems in the world. Due to globalization, several countries quickly adopted innovative teaching methods such as competency-based learning, blended learning, skill-based learning, and e-learning. More and more students are increasingly attending institutions abroad through e-learning.
- The adoption of information sharing programs by nations has made it possible for students to learn about the newest technology in the world. As a result of globalization, foreign universities have opened in growing countries. These universities have helped many people get excellent educations. In addition, foreign investments in the education sector have caused infrastructure and facilities in developing and impoverished countries to improve.

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- In response to the rapidly increasing number of international students, several countries are gradually improving the quality of their educational systems and teaching methodologies. In India, supplemental add-on courses and partnerships with overseas colleges are becoming commonplace in the educational landscape.
- Globalization brought human rights and the failings of national government to the attention of a large number of individuals. Students from lesser developed nations are pursuing studies in India so as to become job proficient and embrace the necessary skill set so as to launch their start-ups in their own nation. Students who receive this hands-on training are better equipped to contribute to their nations' progress.
- Globalization has led to the adoption of alternative education practices by many countries, such as homeschooling, remote learning, global schooling, etc. In many nations, the importance of practical-based learning is rising. For example, internships are becoming more widely available, and universities, through their career advising and placement offices, help students land good jobs in reputable companies that align with their degree programs.
- One possible drawback of globalization in education could be the widening digital divide and technology differences between wealthy and developing nations. The rich and urbanites, poised to benefit from the improved educational institutions brought about by globalization. Urban and rural communities, as well as rich and poor, differ significantly in terms of educational opportunities.
- There's a chance that globalization in education will give certain developed nations more justifiable avenues to invade underdeveloped nations in a different way.

Effect of Globalisation on Teachers & Students:

On Teachers:

1. Aids in adopting a professional approach

Teachers are regarded as the pillars of society and as nation builders who contribute significantly to the advancement of their country. The nation's progress depends on strengthening its educational system. For this reason, in order for the teachers to give their best work, they must be professionally prepared with competence, dedication, holistic teaching learning methodology and this all is possible through globalisation in education.

2. Think Globally Act Locally

Globalisation in education necessitates that teachers make an effective blend of traditional and modern teaching methodology. Maintaining traditional teaching methods while implementing cutting-edge global approaches demands careful adaptation, making it a sensitive endeavour. The mantra to success is to adapt to a multicultural set up at the same time ensure that it meets the requirements of the students in question.

3. Increase in stress levels

The concept of survival of the fittest has crept in the education sector. Many academicians have shifted their career path owing to growing and rising demands of the profession. Furthermore, lack

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of conducive infrastructural and training facilities has aggravated this problem leading to stressful conditions.

4. Rising competition

Migration abroad as a result of globalization has increased competition for outstanding talent. Finding and keeping talented faculty members, who can be drawn to universities overseas by their higher pay and more chances for research, is a problem for many Indian colleges. Likewise, teachers need to possess a varied skill set to be considered as valuable resources by outstanding educational institutions. They need to especially be well trained to educate students who come in lieu of student exchange programs.

5. Effective Learning Environment

People from different cultural origins come together as a result of globalization, which can create opportunities for enriching encounters as well as difficulties with integration, communication, and understanding. Teachers' need to manage these disparities in order to establish a peaceful and welcoming learning environment.

On Students:

1. Better understanding & higher levels of efficiency

Students will be able to better understand and cope with abstract ideas and uncertain situations owing to some of the obstacles that globalization presents for knowledge, education, and learning. Students also have become more empathetic and understanding and are more aware of multicultures. The greater awareness of different cultures & the value of education brought about by globalization has also resulted in a rise in literacy rates worldwide.

2. Practical application of knowledge

Globalization improves students' capacity to learn and apply knowledge. The ability of students to obtain, evaluate, adopt, and apply knowledge is improved by globalization, as is their capacity to act independently, exercise sound judgment, and work with others to make sense of novel circumstances. The number of people with scientific and technical training has increased manifold. Students who wish to pursue studies or occupations abroad should be exposed to global education. Employers prioritize cross-cultural communication skills and global competency when sifting through applications to find the best suited people for their companies.

4. Effective Use of ICT tools

Globalization dissolves temporal and spatial barriers. A new system of knowledge, education, and learning should employ a wide range of synchronous and asynchronous activities that let instructor and student cross boundaries of time and distance using advanced information and communications technology. In order to expand the possibilities of information technology and communications for better learning, globalization promotes research and experimentation.

5. Environmental Sustainability

Global education links instructional strategies from many educational systems throughout the world to promote environmental sustainability on a global scale and support the growth of global

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companies. Global access to education is given top priority in these educational efforts, fostering experiences that equip students right from early education for leadership positions in international organizations.

6. Systems Thinking

A comprehensive grasp of systems thinking, encompassing the global system and corporate ecosystem, is necessary for the information society and global economy. Holistic problem solving is the strategy adopted by globalization. Multidisciplinary research methodologies are seen vital in attaining a more all-encompassing understanding of the realities confronting the current global system.

7. Cosmopolitan Mindset

Since global stability is mostly dependent on education, cultivating a cosmopolitan mindset from a young age aids individuals to integrate ideas from other societies and reach well-rounded judgments about global concerns. Then, as their countries become more interconnected, globalization and education have an impact on one another through their shared objective of preparing youth for prosperous futures.

8. Promotes Collaborations & Team Spirit

It promotes group collaboration among people. Employees are able to collaborate closely in groups. Students learn group dynamics, compromise, discussion, persuasion, organization, and leadership and management abilities in order to work in teams. Globalization in education fosters peace, cooperation, understanding, and acceptance of cultural variety among nations and areas.

Globalization and NEP 2020:

Higher education plays an extremely important role in promoting human and societal well-being. It influences and is influenced by globalisation. It produces highly skilled workers and contributes to the research base and capacity for innovation that determine competitiveness in a knowledge-based global economy. It facilitates international collaborations and cross-cultural exchanges. Competition and co-operation are intensifying simultaneously under the growing influence of market forces.

The adoption of the National Educational Policy 2020 (NEP) is expected to transform the educational scenario in the country by making it rational and skill-based. NEP 2020 succeeds the 34-year-old National Policy on Education (NPE) of 1986. This policy is aligned with the 2030 Agenda for Sustainable Development. Goal 4 of the SDGs seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

The NEP aspires to convert India into a thriving knowledge-based society and a leading global information power. The NEP 2020 is founded on the five guiding pillars of Access, Equity, Quality, Affordability and Accountability. It will prepare our youth to meet the diverse national and global challenges of the present and the future. Thus, there is renewed interest and urgency in the internationalisation and promotion of our educational institutions. To realize this goal, it is essential to ensure collaborations with foreign universities by participating in the exchange of faculties and

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students. It has positioned Indian Universities at the centre of international alliances supported by appropriate policy.

NEP, 2020 provides valuable insights and recommendations on various aspects of education. These include moving towards multidisciplinary and holistic education, institutional autonomy, promotion of quality research through the establishment of a National Research Foundation, continuous professional development of teachers, integration of technology, internationalization of higher education, restructuring of governance and regulatory architecture, multidisciplinary curricula, engaging blended pedagogy, valid, reliable and blended assessment and availability of content in Indian languages.

The NEP 2020 has established four divisions with various roles for regulation, accreditation, funding, and academic standard setting, creating a National Research Foundation (NRF). The initiative to expand interdisciplinary universities and colleges will go a long way in ensuring the fulfilment of these objectives. It is hoped that with the globalisation of Indian higher education, our universities and institutions are comparable to the best of the world's institutions and quality standards.

Concluding Observations:

Globalisation in education poses a sea of challenges and opportunities. Indian universities have the ability to overcome these obstacles and become powerful forces on the international scene by implementing strategic planning, making focused investments, and maintaining a dedication to ongoing development.

The community at large, government agencies, educational institutions, industry partners, parents and students alike must work together to address these issues so as to overcome the obstacles presented by globalization and establish Indian higher education institutions as centres of excellence in the global knowledge landscape. All the stakeholders together will definitely help in bridging gaps if any. There is optimism that the rote learning system of education will transform into a competency- and skill-based learning system pedagogy with the introduction of NEP & support rendered by stakeholders.

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IMPACT OF ARTIFICIAL INTELLIGENCE IN ACCELERATING RESEARCH, INNOVATION AND DEVELOPING SKILLS FOR WORK TRANSFORMATION

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Abstract:

Research plays an increasingly important role in the development of innovations and new technology. Research and innovation process results in economic growth by encouraging the development of new markets and improving existing markets. Businesses explore ways for humans and AI to collaborate synergistically, with AI handling routine tasks and humans focusing on complex decision-making and creativity. Economic growth is seen as being led by innovations that are introduced into the market, disrupting existing structures and creating new opportunities. The evolving nature of AI technologies presents challenges for regulatory frameworks. Businesses need to stay informed about and comply with regulations governing AI use in their respective industries. Therefore, innovation (in particular, technological innovation) is the first major driving force of economic dynamics. Finally, the emphasis has been given on an entrepreneur; an economic actor who kicks off economic development by introducing novelties. Thus, according to Neo-Schumpeterian Economics, innovation, knowledge, and entrepreneurship are the three major driving forces of economic dynamics wherein the emergence of the new industries is driven by innovation, supported by knowledge and tested by the entrepreneurial action. The impact of AI on businesses is transformative, touching on research, innovation, market deployment, and future shifts in business models. Successful adaptation requires a proactive approach, embracing new technologies, addressing ethical considerations, and staying attuned to the evolving regulatory landscape.

Keywords: Artificial Intelligence, Automation, Digitization, Business Strategies, Innovation, Business

Introduction:

The increase in popularity of AI has led to an expansion in the investment in multiple sectors of AI including research, development, marketing, and production and vice versa. Some of the corporations with the maximum number of mentions of the word "artificial intelligence" in their earning calls are NVIDIA, ORBCOMM, Microsoft, and Facebook. AI has reached a place where it can take real-world financial decisions, chat with people, play games against humans, and work hand in hand with them. Behind all these real-world applications, there is an AI-driven system or an intelligent agent (IA). It interacts with the environment in a repetitive cycle of sense-think-and-act. It takes in the data from the environment, makes an informed decision based on the input data and past experience, and finally performs an action affecting the environment. This IA can be a machine

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(industrial and home robots, self-driving cars) or a software agent (chatbots, recommender systems). It takes the data in the form of images, videos, sound, text etc., analyses this data using AI algorithms and delivers it to the viewer.

Literature Review:

AI-related skills are the skills of the future. There is a need for the identification and implementation of strategies for the preparation of upcoming future. We recommend a few initiatives that can be taken to create a large pool of skilled AI-professionals. At fundamental level, students can be exposed to mandatory data-focused programs: machine learning and AI courses. Data labs can be established at educational institutes.(**Murray 2018**)

The core of marketing hasn't changed, but the way we communicate has changed marketing. It is morphing every day. That's where the big shift has happened. The art of storytelling is very much there but how we tell the story and the medium through which we tell the story is the key. The big changes that will happen in marketing, just as in business, is artificial intelligence and machine learning. – **Sanjiv Mehta, CEO & MD of Hindustan Unilever Ltd.** (*Corporate citizen, February 16-28, 2018, Page 20 to 25*)

It's not that difficult to argue that marketing in the future will make increasing use of AI. Even today, the components of an AI – based approach are largely in place. Contemporary marketing is increasingly quantitative, targeted, and tied to business outcomes. Ads and promotions are increasingly customized to individual consumers in real time. Companies employ multiple channels to get to customers, but all of them increasingly employ digital content. Company marketers still work with agencies, many of which have developed analytical capabilities of their own. - **Thomas H. Davenport** (*Artificial Intelligence for Marketing by Jim Sterne,Page 18*)

Objective of the Paper:

- · To Study and analyze various aspects of artificial intelligence
- To reveal the necessity of adapting it as a marketing strategy for developing research, innovation and providing additional skills at the workforce area.

Research Methodology:

The present empirical study has been done mainly from the secondary data .All the information data and opinion are collected which has a direct or indirect relevance to the information like official publications and research journals. The paper searches the various dimensions attached to the concept of artificial intelligence in research, innovation and workforce skills. This paper is a descriptive study, where examples are cited based on the references from some secondary material.

On the Global Market: Top Companies and Start-ups:

In this section, first, we identify the top AI companies and then perform their financial analysis

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to assess the impact of automation and AI on the global market. We identified the top five AI companies from a list of 119+ corporate groups which participated in NIPS 2018. The criterion adopted for evaluation is the number of acquisitions of AI start-ups in the last 9 years (January 2010-January 2019). Fig. 3 shows the number of AI start-up acquisitions by the top five AI companies viz. Google, Apple, Amazon, Microsoft, and IBM. Table 2 summarises the details of the acquisitions and NIPS sponsorship level of the top five AI companies. In the following section, we perform the financial analysis of the top five AI companies viz. Google, Apple, Amazon, Microsoft, and IBM.



Fig.1 The number of AI start-up acquisitions by the top five AI companies

We performed the financial analysis of the top AI companies by analyzing their financial worth in the last decade. Our analysis shows an increasing trend in the share prices, EPS (earning per share), investment in AI, and the net sales of all the top companies for the last decade (2009-2018). Fig 4 shows the trend of normalized net sales of the top five AI companies for the last 10 years (2009-2018). Apart from Apple and IBM, all other companies show a continual increase over the years. The investment done in AI must have played some role in the financial growth of these companies, but it was not possible to conclusively find a

direct correspondence between the two because there can be various factors behind the growth.



Fig.2. Net Sales of top AI acquirers in the last 10 Years (2009-2018)

Since start-ups are considered as innovation and growth drivers of the economy, we believe that their analysis would result in important conclusions, relevant to the detection of the impact of automation and AI on business models. Therefore, we procured the list of preeminent AI start-ups for the year 2017 and 2018 with the help of the CB Insights' Mosaic algorithm². The algorithm identifies the top AI start-ups by evaluating the factors like profile, financing history, tech innovation, patent

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activity, team strength, investor quality, business model, mosaic score, funding history etc. Customer interaction is the most basic form of communication between a company and its customers. Every single interaction is another opportunity for the company to satisfy customers and retain them. In the conventional process, customers used to interact with the employees of the company, holding the position of retail shop executive, salespersons, cashiers, customer relationship managers etc. for all their needs, products and services. The integration of intelligent agents in the companies is transforming the customer interaction from 'human-to-human' to 'human-to-machine'. "Chatbots" and "virtual assistants" are theintelligent conversational agents capable of conducting a human-like conversation with the customers via textual and auditory method respectively. These agents are eliminating delays, human errors and provide almost immediate personalized responses to the customers. A few exemplary companies with the successful implementation of chatbots are:

- 1. Google duplex: For making real world calls
- 2. 1-800-Flowers: Order flowers
- 3. North face: Product selection
- 4. Spotify: Discover weekly playlist
- 5. KFC: Facial recognition for order prediction

Currently, the most advanced conversational agents can automate simple, repetitive, low-level tasks and queries. However, developers are on their progressive path to make them capable of performing complex tasks, understand human emotions and thus deliver an efficient and satisfactory/ contented experience to the customers.

Conclusion:

In summary, this research has extensively explored the influence of Artificial Intelligence (AI) on the workforce, with a specific focus on the perspectives related to research, innovation, and skill development. The study employed a qualitative research approach, incorporating semi-structured interviews with professionals spanning various firms. The key findings underscored the significance of competitive pressure, media attention, digital maturity, and customer considerations as crucial factors shaping the integration of AI in the realms of research, innovation, and the cultivation of skills within the workforce. The research illuminated the multifaceted impact of AI on the contemporary work landscape, particularly in domains where research, innovation, and skill development are pivotal. The identified factors serve as drivers propelling the incorporation of AI into these areas, reflecting the dynamic nature of the modern professional environment.

Recommendations:

Building on these findings, several recommendations emerge for organizations aiming to navigate the evolving intersection of AI, workforce, and skill development:

• Strategic Alignment: Organizations should strategically align their research, innovation, and skill development initiatives with the identified factors—competitive pressure, media attention, digital

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maturity, and customer considerations. This alignment ensures that AI integration serves the specific needs and demands of the organization.

- **Continuous Adaptation:** Recognizing the dynamic nature of competitive pressure and digital maturity, organizations must embrace a culture of continuous adaptation. This involves regularly reassessing AI strategies in research, innovation, and skill development to stay responsive to evolving trends.
- **Investment in Training:** Given the influence of AI on skill development, organizations should heavily invest in training programs to equip their workforce with the necessary skills for effectively utilizing and adapting to AI technologies. This includes fostering a culture of lifelong learning.
- Strategic Communication: Clear and transparent communication is vital, especially in the context of media attention and customer considerations. Organizations should communicate their AI initiatives, emphasizing the ethical and responsible use of AI in research and innovation.
- **Collaboration and Networking:** To stay abreast of industry trends and best practices in AI integration, organizations should actively engage in collaboration and networking with other firms, research institutions, and industry experts. This collaborative approach can foster innovation and shared insights.
- In conclusion, this research sheds light on the transformative impact of AI on the workforce, specifically in the realms of research, innovation, and skill development. By understanding and strategically responding to the identified factors, organizations can not only harness the benefits of AI but also contribute to the advancement of their workforce in a rapidly evolving professional landscape.

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REVITALIZING MATHEMATICS EDUCATION: EXPLORING VEDIC MATHEMATICS IN THE CONTEXT OF NEP 2020 UNDER IKS

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Abstract:

The National Education Policy (NEP) 2020 of India emphasizes a shift towards a more holistic and flexible education system, encouraging the integration of indigenous knowledge systems and pedagogies. In this context, Vedic Mathematics (VM), an ancient Indian system of calculation, emerges as a potentially valuable tool for enhancing mathematical learning and understanding. However, its integration into mainstream education requires careful consideration of teacher perception and awareness.

Keywords: Vedic Mathematics, NEP 2020, Teacher Perception, Teacher Awareness, Mathematics Education, Indigenous Knowledge Systems.

This abstract proposes a study that explores the following aspects:

1. Perceptions of VM:

- Investigate the current perceptions of VM among mathematics teachers and educators.
- Identify factors influencing these perceptions, such as existing knowledge of VM, exposure to its benefits and limitations, and concerns about integration into existing curriculum.

2. Teacher Awareness and Preparedness:

- Assess the level of awareness and understanding of VM among mathematics teachers.
- Evaluate the existing resources and training programs available for equipping teachers with the knowledge and skills to effectively teach VM.
- Identify gaps in teacher preparedness and propose strategies for addressing them.
- 3. Alignment with NEP 2020 Principles:
 - Analyze how VM aligns with the core principles of NEP 2020, such as emphasis on conceptual understanding, critical thinking, creativity, and problem-solving.
 - Discuss the potential of VM to promote holistic learning and cater to diverse learning styles.

4. Recommendations and Future Directions:

- Based on the findings, provide recommendations for integrating VM into the mathematics curriculum in a way that aligns with NEP 2020 principles and addresses teacher perceptions and needs.
- Suggest strategies for enhancing teacher awareness and preparedness through effective training programs and resource development.

• Propose directions for further research on the effectiveness of VM in improving student learning outcomes and its broader contribution to mathematics education in India.

This study aims to contribute to the ongoing discourse on integrating indigenous knowledge systems like VM into modern education. By understanding teacher perceptions and addressing their needs, we can pave the way for a more inclusive and effective mathematics education system in India, aligned with the goals of NEP 2020.

Introduction:

Vedic mathematics, comprising a set of 16 sutras or formulas developed by ancient Indian mathematicians, stands as a testament to the ingenuity of early mathematical thought. These formulas were crafted to simplify intricate calculations, advocating for mental math, visualization, and logical reasoning. Aligned with the ethos of the NEP 2020, which champions critical thinking and problem-solving skills in students, Vedic mathematics emerges as a valuable tool for enhancing mathematical aptitude.

During a recent address on the radio and television program 'Mann Ki Baat,' Prime Minister Narendra Modi engaged with a young boy named Usman, encouraging him to explore Vedic mathematics as a means to excel in competitive exams. The Prime Minister extolled the efficacy of Vedic mathematics, suggesting that its principles enable calculations at the pace of computers. He further emphasized the essence of the NEP, advocating not merely for mathematical prowess but for a holistic approach to mathematical thinking—a mode of cognitive reasoning.

In contemplating the implementation of the NEP within the educational framework, discussions across the nation have deliberated on its incorporation into the National Curriculum Framework. One pivotal facet of this discussion pertains to integrating elements that not only resonate with the NEP's core tenets but also facilitate the cultivation of critical thinking, as endorsed by the Prime Minister. In this light, considering the inclusion of Vedic mathematics becomes a compelling prospect.

To truly grasp the significance of Vedic mathematics, it's crucial to acknowledge its connection to the Vedas—the mathematical principles subtly referenced within these ancient texts. An unfortunate misconception persists that the Vedas solely exalt nature or deities, a notion crafted by Western Orientalists with a vested interest in undermining the wealth of ancient Indian knowledge and scientific prowess. Their intent was to establish superiority over Indian intellectualism and perpetuate their influence.

Understanding of NEP:

The National Education Policy (NEP) 2020 stands as a transformative blueprint, striving to revolutionize the educational landscape of India. Anchored on the pillars of Access, Equity, Quality, and Accountability, NEP 2020 embodies a paradigm shift in educational ideology. Its envisioned 5+3+3+4 structure, replacing the traditional 10+2 system, aims to encompass the critical early years of a child's development. Emphasizing holistic learning, NEP 2020 extends schooling to include three

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years of anganwadi, recognizing the significance of brain development in children aged 3-6. Central to its vision are the four foundational principles: Flexibility, Multidisciplinary Education, Critical Thinking, and Skill Development. By integrating 21st-century skills like soft skills, problem-solving, and communication with a robust emphasis on basic language and mathematical proficiency, NEP 2020 aspires to empower learners for a dynamic global landscape. Additionally, its proactive measures include the NIPUN Bharat Mission, aiming to bolster foundational literacy and numeracy skills, targeting 100% proficiency by 2026-2027. NEP 2020 heralds a shift from content-based to experience-based learning, recognizing mathematics not just as computation but as a gateway to logical thinking, problem-solving, and inquiry-based education. Its envisioned changes, encompassing interdisciplinary curricula, credit-based systems, and innovative education centers, herald a promising era of educational transformation.

Perception of Vedic Mathematics:

The perception of Vedic mathematics among teachers understanding and make learning more fun. They appreciate the emphasis on mental math and problem-solving, which they believe can help students develop critical varies widely. Some teachers view it as a valuable tool that can enhance students' mathematical thinking skills and confidence in their abilities.

Other teachers, however, are skeptical of Vedic mathematics. They may believe that it is not a rigorous or systematic approach to mathematics. They may also be concerned about the lack of readily available resources and teacher training on Vedic mathematics.

Teacher Awareness:

The level of teacher awareness about Vedic mathematics is generally low. Many teachers are not familiar with the concepts or methods of Vedic mathematics. This lack of awareness is likely due to the fact that Vedic mathematics is not part of the traditional mathematics curriculum in most schools.

Potential Benefits of Vedic Mathematics:

Despite the challenges, there are several potential benefits to incorporating Vedic mathematics into classroom teaching. These benefits include:

- **Improved mental math skills:** Vedic mathematics can help students develop their mental math skills, which is beneficial in everyday life and in other areas of mathematics.
- Enhanced problem-solving skills: The emphasis on mental math and logical reasoning in Vedic mathematics can help students develop their problem-solving skills, which are essential for success in many areas of life.
- **Increased interest in mathematics:** Vedic mathematics can make learning mathematics more fun and engaging for students, which can increase their interest in the subject.

• **Development of critical thinking skills:** Vedic mathematics encourages students to think critically and creatively about mathematical problems, which can help them develop their critical thinking skills.

Alignment with NEP 2020:

The NEP 2020 emphasizes the importance of developing critical thinking and problem-solving skills in students. The policy also calls for a focus on making learning more enjoyable and engaging for students. Vedic mathematics aligns with these goals in several ways:

- Vedic mathematics emphasizes mental math and problem-solving, which are essential for developing critical thinking skills.
- Vedic mathematics uses visualization and other techniques to make learning mathematics more enjoyable and engaging for students.
- Vedic mathematics can be used to teach a variety of mathematical concepts, which can help students develop a deeper understanding of mathematics.

Indian Knowledge Systems (IKS):

IKS represent a collective reservoir of diverse knowledge frameworks meticulously structured over centuries. Spanning from the ancient Vedic texts to indigenous folklore, this vast spectrum of wisdom is dispersed across a myriad of languages, including Sanskrit, Pali, Prakrit, and numerous regional dialects. However, this wealth of knowledge has largely remained untapped for several decades.

IKS encompasses foundational knowledge, sciences, engineering, humanities, and social sciences, systematically classified and evolved across millennia. It encompasses a broad range of disciplines such as Astronomy, Ayurveda & Yoga, Mathematics & Computing, Languages & Linguistics, Metallurgy, Rasa-Shastra, Public Administration, War Technology, Management Science, and more.

The contributions of IKS to various fields are profound, ranging from understanding celestial movements and a solar-centric worldview to herbal medicine and surgical procedures. It includes monumental discoveries like zero, the decimal numeral system, approximation algorithms for computing Pi, Panini's universal grammar, steel-making techniques, principles of good governance, taxation, and beyond.

In ancient Indian education, eighteen Vidya Sthanas (Schools of Learning) thrived, imparting knowledge in centers like Nalanda and Takshashila. India's reputation in art, architecture, science, technology, engineering, philosophy, and practices stemmed from these institutions. However, this vast repository of knowledge attracted not only seekers but also invaders who sought to dismantle India's wealth.

Knowledge was indeed the bedrock of power and prosperity for our nation. Today, as the world veers toward knowledge diplomacy shaping international relations, this reservoir of knowledge assumes paramount importance. It is this repository that will empower nations. India boasts a treasure trove of wisdom that has enriched its civilization for millennia, holding immense potential for the future.

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Following are the main divisions of IKS:

- Ayurveda: Traditional Indian medicine
- Yoga: A system of physical, mental, and spiritual practices
- Vastu Shastra: The science of architecture and design
- Jyotish: Astrology
- Sanskrit: The classical language of India
- Vedanta: A school of philosophy
- Vedic Mathematics

IKS is a valuable resource for India and the world. It offers insights into a variety of fields, including health, well-being, sustainability, and spirituality. IKS is also a rich source of cultural heritage and identity.

NEP 2020 and IKS:

The National Education Policy (NEP) 2020 of India recognizes the immense value of IKS. The policy calls for the integration of IKS into education at all levels. This is a significant step towards promoting the preservation and transmission of IKS knowledge.

The NEP 2020 recommends the following for the integration of IKS into education:

- **Integration across disciplines:** IKS should be integrated into the curriculum across various disciplines, including science, mathematics, literature, and economics. This will help students to develop a holistic understanding of knowledge.
- Flexibility and choice: Students should be given the flexibility to choose courses or modules related to IKS based on their interests and regional contexts. This will ensure that students have a learning experience relevant to their cultural backgrounds and lived realities.
- **Teacher training and resources:** Teachers need to be trained in IKS concepts and methodologies. This will help them to effectively teach IKS to students. The government should also develop quality teaching-learning materials, textbooks, and digital resources focused on IKS.
- **Promoting research and innovation:** Research initiatives should be encouraged to document, validate, and apply IKS to contemporary challenges in various fields. This will help to ensure that IKS is relevant to the needs of the 21st century.

The integration of IKS into education is a complex and challenging task. However, it is a worthwhile endeavor that has the potential to enrich education and contribute to a more vibrant and inclusive knowledge society.

Challenges and Recommendations:

There are several challenges that need to be addressed in order to effectively incorporate Vedic mathematics into classroom teaching. These challenges include:

• Lack of teacher awareness: Many teachers are not familiar with Vedic mathematics, which makes it difficult for them to incorporate it into their teaching.

- Lack of resources: There is a lack of readily available resources on Vedic mathematics for teachers.
- **Time constraints:** The current mathematics curriculum is already packed, and it may be difficult for teachers to find time to teach Vedic mathematics. Despite these challenges, there are several recommendations that can be made to promote the use of Vedic mathematics in classrooms:
- **Teacher training:** Provide teachers with training on Vedic mathematics so that they can understand the concepts and methods and feel confident teaching it to their students.
- **Develop resources:** Develop high-quality resources on Vedic mathematics, such as textbooks, lesson plans, and online materials.
- Integrate Vedic mathematics into the curriculum: Find ways to integrate Vedic mathematics into the existing mathematics curriculum, so that teachers do not have to find extra time to teach it.
- **Raise awareness:** Raise awareness about Vedic mathematics among parents and the community, so that they can support the use of Vedic mathematics in schools.

Conclusion:

In conclusion, the exploration of Vedic Mathematics (VM) within the context of the National Education Policy (NEP) 2020 unveils a complex yet promising landscape for the integration of indigenous knowledge systems into contemporary education. The perceptions among educators regarding VM exhibit a spectrum of viewpoints, highlighting both its potential as a catalyst for mathematical aptitude and the skepticism surrounding its systematic approach and resource availability. Despite challenges, the identified benefits of VM in enhancing mental math skills, problem-solving abilities, and critical thinking resonate with the NEP 2020's emphasis on holistic learning and engagement. Simultaneously, the broader discussion on Indian Knowledge Systems (IKS) underscores an untapped reservoir of historical wisdom and contemporary relevance. Recommendations addressing teacher awareness, resource development, curriculum integration, and community involvement serve as pivotal strategies for a harmonious integration of VM and IKS into educational frameworks. This research endeavors to pave a path toward a more inclusive, engaging, and culturally rooted educational paradigm, aligning with the aspirations of the NEP 2020 and laying the groundwork for a vibrant and enriched learning experience in India.

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IMPACT OF GST ON INDIAN ECONOMY

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Abstract:

The implementation of the Goods and Services Tax (GST) in India marked a significant shift in the nation's indirect taxation framework. This paper examines the multifaceted impact of GST on the Indian economy. Beginning with a historical overview of the tax system, the research investigates the challenges faced during the initial implementation phase, highlighting issues related to technology, compliance, and administrative readiness. A sector-wise analysis delves into the differential effects on various industries, including manufacturing, services, and agriculture. The study explores how GST has reshaped business processes and supply chain management, impacting both small and medium enterprises (SMEs) and large corporations. Assessing the economic repercussions, the paper scrutinizes changes in tax collection patterns and the revenue-neutral rate, shedding light on the implications for government revenue. From a consumer perspective, the research investigates alterations in prices, consumer behavior, and the broader economic implications, such as inflation and purchasing power. Furthermore, the paper provides a forward-looking perspective, offering policy recommendations for addressing challenges and enhancing the GST system's efficiency. In conclusion, this research provides a comprehensive analysis of the impact of GST on the Indian economy, contributing valuable insights for policymakers, businesses, and researchers alike.

Introduction:

The Goods and Services Tax (GST) is an indirect tax on goods and services that was introduced in 2017 to simplify the tax system. It replaced several indirect taxes with one tax, which made things a lot easier for businesses. The tax system has since been streamlined, leading to increased tax compliance and formalisation of the economy.

However, it wasn't all sunshine and rainbows when GST was first introduced, and some businesses had trouble adjusting to the new system.

In this paper, we explore the larger impact of GST on the indian economy.

Origin of GST:

The Goods and Services Tax (GST) is a comprehensive indirect tax levied on the supply of goods and services in India. The origin of GST in India can be traced back to the recommendations of the Kelkar Task Force in 2003, which was constituted by the Atal Bihari Vajpayee government. The task force proposed the introduction of a national-level GST to streamline and harmonize the indirect tax structure in the country.

After years of discussions and deliberations, the Constitution (122nd Amendment) Bill, 2014 was introduced in the Indian Parliament. The bill aimed at amending the Constitution to pave the way for the implementation of GST. It received assent from the President of India on September 8, 2016, and came into effect on July 1, 2017.

The GST replaced a complex and cascading tax structure that included various indirect taxes such as excise duty, service tax, and value-added tax (VAT). The introduction of GST marked a significant step towards creating a unified and transparent tax system, eliminating barriers to inter-state trade, and promoting ease of doing business in India. The GST Council, comprising representatives from the central and state governments, continues to make decisions to refine and improve the GST framework based on evolving economic and business needs.

GST in India:

Goods and Services Tax (GST) is a comprehensive indirect tax reform that was implemented in India on July 1, 2017. It replaced a complex and multi-layered system of indirect taxes, streamlining the taxation structure and promoting a unified market across the country. GST is a destination-based tax, levied at each stage of the supply chain, from manufacturing to the end consumer.

The GST framework in India consists of four tax slabs -5%, 12%, 18%, and 28%, along with specific rates for essential goods and services, as well as a cess on certain luxury and sin goods. The tax is divided between the central and state governments, with Central GST (CGST) collected by the central government and State GST (SGST) by the respective state governments. For inter-state transactions, Integrated GST (IGST) is levied, and the revenue is shared between the center and the destination state. One of the primary objectives of introducing GST was to create a common market by removing barriers to interstate trade. The tax operates on the principle of "One Nation, One Tax," reducing complexities and making compliance easier for businesses. GST has subsumed various indirect taxes like excise duty, service tax, and value-added tax, leading to a simplified and more transparent tax structure.

The GST Council, a constitutional body consisting of representatives from the central and state governments, plays a crucial role in decision-making related to GST. It meets regularly to discuss and implement changes in tax rates, exemptions, and other aspects of the GST framework based on economic conditions and feedback from various stakeholders.

While GST has brought about significant reforms, its implementation has faced challenges such as technological glitches, compliance issues, and frequent changes in tax rates. Despite these challenges, GST has been a landmark reform in India's tax system, contributing to economic growth, reducing tax

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evasion, and fostering a more business-friendly environment. The government continues to refine and improve the GST system to address concerns and adapt to the evolving needs of the economy.

India - Pre and Post GST:

Before the implementation of the Goods and Services Tax (GST) in India, the country had a complex and fragmented indirect tax structure. It comprised a myriad of central and state-level taxes, including excise duty, service tax, value-added tax (VAT), central sales tax, and others. This multiplicity of taxes led to cascading effects, wherein taxes were levied on top of each other at different stages of the supply chain, resulting in increased prices for consumers and a lack of uniformity in tax rates across states.

The pre-GST era was marked by significant tax inefficiencies, with businesses facing compliance challenges due to the varied tax regulations in different states. Interstate movement of goods was hampered by entry taxes and other barriers, hindering the seamless flow of goods across state borders. The lack of a unified tax structure also contributed to tax evasion and a parallel economy.

The introduction of GST on July 1, 2017, marked a transformative shift in India's tax landscape. Post-GST, the country moved towards a "One Nation, One Tax" regime, consolidating multiple indirect taxes into a single, comprehensive tax system. GST simplified the taxation process, reducing the burden on businesses and creating a more transparent and efficient tax structure.

Post-GST, businesses benefit from simplified compliance procedures and a unified market, enabling smoother interstate trade. The elimination of cascading taxes has led to a reduction in overall tax incidence and improved the competitiveness of Indian goods and services in the global market. The GST framework allows for seamless input tax credit, encouraging better compliance and discouraging tax evasion.

While the implementation of GST has undoubtedly brought about positive changes, there were initial challenges, such as adapting to the new tax system, addressing technological issues, and managing the transition for businesses. The GST Council, comprising representatives from the central and state governments, continues to actively engage in refining the GST structure based on feedback from stakeholders and economic requirements. Overall, the move from the pre-GST era to the post-GST era represents a significant step forward in creating a more integrated and business-friendly taxation system in India.

Conceptual Framework:

The conceptual framework of the Goods and Services Tax (GST) in India represents a transformative shift in the nation's tax structure, unifying diverse indirect taxes under a comprehensive and integrated system. GST is a destination-based consumption tax that subsumes a myriad of taxes like Value Added Tax (VAT), Central Excise Duty, Service Tax, and others. This framework is characterized by a dual structure, involving both the central and state governments in its administration.

Under the GST regime, there are three main components: Central GST (CGST), State GST (SGST), and Integrated GST (IGST). CGST and SGST are levied on intra-state transactions, with revenue

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shared between the central and state governments. IGST, on the other hand, applies to inter-state transactions, ensuring a seamless flow of credits across state boundaries.

The credit mechanism is a pivotal aspect of the GST framework, enabling businesses to claim input tax credits on the taxes paid at each stage of the supply chain. This fosters efficiency, reduces cascading effects, and promotes a more transparent and accountable tax system. The implementation of the GST conceptual framework reflects India's commitment to fostering a unified and simplified tax structure, promoting economic growth, and enhancing the ease of doing business.

Giving data, Sitharaman said the revenue buoyancy of states improved from 0.72 in the pre-GST era, to 1.22 post-GST rollout. Before GST, the state's tax revenue growth was 8.3 per cent while GDP growth was 11.5 per cent, which means a low tax buoyancy of 0.72. After GST, tax growth was 12.3 per cent, while GDP growth was 9.8 per cent, resulting in a higher buoyancy 0f 1.22.

Post-GST revenue buoyancy of states is much higher than pre-GST buoyancy, Sitharaman said.

The minister complimented tax officers for their "dedication and commitment and grit", which helped in making monthly GST revenues of Rs 1.60 lakh crore a "new normal". GST collection in June grew 12 per cent to over Rs 1.61 lakh crore.

The Positive Impact of GST on the Indian Economy:

Below are some areas where we have seen positive impact of GST on the Indian economy:

1. Streamlined Tax System:

GST streamlined the tax system by replacing multiple indirect taxes with a single tax, reducing complexity and making compliance more manageable for companies.

2. Increased Tax Compliance:

GST's technology-driven procedures like online registration, e-filing of returns, and e-way bills have raised tax compliance. The tax base has grown, increasing the government's tax intake.

3. Economic Growth Boost:

GST's simplified tax code, elimination of interstate restrictions, and removal of checkpoints and entrance tax barriers at state borders increased efficiency and decreased logistical expenses. This helped the economy thrive, especially in industries like manufacturing and logistics.

4. Reduction of Tax Burden:

By removing the cascading impact of taxes, the GST aims to lessen the tax burden on consumers and businesses. Consumers have benefited from reduced prices of goods and services due to the efficient input tax credit mechanism.

5. Economic Formalisation:

GST encouraged enterprises to join the formal tax system, enhancing tax collections, decreasing tax evasion, and improving openness.

The Challenging Impact of GST on the Indian Economy

Below are some areas where there have been challenges on the GST front for the Indian economy:

1. Initial Setbacks

During the introduction of GST, small and medium-sized businesses had trouble adjusting to the new compliance standards, temporarily disrupting business operations.

2. Compliance burden

While GST intended to simplify the tax code, businesses found the paperwork and compliance procedures burdensome. SMEs found it challenging to navigate the complexity of GST reporting and maintain proper paperwork.

3. Impact on Small Firms

Implementing the GST placed a significant adjustment load on small firms, which disproportionately impacted sectors that had enjoyed threshold exemptions or were exempt from specific taxes. Compliance costs, including investing in technology and professional services, increased.

4. Sectoral Differences

Some industries, like manufacturing and logistics, benefited from GST, while others, including real estate and textiles, had difficulty adjusting to the new tax structure.

5. Inflation

Adopting the GST led to temporary price increases due to shifting tax rates and categories, despite the goal of decreasing overall taxation.

Conclusion:

The Goods and Services Tax, implemented in India in 2017, has greatly impacted the economy. It has streamlined the tax system, leading to increased compliance and formalisation of the economy. This has boosted growth in industries such as manufacturing and logistics. However, there have been challenges, including increased compliance burdens for small and medium-sized businesses and temporary inflationary pressures. Despite these challenges, the overall impact of GST has been positive, and the Indian economy is expected to continue growing.

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IMPACT OF ARTIFICIAL INTELLIGENCE (AI) ON LIBRARIES

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Abstract:

Libraries are greatly impacted by artificial intelligence (AI), which ushers in a new era of efficiency, accessibility, and personalised services. Artificial intelligence (AI) technology have enhanced traditional library operations by automating monotonous tasks like cataloguing and classification, freeing up librarians' valuable time for more strategic, user-focused work. The use of AI has significantly enhanced the search and discovery experiences for customers. Understanding the benefits and drawbacks of AI and machine learning is essential for improving user experience and implementing these technologies in libraries and information centres. Information professionals will be able to leverage these innovative, cutting-edge technologies to improve their services and make it easier for users to identify and access specific information. Artificial intelligence (AI) is changing the way that information is processed and searched for. The advantages and disadvantages of AI for libraries are covered in this paper.

Keywords: Artificial Intelligence, Libraries, Benefits of AI, Demerits of AI.

Introduction:

Modern approaches to information management and user services are being completely transformed by artificial intelligence (AI), which has become a disruptive force in libraries. Ex Libris (2019) claims that because machines are built to perceive and internalise patterns accurately on far larger scales than humans, they possess intelligence, which not only allows them to learn but also allows them to evolve with use to perform tasks more finely without needing to be explicitly programmed. Libraries are progressively utilising artificial intelligence (AI) technologies to improve the efficacy and efficiency of their operations as knowledge stewards and learning facilitators. AI is changing the library scene by delivering creative answers to enduring problems, such as automating cataloguing procedures and providing personalised suggestions. AI integration improves user experience and optimises resource management, making library services more responsive, accessible, and customised to each user's needs. The combination of AI with libraries, in this age of digital transformation, shows a dedication to flexibility and creativity and guarantees that these ancient establishments continue to be active centres of knowledge in our ever-evolving society.

Artificial Intelligence (AI) has a significant impact on libraries, bringing in a new era of effectiveness, accessibility, and customised services. By automating repetitive chores like cataloguing and classification, artificial intelligence (AI) technologies have improved traditional library operations and

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freed up librarians' valuable time for more strategic, user-focused work. Customers' search and discovery experiences have been greatly improved by the incorporation of AI, which uses sophisticated machine learning and natural language

processing algorithms to deliver more relevant and accurate results. AI-powered personalised recommendations that are based on user preference analysis make for a more customised and interesting user experience and help people form stronger bonds with library resources.

Artificial intelligence applications in library systems included subject indexing, shelf reading, collection development, shelf reading, shelf reading, reference services, and information retrieval systems, among other things. Knowledge-based services and natural language processing (NLP) have been targeted by this. The development of artificial intelligence programming has made the creation of an intelligent library not only possible but also inevitable. This claim is supported by Croke (2013), who demonstrates how artificial intelligence researchers and academics are developing intelligent systems that can anticipate needs and behave like librarians—library robots.

Libraries may make well-informed decisions about collection development and resource allocation by utilising AI for predictive analytics, which guarantees that resources are in line with user wants and emerging trends. Even with these developments, there are still issues that need to be carefully navigated, like privacy concerns and ethical issues. However, there is no denying that AI has had a profoundly transformational overall effect on libraries, redefining them as dynamic, adaptable establishments in the digital era.

Benefits of Artificial Intelligence in Libraries:

1. Automated Cataloging and Classification:

AI can streamline the process of cataloging and classifying library materials. Machine learning algorithms can analyze content and assign appropriate metadata, making it easier for librarians to organize and manage collections.

2. Enhanced Search and Discovery:

AI-powered search engines can significantly improve the efficiency of searching for information within the library's catalog. Natural Language Processing (NLP) can be employed to understand user queries better, leading to more accurate and relevant search results.

3. Personalized Recommendations:

AI algorithms can analyze user preferences, borrowing history, and reading habits to provide personalized recommendations. This helps users discover new materials that align with their interests, creating a more engaging and tailored experience.

4. Chatbots for User Assistance:

Implementing chatbots with AI capabilities can enhance user support services. Chatbots can answer routine questions, provide information on library hours and policies, and guide users in navigating digital resources.

5. Data Analysis for Collection Development:

AI can assist librarians in analyzing data related to the usage of library materials. By identifying trends and patterns, libraries can make informed decisions about collection development, ensuring that the most relevant and popular materials are available.

6. Preservation and Conservation:

AI technologies, such as computer vision, can be used for the preservation and conservation of rare and fragile materials. Automated systems can identify damage, assist in restoration efforts, and help in maintaining the integrity of valuable collections.

7. Efficient Resource Management:

AI can optimize resource allocation by analyzing usage patterns. Libraries can use predictive analytics to anticipate demand, ensuring that resources are allocated efficiently and reducing unnecessary expenses.

8. Accessibility Improvements:

AI can play a role in making library resources more accessible to individuals with disabilities. Textto-speech and speech-to-text technologies can be integrated to assist users with visual or auditory impairments.

9. Security and Fraud Detection:

AI can enhance security measures within the library system by detecting unusual patterns of behavior, preventing unauthorized access, and identifying potential security threats. This is crucial for protecting both physical and digital collections.

10. Automation of Repetitive Tasks:

AI can automate routine and repetitive tasks, allowing library staff to focus on more complex and value-added activities. This can lead to increased productivity and efficiency in library operations. While AI offers numerous benefits, it's important to address ethical considerations, data privacy, and ensure that the implementation aligns with the mission of the library to serve its community effectively. Additionally, user education is crucial to help patrons understand and make the most of AI-enhanced library services.

Demerits of Artificial Intelligence in Libraries:

While Artificial Intelligence (AI) offers numerous benefits to libraries, there are also potential demerits and challenges associated with its implementation. It's important to consider these aspects to ensure responsible and ethical use of AI in library settings. Some of the demerits include:

1. Bias in Algorithms:

AI algorithms may inadvertently incorporate biases present in the data used for training. This can result in biased recommendations and search results, reinforcing existing inequalities and limiting diverse perspectives in the materials recommended to users.

2. Privacy Concerns:

Implementing AI systems involves the collection and analysis of user data. Libraries must be diligent in protecting user privacy and ensuring that data is handled in accordance with privacy regulations. Users may be concerned about the extent to which their reading habits and preferences are tracked.

3. Dependency on Technology:

Over-reliance on AI systems may lead to a decreased emphasis on human expertise and intuition. Libraries should strike a balance between leveraging AI tools and maintaining the essential role of human librarians in understanding the nuanced needs of their community.

4. Cost of Implementation:

Implementing AI technologies can be costly, and libraries, especially smaller ones with limited budgets, may face challenges in acquiring and maintaining sophisticated AI systems. This could potentially lead to disparities in AI adoption among different libraries.

5. Resistance to Change:

Some library users and staff may resist the integration of AI technologies due to a lack of familiarity, trust issues, or concerns about job displacement. Effective communication and training are crucial to overcoming resistance and promoting acceptance.

6. Technical Challenges:

AI systems may encounter technical challenges, such as errors in natural language processing or inaccuracies in automated cataloging. These issues can affect the reliability and trustworthiness of AI-driven services.

7. Lack of Customization:

AI algorithms may struggle to provide truly personalized experiences for users, especially in cases where users have diverse preferences and needs. Libraries need to ensure that AI recommendations are adaptable to different user profiles.

8. Ethical Considerations:

Libraries must grapple with ethical considerations related to the use of AI, such as the responsible handling of user data, transparency in algorithmic decision-making, and ensuring that AI aligns with the library's mission and values.

9. Loss of Human Touch:

AI systems may lack the human touch and understanding that librarians bring to user interactions. Personalized recommendations and user assistance may not fully replace the interpersonal connections that librarians can establish with patrons.

It's crucial for libraries to carefully consider these demerits and address them proactively when implementing AI technologies. A thoughtful and ethical approach, combined with ongoing assessment and user feedback, can help libraries harness the benefits of AI while mitigating potential challenges.

Challenges of Implementing Artificial Intelligence in Libraries:

The implementation of Artificial Intelligence (AI) in libraries comes with several challenges, and addressing these challenges is crucial to ensure the successful integration of AI technologies. Some of the key challenges include:

1. Costs and Budget Constraints:

The initial investment and ongoing maintenance costs associated with AI implementation can be substantial. Libraries, particularly smaller ones with limited budgets, may find it challenging to allocate resources for the adoption of AI technologies.

2. Data Quality and Bias:

AI systems heavily rely on data for training, and if the data used is biased or of poor quality, it can result in biased algorithms and inaccurate predictions. Libraries must ensure that their data is diverse, representative, and free from biases.

3. Privacy and Security Concerns:

Libraries handle sensitive user information, and the implementation of AI raises privacy and security concerns. Protecting user data and ensuring compliance with privacy regulations is essential, requiring robust security measures and ethical data handling practices.

4. User Acceptance and Resistance:

Users, including both library staff and patrons, may be resistant to AI implementation due to fear of job displacement, concerns about privacy, or simply a lack of familiarity. Libraries need to address these concerns through education and transparent communication.

5. Staff Training and Skill Gaps:

Library staff may lack the necessary skills and expertise to understand and effectively use AI technologies. Training programs are essential to bridge the skill gaps and empower staff to leverage AI tools in their daily operations.

6. Ethical Considerations:

The ethical implications of AI, including issues related to bias, transparency, and accountability, need careful consideration. Libraries must establish ethical guidelines for AI use and regularly evaluate the impact of AI on users and communities.

7. Integration with Existing Systems:

Many libraries already have established systems and workflows. Integrating new AI technologies seamlessly with existing systems can be challenging and may require significant customization and technical expertise.

8. Limited Understanding of AI:

Some library staff may have a limited understanding of AI concepts and functionalities. Providing educational resources and training programs is essential to ensure that staff members can make informed decisions about AI implementation.

9. Complexity of AI Algorithms:

The complexity of AI algorithms can make it challenging for non-technical staff to understand how these systems work. Libraries need to find ways to present AI-driven insights and recommendations in a user-friendly manner.

10. Continuous Evaluation and Improvement:

AI systems require continuous evaluation and improvement to remain effective and avoid obsolescence. Libraries must allocate resources for ongoing monitoring, assessment, and updates to keep pace with evolving technologies.

11. Legal and Ethical Compliance:

Libraries must comply with various legal and ethical standards when implementing AI, especially concerning intellectual property rights, data protection laws, and user consent. Ensuring compliance with these regulations is crucial.

Overcoming these challenges requires a strategic and collaborative approach involving library administrators, staff, technology experts, and users. Clear communication, ongoing training, and a commitment to ethical AI practices are essential for successfully integrating AI into library services.

Conclusion:

To sum up, the incorporation of Artificial Intelligence (AI) in libraries is an exciting and thoughtprovoking process that brings both opportunities and challenges. Unquestionably, AI has improved library services by improving accessibility, optimising workflows, and providing users with individualised experiences. However, the ever-changing field of AI in libraries necessitates cautious navigation to handle issues like privacy concerns, potential biases, and the requirement for continuing financial investments. Libraries' futures depend on maintaining the human-centered ideals that have guided these establishments for centuries while also embracing technological advancement. In order to ensure that these intellectual havens continue to grow while staying true to their mission of serving diverse communities and promoting a love of knowledge in the digital age, libraries must embrace the opportunities that artificial intelligence brings. To do this, they must uphold the principles of inclusivity, privacy, and ethical use.

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GLOBALISATION-IT'S ROLE & IMPACT ON HIGHER EDUCATION

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Abstract:

Globalization provides many opportunities for the transformation of education while also posing many challenges. In India, through the adoption of the National Education Policy, we have initiated the process of rising to meet the changing global scene. With a focus on holistic, flexible and multidisciplinary approach, India will produce a highly skilled labour force. Through cross-border exchanges of best practices and mutually beneficial collaborations, there will be an improvement in the teaching-learning process, improving learning outcomes.

Keywords: Globalisation, Higher Education, NEP, Skill-Based Learning

Introduction:

Globalization has made a significant impact on how we view the modern world. Global communication and the integration of individuals, organizations, and government have begun. The quality of education has improved as a result of globalization.

Globalization in education denotes the cross-border exchange and interdependence of ideas, information, and resources. Through cooperation, innovation, and the exchange of best practices, it has made it easier for educational systems all over the world to integrate. New opportunities for India's educational development and advancement have been made possible by globalization.

Review of Literature:

There is no single, universally accepted definition of globalization. Similarly, there seems to be no consensus about its benefits. According to Stiglitz (2002), globalization is inherently neither good nor bad since it all depends on how it is managed. This force has affected economics, politics, trade and finance. Education too has not been free from its influence. While the effect of globalization on education has been widely studied, Dodds (2008), focuses attention on the influence of education on globalization and the important role of HEIs in encouraging cross-border flows and global trends such as marketization. While some academics propose an accommodating attitude towards globalization, the naysayers propose that HEIs have an important responsibility in critiquing it.

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The increasing competition among HEIs due to globalization results in their growing differentiation in order to create a distinct market profile and offer product differentiation. There is also a growing trend towards the development of transnational higher education consortia. This has led to the corporatization of the University whereby their very structure and ethos have changed in order to compete more effectively in the global marketplace.

Healey (2008) views higher education as an important export sector. Universities now attract international students. In actively seeking international partners and franchising degree provision, many universities have set up campuses in other countries. It is thus becoming an important form of foreign direct investment. However, as the process of internationalization of the student body is much faster than the process of internationalization of the faculty, there is a growing perception that universities have adopted a corporate structure.

Globalization has undoubtedly increased inequalities. In a global economy, there are more opportunities for countries with high levels of education (Stewart, 1996). Foreign investment and technology are attracted to countries with good human resources, high savings and favorable economic policies. Developing nations have realized that in order to compete with the more developed nations, it is essential to invest in quality education, skills and training. When education raises productivity levels, these countries can supply skilled but low-cost labour, thus cementing their position in the global market.

Since economic failures are generally linked to poor human resources, it is imperative to increase investment in quality education. However, the neo-liberal policies encouraged by globalization reduces the role of the State and increases the role of the market. This brings about a downward pressure on government expenditure with the result that public investment in education is steadily declining whereas private investment is on the rise. Hence, questions of access and equity have to be given careful consideration if a country like India is to reap the benefits of its demographic dividend. Collier (2007) opines that corruption, political instability, and mismanagement of economic resources result in the problems faced by the world's poorest. The degree to which a country can build its indigenous industries and compete in world markets will be determined by the education and skills of its people (Amsden, 1992) implying the significant role of education in building institutions that promote economic growth.

The competence of those that negotiate the most favorable terms for a country to benefit from crossborder transactions is determined by education. Illustrating this fact with the example of Japan and the East Asian tiger economies, Little & Green (2009), draw attention to the positive role of education in producing a cadre of well-educated and extremely competent civil servants who plan and implement industrial policies and the complex mechanisms required to implement successful strategic training policies. China's achievements in education enabled it to meet the rising demand for skills in higher end manufacturing and service sectors. In case of India, major investment in university education, focus on science and technology and the growth of public and private sector technical colleges provided the skills required by heavy industries while also unknowingly creating the skills required for the

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subsequent ICT revolution. Ayyar (1996) stresses the need to find more resources for education when fiscal austerity measures adopted by the State results in dwindling investment in education. These resources must then be optimally allocated among the different stages in education.

Vavrus (2004) expresses a note of caution about the influence and assimilation of 'foreign' educational ideas and practices into local contexts as shown by the histories of colonialism, which may perpetuate colonized disparities through cultural incursions. The borrowing of educational models from foreign countries may be used to leverage controversial changes within a home country. Similarly, Bengtsson & Ostman (2012) point out the concern that globalizing ideologies may be a threat to sustainable development. The sovereignty of national pluralism may be undermined by aligning educational policy with economic development objectives.

Geographical marginalization is another important fallout of globalization (Brown et al, 2017). Youth in regional towns though exposed to discourses of neo-liberal globalization through education and media, are unable to enjoy its benefits due to regional isolation. This may be overcome only through migration to metropolitan cities or beyond. Students pursuing their higher education outside of their home region will become highly skilled

migrants. Higher education students and highly skilled professionals are generally more mobile than low skilled workers and other vulnerable migrants (Lo et al 2023). Declining population and labour shortages in the West coupled with declining funding for public universities lead to intense competition for foreign students. Disparities in socio-economic development between the Global North and the Global South continue to drive international student migration from developing to developed countries. The global hierarchy of countries and entrenched geo-political powers thus continue to be perpetuated. Against this backdrop may be viewed the Guiding Principles of the National Educational Policy, appropriately named Nipun Bharat Mission. The Indian word, nipun, refers to an expert or skilled person. Nipun Bharat thus refers to skilled India (Gupta, 2022). The policy's mission is to develop a population of skilled experts. If this objective is realized then India will succeed in competing at the global stage and reap the maximum benefits from globalization.

Role of Globalisation in Education:

- Globalization has improved the quality of education. Globalization made it possible for countries to see and then emulate the best educational systems in the world. Due to globalization, several countries quickly adopted innovative teaching methods such as competency-based learning, blended learning, skill-based learning, and e-learning. More and more students are increasingly attending institutions abroad through e-learning.
- The adoption of information sharing programs by nations has made it possible for students to learn about the newest technology in the world. As a result of globalization, foreign universities have opened in growing countries. These universities have helped many people get excellent educations. In addition, foreign investments in the education sector have caused infrastructure and facilities in developing and impoverished countries to improve.

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- In response to the rapidly increasing number of international students, several countries are gradually improving the quality of their educational systems and teaching methodologies. In India, supplemental add-on courses and partnerships with overseas colleges are becoming commonplace in the educational landscape.
- Globalization brought human rights and the failings of national government to the attention of a large number of individuals. Students from lesser developed nations are pursuing studies in India so as to become job proficient and embrace the necessary skill set so as to launch their start-ups in their own nation. Students who receive this hands-on training are better equipped to contribute to their nations' progress.
- Globalization has led to the adoption of alternative education practices by many countries, such as homeschooling, remote learning, global schooling, etc. In many nations, the importance of practical-based learning is rising. For example, internships are becoming more widely available, and universities, through their career advising and placement offices, help students land good jobs in reputable companies that align with their degree programs.
- One possible drawback of globalization in education could be the widening digital divide and technology differences between wealthy and developing nations. The rich and urbanites, poised to benefit from the improved educational institutions brought about by globalization. Urban and rural communities, as well as rich and poor, differ significantly in terms of educational opportunities.
- There's a chance that globalization in education will give certain developed nations more justifiable avenues to invade underdeveloped nations in a different way.

Effect of Globalisation on Teachers & Students:

On Teachers:

1. Aids in adopting a professional approach

Teachers are regarded as the pillars of society and as nation builders who contribute significantly to the advancement of their country. The nation's progress depends on strengthening its educational system. For this reason, in order for the teachers to give their best work, they must be professionally prepared with competence, dedication, holistic teaching learning methodology and this all is possible through globalisation in education.

2. Think Globally Act Locally

Globalisation in education necessitates that teachers make an effective blend of traditional and modern teaching methodology. Maintaining traditional teaching methods while implementing cutting-edge global approaches demands careful adaptation, making it a sensitive endeavour. The mantra to success is to adapt to a multicultural set up at the same time ensure that it meets the requirements of the students in question.

3. Increase in stress levels

The concept of survival of the fittest has crept in the education sector. Many academicians have shifted their career path owing to growing and rising demands of the profession. Furthermore, lack

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of conducive infrastructural and training facilities has aggravated this problem leading to stressful conditions.

4. Rising competition

Migration abroad as a result of globalization has increased competition for outstanding talent. Finding and keeping talented faculty members, who can be drawn to universities overseas by their higher pay and more chances for research, is a problem for many Indian colleges. Likewise, teachers need to possess a varied skill set to be considered as valuable resources by outstanding educational institutions. They need to especially be well trained to educate students who come in lieu of student exchange programs.

5. Effective Learning Environment

People from different cultural origins come together as a result of globalization, which can create opportunities for enriching encounters as well as difficulties with integration, communication, and understanding. Teachers' need to manage these disparities in order to establish a peaceful and welcoming learning environment.

On Students:

1. Better understanding & higher levels of efficiency

Students will be able to better understand and cope with abstract ideas and uncertain situations owing to some of the obstacles that globalization presents for knowledge, education, and learning. Students also have become more empathetic and understanding and are more aware of multicultures. The greater awareness of different cultures & the value of education brought about by globalization has also resulted in a rise in literacy rates worldwide.

2. Practical application of knowledge

Globalization improves students' capacity to learn and apply knowledge. The ability of students to obtain, evaluate, adopt, and apply knowledge is improved by globalization, as is their capacity to act independently, exercise sound judgment, and work with others to make sense of novel circumstances. The number of people with scientific and technical training has increased manifold. Students who wish to pursue studies or occupations abroad should be exposed to global education. Employers prioritize cross-cultural communication skills and global competency when sifting through applications to find the best suited people for their companies.

4. Effective Use of ICT tools

Globalization dissolves temporal and spatial barriers. A new system of knowledge, education, and learning should employ a wide range of synchronous and asynchronous activities that let instructor and student cross boundaries of time and distance using advanced information and communications technology. In order to expand the possibilities of information technology and communications for better learning, globalization promotes research and experimentation.

5. Environmental Sustainability

Global education links instructional strategies from many educational systems throughout the world to promote environmental sustainability on a global scale and support the growth of global

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companies. Global access to education is given top priority in these educational efforts, fostering experiences that equip students right from early education for leadership positions in international organizations.

6. Systems Thinking

A comprehensive grasp of systems thinking, encompassing the global system and corporate ecosystem, is necessary for the information society and global economy. Holistic problem solving is the strategy adopted by globalization. Multidisciplinary research methodologies are seen vital in attaining a more all-encompassing understanding of the realities confronting the current global system.

7. Cosmopolitan Mindset

Since global stability is mostly dependent on education, cultivating a cosmopolitan mindset from a young age aids individuals to integrate ideas from other societies and reach well-rounded judgments about global concerns. Then, as their countries become more interconnected, globalization and education have an impact on one another through their shared objective of preparing youth for prosperous futures.

8. Promotes Collaborations & Team Spirit

It promotes group collaboration among people. Employees are able to collaborate closely in groups. Students learn group dynamics, compromise, discussion, persuasion, organization, and leadership and management abilities in order to work in teams. Globalization in education fosters peace, cooperation, understanding, and acceptance of cultural variety among nations and areas.

Globalization and NEP 2020:

Higher education plays an extremely important role in promoting human and societal well-being. It influences and is influenced by globalisation. It produces highly skilled workers and contributes to the research base and capacity for innovation that determine competitiveness in a knowledge-based global economy. It facilitates international collaborations and cross-cultural exchanges. Competition and co-operation are intensifying simultaneously under the growing influence of market forces.

The adoption of the National Educational Policy 2020 (NEP) is expected to transform the educational scenario in the country by making it rational and skill-based. NEP 2020 succeeds the 34-year-old National Policy on Education (NPE) of 1986. This policy is aligned with the 2030 Agenda for Sustainable Development. Goal 4 of the SDGs seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

The NEP aspires to convert India into a thriving knowledge-based society and a leading global information power. The NEP 2020 is founded on the five guiding pillars of Access, Equity, Quality, Affordability and Accountability. It will prepare our youth to meet the diverse national and global challenges of the present and the future. Thus, there is renewed interest and urgency in the internationalisation and promotion of our educational institutions. To realize this goal, it is essential to ensure collaborations with foreign universities by participating in the exchange of faculties and

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students. It has positioned Indian Universities at the centre of international alliances supported by appropriate policy.

NEP, 2020 provides valuable insights and recommendations on various aspects of education. These include moving towards multidisciplinary and holistic education, institutional autonomy, promotion of quality research through the establishment of a National Research Foundation, continuous professional development of teachers, integration of technology, internationalization of higher education, restructuring of governance and regulatory architecture, multidisciplinary curricula, engaging blended pedagogy, valid, reliable and blended assessment and availability of content in Indian languages.

The NEP 2020 has established four divisions with various roles for regulation, accreditation, funding, and academic standard setting, creating a National Research Foundation (NRF). The initiative to expand interdisciplinary universities and colleges will go a long way in ensuring the fulfilment of these objectives. It is hoped that with the globalisation of Indian higher education, our universities and institutions are comparable to the best of the world's institutions and quality standards.

Concluding Observations:

Globalisation in education poses a sea of challenges and opportunities. Indian universities have the ability to overcome these obstacles and become powerful forces on the international scene by implementing strategic planning, making focused investments, and maintaining a dedication to ongoing development.

The community at large, government agencies, educational institutions, industry partners, parents and students alike must work together to address these issues so as to overcome the obstacles presented by globalization and establish Indian higher education institutions as centres of excellence in the global knowledge landscape. All the stakeholders together will definitely help in bridging gaps if any. There is optimism that the rote learning system of education will transform into a competency- and skill-based learning system pedagogy with the introduction of NEP & support rendered by stakeholders.

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IMPACT OF ARTIFICIAL INTELLIGENCE IN ACCELERATING RESEARCH, INNOVATION AND DEVELOPING SKILLS FOR WORK TRANSFORMATION

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Abstract:

Research plays an increasingly important role in the development of innovations and new technology. Research and innovation process results in economic growth by encouraging the development of new markets and improving existing markets. Businesses explore ways for humans and AI to collaborate synergistically, with AI handling routine tasks and humans focusing on complex decision-making and creativity. Economic growth is seen as being led by innovations that are introduced into the market, disrupting existing structures and creating new opportunities. The evolving nature of AI technologies presents challenges for regulatory frameworks. Businesses need to stay informed about and comply with regulations governing AI use in their respective industries. Therefore, innovation (in particular, technological innovation) is the first major driving force of economic dynamics. Finally, the emphasis has been given on an entrepreneur; an economic actor who kicks off economic development by introducing novelties. Thus, according to Neo-Schumpeterian Economics, innovation, knowledge, and entrepreneurship are the three major driving forces of economic dynamics wherein the emergence of the new industries is driven by innovation, supported by knowledge and tested by the entrepreneurial action. The impact of AI on businesses is transformative, touching on research, innovation, market deployment, and future shifts in business models. Successful adaptation requires a proactive approach, embracing new technologies, addressing ethical considerations, and staying attuned to the evolving regulatory landscape.

Keywords: Artificial Intelligence, Automation, Digitization, Business Strategies, Innovation, Business

Introduction:

The increase in popularity of AI has led to an expansion in the investment in multiple sectors of AI including research, development, marketing, and production and vice versa. Some of the corporations with the maximum number of mentions of the word "artificial intelligence" in their earning calls are NVIDIA, ORBCOMM, Microsoft, and Facebook. AI has reached a place where it can take real-world financial decisions, chat with people, play games against humans, and work hand in hand with them. Behind all these real-world applications, there is an AI-driven system or an intelligent agent (IA). It interacts with the environment in a repetitive cycle of sense-think-and-act. It takes in the data from the environment, makes an informed decision based on the input data and past experience, and finally performs an action affecting the environment. This IA can be a machine

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(industrial and home robots, self-driving cars) or a software agent (chatbots, recommender systems). It takes the data in the form of images, videos, sound, text etc., analyses this data using AI algorithms and delivers it to the viewer.

Literature Review:

AI-related skills are the skills of the future. There is a need for the identification and implementation of strategies for the preparation of upcoming future. We recommend a few initiatives that can be taken to create a large pool of skilled AI-professionals. At fundamental level, students can be exposed to mandatory data-focused programs: machine learning and AI courses. Data labs can be established at educational institutes.(**Murray 2018**)

The core of marketing hasn't changed, but the way we communicate has changed marketing. It is morphing every day. That's where the big shift has happened. The art of storytelling is very much there but how we tell the story and the medium through which we tell the story is the key. The big changes that will happen in marketing, just as in business, is artificial intelligence and machine learning. – **Sanjiv Mehta, CEO & MD of Hindustan Unilever Ltd.** (*Corporate citizen, February 16-28, 2018, Page 20 to 25*)

It's not that difficult to argue that marketing in the future will make increasing use of AI. Even today, the components of an AI – based approach are largely in place. Contemporary marketing is increasingly quantitative, targeted, and tied to business outcomes. Ads and promotions are increasingly customized to individual consumers in real time. Companies employ multiple channels to get to customers, but all of them increasingly employ digital content. Company marketers still work with agencies, many of which have developed analytical capabilities of their own. - **Thomas H. Davenport** (*Artificial Intelligence for Marketing by Jim Sterne,Page 18*)

Objective of the Paper:

- · To Study and analyze various aspects of artificial intelligence
- To reveal the necessity of adapting it as a marketing strategy for developing research, innovation and providing additional skills at the workforce area.

Research Methodology:

The present empirical study has been done mainly from the secondary data .All the information data and opinion are collected which has a direct or indirect relevance to the information like official publications and research journals. The paper searches the various dimensions attached to the concept of artificial intelligence in research, innovation and workforce skills. This paper is a descriptive study, where examples are cited based on the references from some secondary material.

On the Global Market: Top Companies and Start-ups:

In this section, first, we identify the top AI companies and then perform their financial analysis

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to assess the impact of automation and AI on the global market. We identified the top five AI companies from a list of 119+ corporate groups which participated in NIPS 2018. The criterion adopted for evaluation is the number of acquisitions of AI start-ups in the last 9 years (January 2010-January 2019). Fig. 3 shows the number of AI start-up acquisitions by the top five AI companies viz. Google, Apple, Amazon, Microsoft, and IBM. Table 2 summarises the details of the acquisitions and NIPS sponsorship level of the top five AI companies. In the following section, we perform the financial analysis of the top five AI companies viz. Google, Apple, Amazon, Microsoft, and IBM.



Fig.1 The number of AI start-up acquisitions by the top five AI companies

We performed the financial analysis of the top AI companies by analyzing their financial worth in the last decade. Our analysis shows an increasing trend in the share prices, EPS (earning per share), investment in AI, and the net sales of all the top companies for the last decade (2009-2018). Fig 4 shows the trend of normalized net sales of the top five AI companies for the last 10 years (2009-2018). Apart from Apple and IBM, all other companies show a continual increase over the years. The investment done in AI must have played some role in the financial growth of these companies, but it was not possible to conclusively find a

direct correspondence between the two because there can be various factors behind the growth.



Fig.2. Net Sales of top AI acquirers in the last 10 Years (2009-2018)

Since start-ups are considered as innovation and growth drivers of the economy, we believe that their analysis would result in important conclusions, relevant to the detection of the impact of automation and AI on business models. Therefore, we procured the list of preeminent AI start-ups for the year 2017 and 2018 with the help of the CB Insights' Mosaic algorithm². The algorithm identifies the top AI start-ups by evaluating the factors like profile, financing history, tech innovation, patent

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activity, team strength, investor quality, business model, mosaic score, funding history etc. Customer interaction is the most basic form of communication between a company and its customers. Every single interaction is another opportunity for the company to satisfy customers and retain them. In the conventional process, customers used to interact with the employees of the company, holding the position of retail shop executive, salespersons, cashiers, customer relationship managers etc. for all their needs, products and services. The integration of intelligent agents in the companies is transforming the customer interaction from 'human-to-human' to 'human-to-machine'. "Chatbots" and "virtual assistants" are theintelligent conversational agents capable of conducting a human-like conversation with the customers via textual and auditory method respectively. These agents are eliminating delays, human errors and provide almost immediate personalized responses to the customers. A few exemplary companies with the successful implementation of chatbots are:

- 1. Google duplex: For making real world calls
- 2. 1-800-Flowers: Order flowers
- 3. North face: Product selection
- 4. Spotify: Discover weekly playlist
- 5. KFC: Facial recognition for order prediction

Currently, the most advanced conversational agents can automate simple, repetitive, low-level tasks and queries. However, developers are on their progressive path to make them capable of performing complex tasks, understand human emotions and thus deliver an efficient and satisfactory/ contented experience to the customers.

Conclusion:

In summary, this research has extensively explored the influence of Artificial Intelligence (AI) on the workforce, with a specific focus on the perspectives related to research, innovation, and skill development. The study employed a qualitative research approach, incorporating semi-structured interviews with professionals spanning various firms. The key findings underscored the significance of competitive pressure, media attention, digital maturity, and customer considerations as crucial factors shaping the integration of AI in the realms of research, innovation, and the cultivation of skills within the workforce. The research illuminated the multifaceted impact of AI on the contemporary work landscape, particularly in domains where research, innovation, and skill development are pivotal. The identified factors serve as drivers propelling the incorporation of AI into these areas, reflecting the dynamic nature of the modern professional environment.

Recommendations:

Building on these findings, several recommendations emerge for organizations aiming to navigate the evolving intersection of AI, workforce, and skill development:

• Strategic Alignment: Organizations should strategically align their research, innovation, and skill development initiatives with the identified factors—competitive pressure, media attention, digital

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maturity, and customer considerations. This alignment ensures that AI integration serves the specific needs and demands of the organization.

- **Continuous Adaptation:** Recognizing the dynamic nature of competitive pressure and digital maturity, organizations must embrace a culture of continuous adaptation. This involves regularly reassessing AI strategies in research, innovation, and skill development to stay responsive to evolving trends.
- **Investment in Training:** Given the influence of AI on skill development, organizations should heavily invest in training programs to equip their workforce with the necessary skills for effectively utilizing and adapting to AI technologies. This includes fostering a culture of lifelong learning.
- Strategic Communication: Clear and transparent communication is vital, especially in the context of media attention and customer considerations. Organizations should communicate their AI initiatives, emphasizing the ethical and responsible use of AI in research and innovation.
- **Collaboration and Networking:** To stay abreast of industry trends and best practices in AI integration, organizations should actively engage in collaboration and networking with other firms, research institutions, and industry experts. This collaborative approach can foster innovation and shared insights.
- In conclusion, this research sheds light on the transformative impact of AI on the workforce, specifically in the realms of research, innovation, and skill development. By understanding and strategically responding to the identified factors, organizations can not only harness the benefits of AI but also contribute to the advancement of their workforce in a rapidly evolving professional landscape.

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REVITALIZING MATHEMATICS EDUCATION: EXPLORING VEDIC MATHEMATICS IN THE CONTEXT OF NEP 2020 UNDER IKS

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Abstract:

The National Education Policy (NEP) 2020 of India emphasizes a shift towards a more holistic and flexible education system, encouraging the integration of indigenous knowledge systems and pedagogies. In this context, Vedic Mathematics (VM), an ancient Indian system of calculation, emerges as a potentially valuable tool for enhancing mathematical learning and understanding. However, its integration into mainstream education requires careful consideration of teacher perception and awareness.

Keywords: Vedic Mathematics, NEP 2020, Teacher Perception, Teacher Awareness, Mathematics Education, Indigenous Knowledge Systems.

This abstract proposes a study that explores the following aspects:

1. Perceptions of VM:

- Investigate the current perceptions of VM among mathematics teachers and educators.
- Identify factors influencing these perceptions, such as existing knowledge of VM, exposure to its benefits and limitations, and concerns about integration into existing curriculum.

2. Teacher Awareness and Preparedness:

- Assess the level of awareness and understanding of VM among mathematics teachers.
- Evaluate the existing resources and training programs available for equipping teachers with the knowledge and skills to effectively teach VM.
- Identify gaps in teacher preparedness and propose strategies for addressing them.
- 3. Alignment with NEP 2020 Principles:
 - Analyze how VM aligns with the core principles of NEP 2020, such as emphasis on conceptual understanding, critical thinking, creativity, and problem-solving.
 - Discuss the potential of VM to promote holistic learning and cater to diverse learning styles.

4. Recommendations and Future Directions:

- Based on the findings, provide recommendations for integrating VM into the mathematics curriculum in a way that aligns with NEP 2020 principles and addresses teacher perceptions and needs.
- Suggest strategies for enhancing teacher awareness and preparedness through effective training programs and resource development.
• Propose directions for further research on the effectiveness of VM in improving student learning outcomes and its broader contribution to mathematics education in India.

This study aims to contribute to the ongoing discourse on integrating indigenous knowledge systems like VM into modern education. By understanding teacher perceptions and addressing their needs, we can pave the way for a more inclusive and effective mathematics education system in India, aligned with the goals of NEP 2020.

Introduction:

Vedic mathematics, comprising a set of 16 sutras or formulas developed by ancient Indian mathematicians, stands as a testament to the ingenuity of early mathematical thought. These formulas were crafted to simplify intricate calculations, advocating for mental math, visualization, and logical reasoning. Aligned with the ethos of the NEP 2020, which champions critical thinking and problem-solving skills in students, Vedic mathematics emerges as a valuable tool for enhancing mathematical aptitude.

During a recent address on the radio and television program 'Mann Ki Baat,' Prime Minister Narendra Modi engaged with a young boy named Usman, encouraging him to explore Vedic mathematics as a means to excel in competitive exams. The Prime Minister extolled the efficacy of Vedic mathematics, suggesting that its principles enable calculations at the pace of computers. He further emphasized the essence of the NEP, advocating not merely for mathematical prowess but for a holistic approach to mathematical thinking—a mode of cognitive reasoning.

In contemplating the implementation of the NEP within the educational framework, discussions across the nation have deliberated on its incorporation into the National Curriculum Framework. One pivotal facet of this discussion pertains to integrating elements that not only resonate with the NEP's core tenets but also facilitate the cultivation of critical thinking, as endorsed by the Prime Minister. In this light, considering the inclusion of Vedic mathematics becomes a compelling prospect.

To truly grasp the significance of Vedic mathematics, it's crucial to acknowledge its connection to the Vedas—the mathematical principles subtly referenced within these ancient texts. An unfortunate misconception persists that the Vedas solely exalt nature or deities, a notion crafted by Western Orientalists with a vested interest in undermining the wealth of ancient Indian knowledge and scientific prowess. Their intent was to establish superiority over Indian intellectualism and perpetuate their influence.

Understanding of NEP:

The National Education Policy (NEP) 2020 stands as a transformative blueprint, striving to revolutionize the educational landscape of India. Anchored on the pillars of Access, Equity, Quality, and Accountability, NEP 2020 embodies a paradigm shift in educational ideology. Its envisioned 5+3+3+4 structure, replacing the traditional 10+2 system, aims to encompass the critical early years of a child's development. Emphasizing holistic learning, NEP 2020 extends schooling to include three

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years of anganwadi, recognizing the significance of brain development in children aged 3-6. Central to its vision are the four foundational principles: Flexibility, Multidisciplinary Education, Critical Thinking, and Skill Development. By integrating 21st-century skills like soft skills, problem-solving, and communication with a robust emphasis on basic language and mathematical proficiency, NEP 2020 aspires to empower learners for a dynamic global landscape. Additionally, its proactive measures include the NIPUN Bharat Mission, aiming to bolster foundational literacy and numeracy skills, targeting 100% proficiency by 2026-2027. NEP 2020 heralds a shift from content-based to experience-based learning, recognizing mathematics not just as computation but as a gateway to logical thinking, problem-solving, and inquiry-based education. Its envisioned changes, encompassing interdisciplinary curricula, credit-based systems, and innovative education centers, herald a promising era of educational transformation.

Perception of Vedic Mathematics:

The perception of Vedic mathematics among teachers understanding and make learning more fun. They appreciate the emphasis on mental math and problem-solving, which they believe can help students develop critical varies widely. Some teachers view it as a valuable tool that can enhance students' mathematical thinking skills and confidence in their abilities.

Other teachers, however, are skeptical of Vedic mathematics. They may believe that it is not a rigorous or systematic approach to mathematics. They may also be concerned about the lack of readily available resources and teacher training on Vedic mathematics.

Teacher Awareness:

The level of teacher awareness about Vedic mathematics is generally low. Many teachers are not familiar with the concepts or methods of Vedic mathematics. This lack of awareness is likely due to the fact that Vedic mathematics is not part of the traditional mathematics curriculum in most schools.

Potential Benefits of Vedic Mathematics:

Despite the challenges, there are several potential benefits to incorporating Vedic mathematics into classroom teaching. These benefits include:

- **Improved mental math skills:** Vedic mathematics can help students develop their mental math skills, which is beneficial in everyday life and in other areas of mathematics.
- Enhanced problem-solving skills: The emphasis on mental math and logical reasoning in Vedic mathematics can help students develop their problem-solving skills, which are essential for success in many areas of life.
- **Increased interest in mathematics:** Vedic mathematics can make learning mathematics more fun and engaging for students, which can increase their interest in the subject.

• **Development of critical thinking skills:** Vedic mathematics encourages students to think critically and creatively about mathematical problems, which can help them develop their critical thinking skills.

Alignment with NEP 2020:

The NEP 2020 emphasizes the importance of developing critical thinking and problem-solving skills in students. The policy also calls for a focus on making learning more enjoyable and engaging for students. Vedic mathematics aligns with these goals in several ways:

- Vedic mathematics emphasizes mental math and problem-solving, which are essential for developing critical thinking skills.
- Vedic mathematics uses visualization and other techniques to make learning mathematics more enjoyable and engaging for students.
- Vedic mathematics can be used to teach a variety of mathematical concepts, which can help students develop a deeper understanding of mathematics.

Indian Knowledge Systems (IKS):

IKS represent a collective reservoir of diverse knowledge frameworks meticulously structured over centuries. Spanning from the ancient Vedic texts to indigenous folklore, this vast spectrum of wisdom is dispersed across a myriad of languages, including Sanskrit, Pali, Prakrit, and numerous regional dialects. However, this wealth of knowledge has largely remained untapped for several decades.

IKS encompasses foundational knowledge, sciences, engineering, humanities, and social sciences, systematically classified and evolved across millennia. It encompasses a broad range of disciplines such as Astronomy, Ayurveda & Yoga, Mathematics & Computing, Languages & Linguistics, Metallurgy, Rasa-Shastra, Public Administration, War Technology, Management Science, and more.

The contributions of IKS to various fields are profound, ranging from understanding celestial movements and a solar-centric worldview to herbal medicine and surgical procedures. It includes monumental discoveries like zero, the decimal numeral system, approximation algorithms for computing Pi, Panini's universal grammar, steel-making techniques, principles of good governance, taxation, and beyond.

In ancient Indian education, eighteen Vidya Sthanas (Schools of Learning) thrived, imparting knowledge in centers like Nalanda and Takshashila. India's reputation in art, architecture, science, technology, engineering, philosophy, and practices stemmed from these institutions. However, this vast repository of knowledge attracted not only seekers but also invaders who sought to dismantle India's wealth.

Knowledge was indeed the bedrock of power and prosperity for our nation. Today, as the world veers toward knowledge diplomacy shaping international relations, this reservoir of knowledge assumes paramount importance. It is this repository that will empower nations. India boasts a treasure trove of wisdom that has enriched its civilization for millennia, holding immense potential for the future.

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Following are the main divisions of IKS:

- Ayurveda: Traditional Indian medicine
- Yoga: A system of physical, mental, and spiritual practices
- Vastu Shastra: The science of architecture and design
- Jyotish: Astrology
- Sanskrit: The classical language of India
- Vedanta: A school of philosophy
- Vedic Mathematics

IKS is a valuable resource for India and the world. It offers insights into a variety of fields, including health, well-being, sustainability, and spirituality. IKS is also a rich source of cultural heritage and identity.

NEP 2020 and IKS:

The National Education Policy (NEP) 2020 of India recognizes the immense value of IKS. The policy calls for the integration of IKS into education at all levels. This is a significant step towards promoting the preservation and transmission of IKS knowledge.

The NEP 2020 recommends the following for the integration of IKS into education:

- **Integration across disciplines:** IKS should be integrated into the curriculum across various disciplines, including science, mathematics, literature, and economics. This will help students to develop a holistic understanding of knowledge.
- Flexibility and choice: Students should be given the flexibility to choose courses or modules related to IKS based on their interests and regional contexts. This will ensure that students have a learning experience relevant to their cultural backgrounds and lived realities.
- **Teacher training and resources:** Teachers need to be trained in IKS concepts and methodologies. This will help them to effectively teach IKS to students. The government should also develop quality teaching-learning materials, textbooks, and digital resources focused on IKS.
- **Promoting research and innovation:** Research initiatives should be encouraged to document, validate, and apply IKS to contemporary challenges in various fields. This will help to ensure that IKS is relevant to the needs of the 21st century.

The integration of IKS into education is a complex and challenging task. However, it is a worthwhile endeavor that has the potential to enrich education and contribute to a more vibrant and inclusive knowledge society.

Challenges and Recommendations:

There are several challenges that need to be addressed in order to effectively incorporate Vedic mathematics into classroom teaching. These challenges include:

• Lack of teacher awareness: Many teachers are not familiar with Vedic mathematics, which makes it difficult for them to incorporate it into their teaching.

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- Lack of resources: There is a lack of readily available resources on Vedic mathematics for teachers.
- **Time constraints:** The current mathematics curriculum is already packed, and it may be difficult for teachers to find time to teach Vedic mathematics. Despite these challenges, there are several recommendations that can be made to promote the use of Vedic mathematics in classrooms:
- **Teacher training:** Provide teachers with training on Vedic mathematics so that they can understand the concepts and methods and feel confident teaching it to their students.
- **Develop resources:** Develop high-quality resources on Vedic mathematics, such as textbooks, lesson plans, and online materials.
- Integrate Vedic mathematics into the curriculum: Find ways to integrate Vedic mathematics into the existing mathematics curriculum, so that teachers do not have to find extra time to teach it.
- **Raise awareness:** Raise awareness about Vedic mathematics among parents and the community, so that they can support the use of Vedic mathematics in schools.

Conclusion:

In conclusion, the exploration of Vedic Mathematics (VM) within the context of the National Education Policy (NEP) 2020 unveils a complex yet promising landscape for the integration of indigenous knowledge systems into contemporary education. The perceptions among educators regarding VM exhibit a spectrum of viewpoints, highlighting both its potential as a catalyst for mathematical aptitude and the skepticism surrounding its systematic approach and resource availability. Despite challenges, the identified benefits of VM in enhancing mental math skills, problem-solving abilities, and critical thinking resonate with the NEP 2020's emphasis on holistic learning and engagement. Simultaneously, the broader discussion on Indian Knowledge Systems (IKS) underscores an untapped reservoir of historical wisdom and contemporary relevance. Recommendations addressing teacher awareness, resource development, curriculum integration, and community involvement serve as pivotal strategies for a harmonious integration of VM and IKS into educational frameworks. This research endeavors to pave a path toward a more inclusive, engaging, and culturally rooted educational paradigm, aligning with the aspirations of the NEP 2020 and laying the groundwork for a vibrant and enriched learning experience in India.

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IMPACT OF GST ON INDIAN ECONOMY

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Abstract:

The implementation of the Goods and Services Tax (GST) in India marked a significant shift in the nation's indirect taxation framework. This paper examines the multifaceted impact of GST on the Indian economy. Beginning with a historical overview of the tax system, the research investigates the challenges faced during the initial implementation phase, highlighting issues related to technology, compliance, and administrative readiness. A sector-wise analysis delves into the differential effects on various industries, including manufacturing, services, and agriculture. The study explores how GST has reshaped business processes and supply chain management, impacting both small and medium enterprises (SMEs) and large corporations. Assessing the economic repercussions, the paper scrutinizes changes in tax collection patterns and the revenue-neutral rate, shedding light on the implications for government revenue. From a consumer perspective, the research investigates alterations in prices, consumer behavior, and the broader economic implications, such as inflation and purchasing power. Furthermore, the paper provides a forward-looking perspective, offering policy recommendations for addressing challenges and enhancing the GST system's efficiency. In conclusion, this research provides a comprehensive analysis of the impact of GST on the Indian economy, contributing valuable insights for policymakers, businesses, and researchers alike.

Introduction:

The Goods and Services Tax (GST) is an indirect tax on goods and services that was introduced in 2017 to simplify the tax system. It replaced several indirect taxes with one tax, which made things a lot easier for businesses. The tax system has since been streamlined, leading to increased tax compliance and formalisation of the economy.

However, it wasn't all sunshine and rainbows when GST was first introduced, and some businesses had trouble adjusting to the new system.

In this paper, we explore the larger impact of GST on the indian economy.

Origin of GST:

The Goods and Services Tax (GST) is a comprehensive indirect tax levied on the supply of goods and services in India. The origin of GST in India can be traced back to the recommendations of the Kelkar Task Force in 2003, which was constituted by the Atal Bihari Vajpayee government. The task force proposed the introduction of a national-level GST to streamline and harmonize the indirect tax structure in the country.

After years of discussions and deliberations, the Constitution (122nd Amendment) Bill, 2014 was introduced in the Indian Parliament. The bill aimed at amending the Constitution to pave the way for the implementation of GST. It received assent from the President of India on September 8, 2016, and came into effect on July 1, 2017.

The GST replaced a complex and cascading tax structure that included various indirect taxes such as excise duty, service tax, and value-added tax (VAT). The introduction of GST marked a significant step towards creating a unified and transparent tax system, eliminating barriers to inter-state trade, and promoting ease of doing business in India. The GST Council, comprising representatives from the central and state governments, continues to make decisions to refine and improve the GST framework based on evolving economic and business needs.

GST in India:

Goods and Services Tax (GST) is a comprehensive indirect tax reform that was implemented in India on July 1, 2017. It replaced a complex and multi-layered system of indirect taxes, streamlining the taxation structure and promoting a unified market across the country. GST is a destination-based tax, levied at each stage of the supply chain, from manufacturing to the end consumer.

The GST framework in India consists of four tax slabs -5%, 12%, 18%, and 28%, along with specific rates for essential goods and services, as well as a cess on certain luxury and sin goods. The tax is divided between the central and state governments, with Central GST (CGST) collected by the central government and State GST (SGST) by the respective state governments. For inter-state transactions, Integrated GST (IGST) is levied, and the revenue is shared between the center and the destination state. One of the primary objectives of introducing GST was to create a common market by removing barriers to interstate trade. The tax operates on the principle of "One Nation, One Tax," reducing complexities and making compliance easier for businesses. GST has subsumed various indirect taxes like excise duty, service tax, and value-added tax, leading to a simplified and more transparent tax structure.

The GST Council, a constitutional body consisting of representatives from the central and state governments, plays a crucial role in decision-making related to GST. It meets regularly to discuss and implement changes in tax rates, exemptions, and other aspects of the GST framework based on economic conditions and feedback from various stakeholders.

While GST has brought about significant reforms, its implementation has faced challenges such as technological glitches, compliance issues, and frequent changes in tax rates. Despite these challenges, GST has been a landmark reform in India's tax system, contributing to economic growth, reducing tax

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evasion, and fostering a more business-friendly environment. The government continues to refine and improve the GST system to address concerns and adapt to the evolving needs of the economy.

India - Pre and Post GST:

Before the implementation of the Goods and Services Tax (GST) in India, the country had a complex and fragmented indirect tax structure. It comprised a myriad of central and state-level taxes, including excise duty, service tax, value-added tax (VAT), central sales tax, and others. This multiplicity of taxes led to cascading effects, wherein taxes were levied on top of each other at different stages of the supply chain, resulting in increased prices for consumers and a lack of uniformity in tax rates across states.

The pre-GST era was marked by significant tax inefficiencies, with businesses facing compliance challenges due to the varied tax regulations in different states. Interstate movement of goods was hampered by entry taxes and other barriers, hindering the seamless flow of goods across state borders. The lack of a unified tax structure also contributed to tax evasion and a parallel economy.

The introduction of GST on July 1, 2017, marked a transformative shift in India's tax landscape. Post-GST, the country moved towards a "One Nation, One Tax" regime, consolidating multiple indirect taxes into a single, comprehensive tax system. GST simplified the taxation process, reducing the burden on businesses and creating a more transparent and efficient tax structure.

Post-GST, businesses benefit from simplified compliance procedures and a unified market, enabling smoother interstate trade. The elimination of cascading taxes has led to a reduction in overall tax incidence and improved the competitiveness of Indian goods and services in the global market. The GST framework allows for seamless input tax credit, encouraging better compliance and discouraging tax evasion.

While the implementation of GST has undoubtedly brought about positive changes, there were initial challenges, such as adapting to the new tax system, addressing technological issues, and managing the transition for businesses. The GST Council, comprising representatives from the central and state governments, continues to actively engage in refining the GST structure based on feedback from stakeholders and economic requirements. Overall, the move from the pre-GST era to the post-GST era represents a significant step forward in creating a more integrated and business-friendly taxation system in India.

Conceptual Framework:

The conceptual framework of the Goods and Services Tax (GST) in India represents a transformative shift in the nation's tax structure, unifying diverse indirect taxes under a comprehensive and integrated system. GST is a destination-based consumption tax that subsumes a myriad of taxes like Value Added Tax (VAT), Central Excise Duty, Service Tax, and others. This framework is characterized by a dual structure, involving both the central and state governments in its administration.

Under the GST regime, there are three main components: Central GST (CGST), State GST (SGST), and Integrated GST (IGST). CGST and SGST are levied on intra-state transactions, with revenue

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shared between the central and state governments. IGST, on the other hand, applies to inter-state transactions, ensuring a seamless flow of credits across state boundaries.

The credit mechanism is a pivotal aspect of the GST framework, enabling businesses to claim input tax credits on the taxes paid at each stage of the supply chain. This fosters efficiency, reduces cascading effects, and promotes a more transparent and accountable tax system. The implementation of the GST conceptual framework reflects India's commitment to fostering a unified and simplified tax structure, promoting economic growth, and enhancing the ease of doing business.

Giving data, Sitharaman said the revenue buoyancy of states improved from 0.72 in the pre-GST era, to 1.22 post-GST rollout. Before GST, the state's tax revenue growth was 8.3 per cent while GDP growth was 11.5 per cent, which means a low tax buoyancy of 0.72. After GST, tax growth was 12.3 per cent, while GDP growth was 9.8 per cent, resulting in a higher buoyancy 0f 1.22.

Post-GST revenue buoyancy of states is much higher than pre-GST buoyancy, Sitharaman said.

The minister complimented tax officers for their "dedication and commitment and grit", which helped in making monthly GST revenues of Rs 1.60 lakh crore a "new normal". GST collection in June grew 12 per cent to over Rs 1.61 lakh crore.

The Positive Impact of GST on the Indian Economy:

Below are some areas where we have seen positive impact of GST on the Indian economy:

1. Streamlined Tax System:

GST streamlined the tax system by replacing multiple indirect taxes with a single tax, reducing complexity and making compliance more manageable for companies.

2. Increased Tax Compliance:

GST's technology-driven procedures like online registration, e-filing of returns, and e-way bills have raised tax compliance. The tax base has grown, increasing the government's tax intake.

3. Economic Growth Boost:

GST's simplified tax code, elimination of interstate restrictions, and removal of checkpoints and entrance tax barriers at state borders increased efficiency and decreased logistical expenses. This helped the economy thrive, especially in industries like manufacturing and logistics.

4. Reduction of Tax Burden:

By removing the cascading impact of taxes, the GST aims to lessen the tax burden on consumers and businesses. Consumers have benefited from reduced prices of goods and services due to the efficient input tax credit mechanism.

5. Economic Formalisation:

GST encouraged enterprises to join the formal tax system, enhancing tax collections, decreasing tax evasion, and improving openness.

The Challenging Impact of GST on the Indian Economy

Below are some areas where there have been challenges on the GST front for the Indian economy:

1. Initial Setbacks

During the introduction of GST, small and medium-sized businesses had trouble adjusting to the new compliance standards, temporarily disrupting business operations.

2. Compliance burden

While GST intended to simplify the tax code, businesses found the paperwork and compliance procedures burdensome. SMEs found it challenging to navigate the complexity of GST reporting and maintain proper paperwork.

3. Impact on Small Firms

Implementing the GST placed a significant adjustment load on small firms, which disproportionately impacted sectors that had enjoyed threshold exemptions or were exempt from specific taxes. Compliance costs, including investing in technology and professional services, increased.

4. Sectoral Differences

Some industries, like manufacturing and logistics, benefited from GST, while others, including real estate and textiles, had difficulty adjusting to the new tax structure.

5. Inflation

Adopting the GST led to temporary price increases due to shifting tax rates and categories, despite the goal of decreasing overall taxation.

Conclusion:

The Goods and Services Tax, implemented in India in 2017, has greatly impacted the economy. It has streamlined the tax system, leading to increased compliance and formalisation of the economy. This has boosted growth in industries such as manufacturing and logistics. However, there have been challenges, including increased compliance burdens for small and medium-sized businesses and temporary inflationary pressures. Despite these challenges, the overall impact of GST has been positive, and the Indian economy is expected to continue growing.



MULTIDISCIPLINARY PROSPECTS AND CHALLENGES IN HEALTH, EDUCATION, SOCIAL ENVIRONMENT AND SUSTAINABLE ENVIRONMENT OF INDIA

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EVALUATING E-COMMERCE'S IMPACT ON THE BANKING INDUSTRY: TRENDS, IMPLICATIONS FOR FINANCIAL INSTITUTIONS

Asst. Prof. Ramson Menezes *

ABSTRACT

E-commerce systems provide real-time insights and information about the customers and the products. The e-commerce industry in India is expected to grow to USD 99 billion by 2024, with a CAGR of 27%. Incremental growth is likely to be driven by supermarkets and clothing stores. E-commerce refers to the buying and selling of goods and services. It also includes the transfer of money or information over electronic networks, usually the internet.

KEYWORDS: Transactions, e-banking, e-commerce, and business

INTRODUCTION

n today's world, the term "electronic commerce" is used in every industry, trade and government context. Some say it's just a marketing stunt but most people think it's a real phenomenon that's changing not only the borders of creativity and commerce as we know it but also the foundations of our thinking as well as our way of life. Today's electronic commerce impacts every part of our lives. While electronic trade has existed for the past two decades, its current main driving force is the Web. It's changing the way businesses operate around the world. Companies are turning internet based electronic commerce into an integral part of their business goals because it significantly helps solve critical, important business needs. Following decades of upgrades in the banking and financial regions beginning in 1991, India is currently among the world's driving creating economies. Rather than other non-industrial nations, India has a superior monetary framework. The financial transformation and progress have taken various courses in the post-autonomy period. Nowadays, banking is crucial for the development of the Indian economy. Globalisation and headway methods essentially affect India's monetary area. In the past ten years, the banking function has been completely transformed by the establishment of new private sector banks and foreign banks in India as

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