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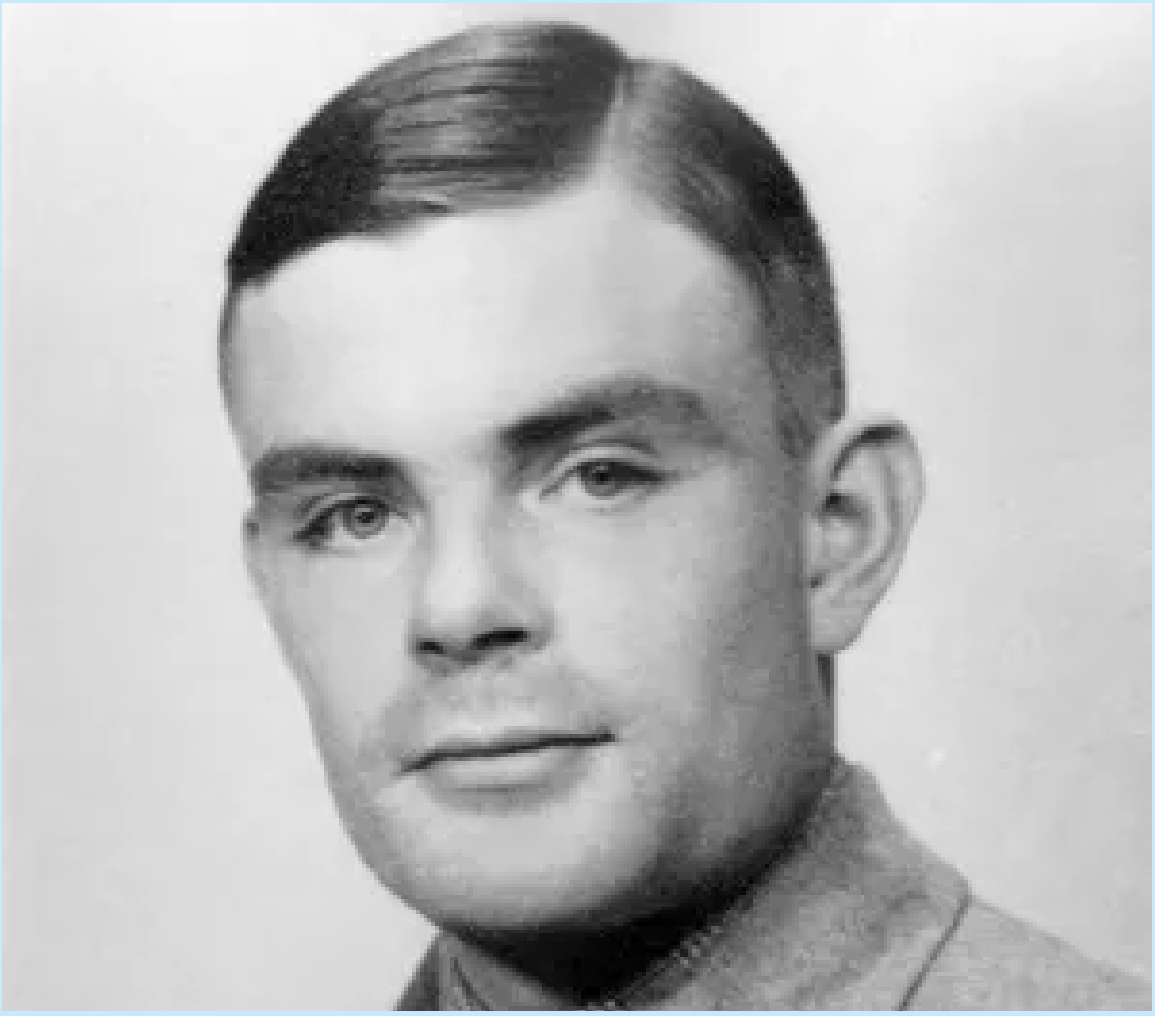

Alan Turing (1912-1954) - Pioneer of Artificial Intelligence

About cover see page 23

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CHEST

Online Courses on Ethics, Values & Life Skills

Course -1

Introduction to Ethics – 2 Credits

Module -1: DEFINITION AND MAJOR THEORIES

Unit 1: The definition
Unit 2: Major Theories of Ethics and Brief description of theories
Unit 3: Ethical Framework and Approaches
Unit 4: Key Distinction between Ethics, Morals, and Values

Module - 2: SCOPE OF ETHICS AND ETHICS IN DIFFERENT DISCIPLINESAND PROFESSIONAL ETHICS

Unit 1: Scope**Unit 2:** Scope of Ethics in Different Disciplines
Unit 3: Professional Ethics**Unit 4:** Challenges of Application

Module – 3: ETHICSIN MODERN TIMES

Unit 1: Ethics in Modern Times**Unit 2:** Future Challenges

Course - 2

Introduction To Values – 2 Credits

Module - 1: VALUE ORIENTATION

Unit 1: The Definition **Unit 2:** Norms and Values**Unit 3:** Perennial Values

Module - 2: VALUES IN MODERN SOCIETY

Unit 1: Modernization and Modernity**Unit 2:**The Rationalistic or Liberal Model
Unit 3: The Revivalist or the Orthodox Model**Unit 4:**The Radical or the Revolutionary Model

Module - 3: TYPES OF CONTEMPORARY SOCIETIES

Unit 1: Traditional Societies**Unit2:**Transitional Societies**Unit 3:**Modern Societies
Unit 4: Post-Modern Societies**Unit 5:** Indian Unity and Diversity Value
Unit 6: UGC Guidelines Value Pravesh 2.0 **Unit 7:**Changing Societies under the Tech. Revo.

Course- 3

LIFE SKILLS- 2Credits:Self Development, Management, Rights &Duties, Personal Safety and Security-

Module - 1: SELF DEVELOPMENT

Unit 1: Emotional Intelligence**Unit 2:**Self-Esteem**Unit 3:** Yoga **Unit 4:** Skills for Quality Life**Unit 5:** The True North Principles **Unit 6:** The Potentiality Of The Four Human Endowments

Module - 2:WORK, HABITS, ENVIRONMENT PROTECTION &FUNDAMENTAL RIGHTS & DUTIES

Unit 1: Work,**Unit 2:**Sense of Duty,**Unit 3:**Habits of Thrift, **Unit 4:**Environment, **Unit 4.1:**Environment Protection Policy,**Unit 5:**Fundamental Rights and Dutiesof The Citizens

Module - 3: NATIONAL SECURITY, PERSONAL SAFETY AND SECURITY

Unit 1: National Security **Unit 2:** Personal Security **Unit 3:** Body Heat: As Temperatures Rise, Please Add Salt**Unit 3.1:** Prevent Electrical Fires at Home**Unit 3.2:** Security Travel Tips**Unit 3.2.1:** Travel Tips **Unit 4:** Sexual Harassment: What Every Working Woman needs to know**Unit 5:** How Burglars Choose Their Victims**Unit 6:** Ten Ways to Protect Your Home**Unit 7:** Credit Card & Cyber Security Precautions **Unit 7.1:** Negative Impact of Excess use of Mobile Phone **Unit 8:** Prudent Precautions against Terrorism.

IMPORTANT NOTE -
Courses will be offered in collaboration with the institutions. Also, students can directly enroll for the Courses. Certificate will be provided jointly by SEED-CHEST and Collaborating Institute.

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Society for Education and Economic Development, New Delhi

EDITORIAL

HOW HAS THE CONCEPT OF AUTONOMY TO UNIVERSITIES WORKED IN INDIA?

The Concept

Institutions of higher education worldwide are generally granted autonomy to pursue their goals of teaching, research, innovation, and the free expression of ideas on national and global issues of significance. In India, this autonomy is established through the founding Acts of various institutions. The University Grants Commission (UGC), created under the Constitution of India, was tasked by the Central Government with maintaining and coordinating standards in higher education. The UGC Act of 1956, passed by Parliament, formalized the UGC's autonomy to achieve its objectives while keeping the Ministry of Education (formerly known as the Ministry of Human Resource Development) at arm's length.

The Commission consists of 12 members, the majority being academics, along with two ex-officio representatives from the Ministries of Education and Finance. The role of these representatives was primarily cooperative, limited to participating in Commission meetings. The Commission's decisions were final and accountable to Parliament. The UGC Act also conferred autonomy on universities established under both Central and State legislation, with the government providing funding to the UGC based on its plans for higher education development and standard maintenance.

The Practice

For nearly half a century, the UGC facilitated the growth of universities, sharing resources and supporting the maintenance of academic standards. Various schemes were implemented to address emerging challenges and promote equity and quality in education. The UGC was not conceived as a regulatory authority, except concerning qualifications and pay scales for teachers and staff. Such notifications were issued with governmental approval, and implementation occurred through persuasion of State Governments, supplemented by financial assistance.

The Act provides for limited punitive actions by the UGC, primarily allowing inquiries in response to serious complaints from staff or the public about an institution's operations.

Concept and Practice at the State Level

Similar provisions exist in the legislative Acts for establishing universities, which maintain a degree of autonomy by designating the Governor of the State as the Chancellor and the President of India as the Visitor for Central Universities. These measures are intended to safeguard university independence.

This framework functioned effectively for several decades. Although occasional issues arose, they were typically resolved without significant confrontation. State funding was not contingent upon compliance with government orders, except within the scope of clearly defined funding regulations.

The Conflict between State Government and Chancellor

An early incident of aberration occurred when the then Governor of Tamil Nadu, Shri Chenna Reddy, attempted to exceed the aid and advice of the Cabinet. In response, the Tamil Nadu government, led by Chief Minister J. Jayalalitha, amended the State University Act to stipulate that the Chancellor could appoint Vice-Chancellors in consultation with the state government. This amendment institutionalized the conventional practice of aid and advice.

In my observation, governors from different political parties often sought to exert influence over university administration through direct intervention, despite institutional restrictions. However, over the past decade, confrontations between state governments, governors, and universities have become more common, compromising university autonomy and disrupting their functioning. The role of the Chancellor, originally intended to act as a buffer between the government and universities, has instead become entangled in conflicts. These issues are particularly pronounced in

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Editor
G.D. Sharma
Co-editor
Baldev Mahajan

1. Election of Office Bearers and Revised Governance Structure of ICF:

The Indian Colleges Forum (ICF) has announced the election of office bearers for its State Chapters and the constitution of a National Level Governing Committee. The revised governance structure aims to streamline operations and enhance the effectiveness of the forum.

Key details include:

- National Level Committee: Comprising 15 members, including 12 State Secretaries (two from each of the five regions: North, South, West, Central, East, and North-East) and three nominees from the President of SEED (Society for Educational and Economic Development).
- State Level Executive Committee: A 5-member committee, including a State Secretary elected by member colleges, two members based on preference votes, one nominee from the State Secretary, and one nominee from the President (from past State Secretaries or eminent retired principals).
- District Level Executive Committee: A 3-member committee to be formed in districts with a large number of member colleges.
- Tenure: All elected or nominated members will serve a two-year term.
- Meetings: Each committee is required to hold at least two meetings annually, with one state-level conference every one or two years.
- Funds: ICF will rely on membership fees, donations, specific-purpose fees, and government grants for funding.
- Membership Fees: The National Level Committee will revise and fix the membership registration fee and annual subscription.
- Dispute Resolution: Disputes will be resolved amicably, with the President of SEED-ICF having the final decision-making authority.

This revised structure aims to decentralize decision-making, encourage broader participation, and ensure smoother functioning of the ICF at all levels.

2. Empowering Young Students in Colleges:

In line with the UGC guidelines under NEP 2020, SEED-CHEST has launched several courses to empower students with essential life skills, ethics, and values. Key initiatives include:

- Ethics, Values, and Life Skills Courses: Three 2-credit courses offered on the LMS Canvas platform, featuring interactive sessions, assignments, and evaluations. MES Kevyeeam College, Kerala, successfully implemented these courses, with 100 students completing the program and receiving joint certificates from SEED-CHEST and the college.
- New Courses: SEED-CHEST is launching two 4-credit courses on "Communication Skills "and "Critical Thinking" for UG and PG students. These courses will be offered in collaboration with ICF member colleges.
- Collaboration with Lakshmi Bai College: An MoU has been signed with Lakshmi Bai College, Delhi University, to implement courses on Ethics, Values, Life Skills, and Communication Skills. The courses will be mentored by SEED-CHEST and college faculty, with joint certification.

These initiatives align with UGC's Value Pravah and JeevanKaushal guidelines, aiming to foster holistic development and prepare students for real-world challenges.

3. Seminar-Workshop on AI, Block chain, and Quantum Technology:

A seminar-workshop on the use of Artificial Intelligence (AI), Blockchain, and Quantum Technology in higher education was successfully held on 7th September 2024. Key highlights include:

- Inauguration: The event was inaugurated by Shri Baldev Mahajan, Former Director of NIEPA, with a special address by Professor N.V. Varghese, Former Vice Chancellor, NIEPA
- Participants: Nearly 25 senior principals from colleges in Assam, Uttar Pradesh, and Delhi attended the workshop.
- Key Speakers Professor P. Vatsala (Principal, Lakshmi Bai College) and other dignitaries namely, Professor G.D. Sharma, Professor R.C. Sharma, Er. Rahul Agarwal, Er. Vishal Singhal, Ms. Mrinal Sharma and Shri Nitesh Sharma addressed the delegates, emphasizing the transformative potential of these technologies in education.

4. Convocation for International Diploma in Educational Leadership (IDEL-HE)

The convocation ceremony for the "International Diploma in Educational Leadership - Higher Education (IDEL-HE) " was held on 7th September 2024 at NIEPA, New Delhi. The following individuals were awarded the diploma:

- Dr. M. Usman. Principal, MIC Arts & Science College, Kerala
- Dr. Mohamed Ali Former Principal, Majlis College, and Secretary MES Keveeyam College, Kerala
- Professor P. Vatsala, Principal, Lakshmi Bai College, Delhi University, Delhi
- Shri Abhimanyu Katoch. MD, Kawa Group of Institutes, Jammu, Jammu & Kashmir

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LAKSHMIBAI COLLEGE - A JOURNEY TOWARDS INTEGRATED AND HOLISTIC DEVELOPMENT

PROFESSOR P. VATSALA *

The paper brings out experiment of holistic and integrated development of college by focusing on : sustainable development (keeping in view SDG 3.) Digitalization, Health Care and Community participation. The article reveals an innovative way of involving faculty, students, staff and community to achieve larger goals of sustainable development, technology use and participation of college for community help and development.

The Lakshmibai College of Delhi University was set up in 1965. Since then it has incessantly worked to achieve academic excellence, academically and socially supporting students from neighboring areas with relatively economically weaker backgrounds and connecting to sustainable development and holistic development goals. Towards this in the past five years it has worked among others on three focused areas, namely, (1) aligning with the Sustainable Development Goal (SDG) by developing an eco-friendly and culturally rich environment, (2) Digitization of Campus (3) Health and Wellbeing along with Students participation in Community Service. A journey very challenging yet very enlightening for all faculty, students, staff, and society.

Aligning itself to Sustainable Development Goals (SDGs), Lakshmibai College started green practices to achieve the mission of the college. The college faculty, students, and administrative staff are committed to promoting biodiversity, sustainable development, and an eco-friendly environment on

I

Sustainable Development: Aligning itself to Sustainable Development Goals (SDGs), Lakshmibai started green practices to achieve the mission of the college. The college faculty, students, and administrative staff are committed to promoting biodiversity, sustainable development, and an eco-friendly environment on campus. We know that the campus can be used as an ideal platform to drive new research ideas that help sustainable development and address the challenges hindering its implementation.

Objectives: The objective of this initiative of Lakshmibai College was to align with the United Nations Sustainable Development Goals (SDGs) and establish green practices that fulfill the College's Mission. It aims to harness the collective commitment of the college's faculty, students, and administrative staff towards promoting biodiversity, sustainable development, and an eco-friendly environment within the campus premises. Furthermore, this initiative seeks to demonstrate how the college's campus serves as an exemplary platform for fostering innovative research ideas that contribute to sustainable development and address pertinent challenges hindering its realization.

Ours is the first college in the University of Delhi that through its concerted efforts has developed an integrated and sustainable ecosystem such as:

- Rainwater harvesting (Catch the Rain),
- Vermicomposting,
- Water purification,
- Herbal/Medicinal garden,
- Mushroom Cultivation and Butterfly Garden

Under an eco-friendly, culturally rich, zero-waste, and circular economy village named -Mera Gaon Gokul.

A brief description of each of these initiatives is given below:

Aligning itself to Sustainable Development Goals (SDGs), Lakshmibai College started green practices to achieve the mission of the college. The college faculty, students, and administrative staff are fairly committed to promoting biodiversity, sustainable development, and an eco-friendly environment on campus. We at Lakshmibai College know that the campus can be used as an ideal platform to drive new research ideas that aid sustainable development and address the challenges hindering its implementation. Our incessant Journey Towards a Green Campus highlights a strong commitment and dedicated efforts of the college towards ensuring a sustainable environment on the campus.

In the year 2020-21 when the pandemic posed huge challenges, the college took it head on and used the Covid period as an opportunity to augment the environment-related initiatives.

Eco Park to Eco Village - under "A Model of Grassland Ecosystem and its Commercial Applications" Mera Gaon-Gokul reflects the vision of the college towards developing a sustainable ecosystem. The whole concept includes - a recycling waste management system to dispose of all the organic waste generated inside the campus and gain commercial benefits through it, the establishment of Ecopark, the development of a vegetable garden and Mera Gaon- Gokul, Mushroom cultivation, Bee farming, Animal husbandry, and Compost formation. Besides, changing the microclimate of the campus, recharge of groundwater,

* *Principal, Lakshmibai College, Delhi University, Delhi*

and enhancement of Aquatic Biodiversity by creating a wetland site, the Pond Ecosystem has been developed in college campus.

Ours is the first college in the University of Delhi that through its concerted efforts has developed an integrated and sustainable ecosystem such as - rainwater harvesting (Catch the Rain), vermicomposting, water purification, herbal/medicinal garden, cow shed, mushroom garden at Mera Gaon - Gokul.

Mera Gaon

Nandini and Surbhi

These actions are mentioned below:

1. **Eco-park:** The idea for Eco-park was conceived in the year 2019-20 but it was implemented fully in the year 2020-21. The Ecopark was developed with the concept of amusement, resource utilization from waste, recreation of land usage, and as a model ecosystem for educational purposes. The theme was natural ecosystems. The college is proud to have a lively Eco-park near the Entrance Gate.
2. **Three different ecosystems** - grassland ecosystem, desert ecosystem, and aquatic ecosystem are showcased there. Eco-park comprises all aspects of nature and natural beauty including eight playful rabbits with their mud house made out of all raw material from the campus itself, four elegant ducks in a small pond, chirping birds nearby, flowering and fruiting plants with a beautiful landscape made out of waste and eco- bricks. Guest visitors such as peacocks, pigeons, hawks, mynas, parrots, bulbul, and squirrels give the Eco-park a sense of completeness. Life above land and in water makes the Eco-park complete, peaceful, and a center of attraction for the whole college fraternity. This is a model of grassland and aquatic ecosystems full of diverse varieties of flora and fauna.

Eco-park having different species visiting the eco-part

3. **Rainwater Harvesting:** Rainwater harvesting set up for the Ground Recharge System has been constructed in the college by PWD keeping in view the water level in the area. As an extension of the water conservation strategy of the college 'Catch the Rain' roof water harvesting system was established in the year 2020-21 in the Mera Gaun - Gokul area. The rainwater is collected in a small pond at one point at another point in a big pond and further in a small tank for reuse.
4. **Water bodies (Pond Ecosystems):** The College has used emerging approaches to collect monsoon water, change the microclimate, and enhance aquatic biodiversity using constructed Wetlands at the campus.

In the context of climate and aquatic biodiversity changes, it is important to provide an integrative approach to recharge groundwater, enrich aquatic biodiversity, and prevent and control water pollution, to limit its impact on groundwater resources and biodiversity.

To recharge the groundwater table of the college campus and the nearby area in Ashok Vihar two water bodies have been formed and pond ecosystems are being developed. One big pond of 6-7 feet in depth in the Gokul area and a small pond of 3 feet in depth in the front lawns have come up, which will catch the rain from the roof water and the surface runoff from the grounds of the campus. To complete the pond ecosystem, fish are living inside and lotus was also planted to grow in the small pond. This initiative not only achieves the sustainable goals of harvesting rainwater and recharging the groundwater table but will also change the microclimate of the campus and beautify it immensely.

5. **Composting:** In continuation of solid waste management and the objective of making the college a zero-waste generating campus more compost pits

have been constructed. There are now a total of 4 compost pits at different corners of the campus. These are used to make vermicomposting. In addition, the college has a composting machine that makes organic compost from dry waste from gardens.

6. **Vegetable Garden, medicinal garden, herbal garden, and fruit orchards:** To make the campus greener and more productive a vegetable garden, a medicinal garden, a herbal garden, and a fruit orchard are developed in the campus. This will improve the green cover of the campus and reduce soil degradation. Many organic food products will be made from these plant products. This is in line with the goal of sustainable production.
7. **Bio Gas Plant Installation:** Among Asian countries, India is generating abundant and unexploited renewable energy resources that are yet to be used for uplifting the livelihood of the majority of the rural and urban population. Biogas technology could act as an alternative to overcome the energy demand, particularly of the rural population. This initiative of the college got a shot in the arm when the Indian Institute of Technology, Delhi facilitated the installation of a Gobar gas plant in the eco-village area for the demonstration to our students.
   The very purpose of this plant is to utilize the available biodegradable waste material efficiently in the making of clean energy. This biodegradable material contains methane gas which we use in gas stoves. The capacity of our installed plant is 1000 litre and we use substrate material as cow dung. Cow dung of Nandini (the cow in Gokul) and Surbhi (the baby cow) and the kitchen waste from neighboring residents and the college canteen are to be utilized to generate biogas from the wet waste.
8. **Pollution-free commutation and Energy Conservation:** The college has signed an MoU with Yulu Services to provide students and staff with a cheap, convenient, and pollution-free mode of commutation. The college provides a charging facility for the Yulu bikes. This makes the campus greener and ensures air pollution reduction. This is another extended step taken by the college for energy conservation.
9. **Solar Energy:** The campus already has installed a big unit of solar panel system on its premises to harvest substantial solar energy.
10. **Cow shed- Nandini Shala:** Understanding the purposes of Rashtriya Kamdhenu Aayog, the college has taken the initiative to preserve the Desi breed of Cow on a college campus. Another endeavor that makes Mera Gaon-Gokul complete is the presence of a cow Nandini and her calf Surabhi. Both mother and daughter are a part of the Lakshmibai biodiverse family. In addition to the cow's milk, her dung and urine would be utilized for the Gobar gas plant and Panchgavya.
11. **Water Purification System:** Water is the major natural resource which is found around 75% in the earth's crust. In contemporary times, water quality is deteriorating day by day, and studies reflect that 70% of water is contaminated. In the last few centuries, there has been an advancement in water treatment technology to protect public health by treating impure water.
    We, at Lakshmibai College, are creating a multi-stage filtration water system to filter turbid water and chemical contaminants. We are using natural filtration techniques such as gravel, sand, silt, clay, and charcoal to pass filters as the water passes through them.
12. **Mushroom farming:** Mushrooms contain significant nutritional value currently counting around 2000 edible species distributed around the world. In Asian countries, China is the largest producer of mushrooms, contributing around 35% to the world mushroom market. There are various species of mushrooms cultivated in India. These include button mushrooms, oyster mushrooms, shiitake mushrooms, etc. There is a great scope for cultivation of different species of mushroom in India because of diverse climate conditions and availability of raw materials (Paddy straw, wheat, cotton waste, maize

Solar Panels

Mushroom Farming

straw, etc.). The waste generated by mushrooms could be used as bio-compost. Our college has constructed mushroom chambers for the cultivation of mushrooms. Currently, we have a separate incubation and fruiting chamber that provides ideal conditions for the optimal growth and yield for different species of mushrooms. The purpose behind mushroom cultivation at college is to train our students on how to increase yield by selecting different substrates and environmental conditions.

13. **3 R's - Reduce, Recycle and Re-use:** Lakshmibai College is working upon the principle of the 3Rs (Reduce, Recycle, and Reuse) and adopting requisite mechanisms and approaches to ensure water conservation like constructing wetland ecosystems plus rainwater harvesting., improving the quality of the air by increasingly planting trees at the campus, promoting the use of e- cycling by the students, switching from the use of non-renewable to renewable energy resources such as Biogas energy (Bio-gas plant), Solar energy etc.

TRAINING THE STUDENTS:

Furthermore, the college is also sponsoring training for its students and imparting environmental-friendly education to them to expedite the undertaken efforts. It is a privilege to acknowledge that the Lakshmibai College has emerged as the first college of its kind at the University of Delhi that excessively enriches the Aquatic biodiversity by taking unprecedented initiatives like creating a pond ecosystem.

The outcome of these initiatives is that:

" The college has rich floral diversity including plants of various economic and medicinal values. The college has a large green cover with a beautiful front garden, back garden, green sports ground etc. The college, in association with its green committee, is involved in regularly hosting Nature walks, Tree- talks, campaigns, and workshops with the idea of creating sensitivity towards the environment in students, staff, their families, and neighboring communities.

" The College has taken several initiatives like organizing plantation drives, and adopting a trend of gifting planters (made up of coconut shells and other eco-friendly materials) to its guests with a vision to encourage plantation).

" The College has also documented the botanical diversity of the campus. The initiative is aimed at encouraging student research on environmental subjects.

" The college Eco Club regularly conducts workshops in which students are encouraged to prepare sanitary pads, bags of old clothes and other stuff, etc. Such efforts have resulted in far-reaching outcomes as they encourage students to minimize packaging even beyond the college campus.

II
DIGITALIZATION OF THE CAMPUS

Introduction:

In an era defined by rapid technological advancement and digital transformation, educational institutions stand at the forefront of leveraging innovation to enhance the learning experience and streamline administrative processes. This initiative marks a significant milestone in the journey towards comprehensive campus digitalization at our esteemed institution.

The objective of Digitization:

With the following objective in view, we launched initiatives for Digitization of Campus:

Objectives

1. Develop and launch a dynamic and user-centric website that serves as a comprehensive digital platform for students, faculty, and staff, providing seamless access to essential information, academic resources, and administrative services.
2. Implement a sophisticated student data entry system to streamline record-keeping processes and ensure the efficient management of student information, enhancing data accuracy, confidentiality, and retrieval speed.
3. Equip classrooms with state-of-the-art ICT infrastructure, including multimedia resources, collaborative tools, and interactive displays, to create dynamic learning environments that inspire curiosity, creativity, and critical thinking among students.
4. Introduce a cutting-edge I Card system equipped with RFID technology and integrated payment functionality to enhance campus security, access control, and convenience for students and staff, facilitating cashless transactions for various campus amenities and services.
5. Develop and implement an Annual Performance Appraisal Report (APAR) system accessible via the website, facilitating transparent and objective performance evaluation processes for faculty and staff members, and enhancing accountability, fairness, and effectiveness in performance management.
6. Incorporate location-based services (LBS) leveraging geospatial technology to enhance campus navigation, resource allocation, and emergency response capabilities, promoting efficiency, safety, and sustainability within the campus environment.
7. Foster a culture of innovation, inclusivity, and continuous improvement through the holistic integration of emerging technologies and innovative solutions, shaping a digitally-enabled campus environment that advances excellence in teaching, learning, and administrative practices.

These objectives were translated into the following actions:

DYNAMIC USER-FRIENDLY WEBSITE:

With a vision to embrace the digital age and harness its myriad possibilities, we embarked on an ambitious endeavor encompassing various facets of technological integration within our campus ecosystem. Central to this initiative is the development of a dynamic and user-centric website that serves as a digital hub for students, faculty, and staff alike. Through intuitive design and robust functionality, the website facilitates seamless access to essential information, academic resources, and administrative services, fostering a culture of transparency and accessibility.

STUDENTS DATA ENTRY SYSTEM:

Furthermore, our project entails the implementation of a sophisticated student data entry system, aimed at streamlining record-keeping processes and ensuring the efficient management of student information. By digitizing student records and leveraging secure data storage solutions, we seek to enhance data accuracy, confidentiality, and retrieval speed, thereby optimizing administrative workflows and decision-making processes.

Use of Technology in the Teaching-Learning Process:

In line with our commitment to modernizing the learning environment, we are dedicated to outfitting classrooms with state-of-the-art ICT (Information and Communication Technology) infrastructure, empowering educators to deliver engaging and interactive lessons that cater to diverse learning styles. Through the integration of multimedia resources, collaborative tools, and interactive displays, we aim to create dynamic learning environments that inspire curiosity, creativity, and critical thinking among students.

Cutting-edge I Card System for students and Staff:

Moreover, as part of our digitalization efforts, we are proud to introduce a cutting-edge I Card system equipped with RFID (Radio Frequency Identification) technology and integrated payment functionality. This innovative solution not only enhances campus security and access control but also enables convenient cashless transactions for various campus amenities and services, promoting efficiency and convenience for students and staff alike.

Performance Appraisal System:

Additionally, our initiative includes the development and implementation of an Annual Performance Appraisal Report (APAR) system accessible via the website, facilitating transparent and objective performance evaluation processes for faculty and staff members. By digitizing the APAR process, we aim to enhance accountability, fairness, and effectiveness in performance management, fostering a culture of continuous improvement and professional development.

Spatial Technology:

Furthermore, our system encompasses the development of location-based services (LBS), leveraging geospatial technology to enhance campus navigation, resource allocation, and emergency response capabilities. Through the integration of LBS into our digital ecosystem, we aimed to enhance the overall campus experience, promoting efficiency, safety, and sustainability.

In summary, this initiative represents a holistic approach to campus digitalization, encompassing website development, student data entry, ICT-enabled classrooms, RFID-based I Card systems, APAR digitization, and LBS development. By embracing emerging technologies and innovative solutions, we are committed to shaping a digitally-enabled campus environment that fosters excellence, inclusivity, and innovation in teaching, learning, and administrative practices.

Distribution of laptops to needy students

III
HEALTH AND WELLNESS:

Introduction: In response to the evolving landscape of health and wellness in our society, our institution embarks on a transformative journey towards cultivating a health-oriented campus environment. As the world grapples with unprecedented health challenges, the imperative to prioritize well-being and resilience within educational settings has never been more pronounced. This project represents a proactive and concerted effort to establish our campus as a beacon of health promotion, resilience, and community engagement.

Objectives:

The objective of this project is to establish our institution as a model for health-oriented campus environments, fostering a culture of well-being, resilience, and

community engagement. Through a proactive and concerted effort, we aim to address pressing health concerns, including those exacerbated by the COVID-19 pandemic, by implementing a range of initiatives designed to safeguard the health and safety of our campus community.

Specifically, our objectives include:

1. Implementing and enhancing on-campus health infrastructure, including RT-PCR testing facilities and dedicated COVID-19 bed facilities, to ensure timely access to essential healthcare services for students, faculty, and staff.
2. Developing and implementing comprehensive health promotion programs and initiatives aimed at nurturing the physical, mental, and emotional well-being of our campus community, including health education workshops, mental health support services, and stress management programs.
3. Establishing a robust Community Outreach program to extend our impact beyond the campus boundaries, addressing health disparities, promoting preventive healthcare measures, and fostering meaningful community engagement through strategic partnerships and collaborative initiatives.

Keeping view the above objectives we undertook the following:

Response to Covid -19 Pandemic:

Central to our endeavor was a commitment to addressing the pressing health concerns of our time, including the COVID-19 pandemic. With agility and foresight, we have implemented a range of initiatives aimed at safeguarding the health and safety of our campus community. From the establishment of on-campus RT-PCR testing facilities to the provision of dedicated COVID-19 bed facilities, we have endeavored to mitigate the impact of the pandemic and ensure timely access to essential healthcare services for our students, faculty, and staff.

Community Outreach:

Moreover, recognizing the interconnectedness of health and community well-being, we have launched a comprehensive Community Outreach program aimed at extending our impact beyond the confines of our campus. Through strategic partnerships and collaborative initiatives, we addressed health disparities, promote preventive healthcare measures, and foster meaningful community engagement.

From health education workshops to outreach clinics, we are committed to empowering individuals and communities to lead healthier and more resilient lives. In essence, this initiative embodies our institution's unwavering commitment to health promotion, resilience, and community well-being. By leveraging our collective resources, expertise, and innovation, we created a campus environment that not only nurtures the physical, mental, and emotional well-being of our community members but also serves as a catalyst for positive change in the broader community. Together, we embarked on a journey towards a healthier, more vibrant future for all.

It is pertinent to highlight the outcome of some of these initiatives:

Social Responsibility and Community Engagement Second Wave of Covid-19:

Social concern is a distinctive feature of the college, and it strives to align itself to the sustainable development goals (SDG). In line with SDG 3- Good Health and Wellbeing, the college rose to the challenge of helping the community fight the second wave of the COVID pandemic which struck Delhi as a tsunami. Efforts were made in this direction to utilize the resources of the college optimally.

Initiatives during the Second Wave of Covid -19:

1. **Inauguration of Health & Wellness Centre and Free RT-PCR Testing:** The Health & Wellness Centre - Arogyam was inaugurated on April 11, 2021, followed by April 15 with a tree plantation and with rolling out of Free RT-PCR Testing for the staff, students, and neighborhood. The Free RT-PCR Testing service was provided by the North West District Administration and the Medical Team.
2. **Covid Care Centre with Oxygen-bed Facility:** Taking forward its commitment to social concerns during the time of oxygen shortage in Delhi when hospitals could not accommodate the unprecedented large number of Covid positive patients, Lakshmibai College opened its doors and converted the classrooms to a Covid Care Centre with oxygen-bed facility.

   Honoring the Services Faculty Member: We lost Dr. Sangita Sharma, Assistant Professor, Department of Political Science, a dedicated teacher and social worker on 22nd April 2021. The Covid Care Centre was dedicated to the memory of our beloved Dr. Sangita Sharma. The Centre served as a tribute to her unflagging zeal, both as a teacher in the Political Science Department of the college, and her social outreach through her invaluable leadership role in the NSS wing of the institution.
3. **Havan:** The Concept of Havan - the form of worship through fire has been prevalent in India since the Vedic Period. This is viewed as an auspicious act to invoke nature to give solace and help to mankind on Earth. Covid Response Team, Lakshmibai Covid Care Centre organized a Havan for world peace where the Mahamrityunjaya Mantra was chanted 108 times on May 29, 2021, at 7.30 a.m.

4. **Post-Covid Care Facility:** To manage possible Post-Covid complications and provide Health Care, the college continued with its commitment to work for Public Health through its Health and Wellness Centre. Post Covid Care Facility at Lakshmibai College was made functional on May 24, 2021, prioritizing a Holistic Medicine approach. Regular OPD, Yog, Pranayam, Counselling, Ayurveda, Diet Nutrition, Physiotherapy, Pain Therapy, Panchgavya, etc. were offered to people who had recently recovered from Covid..An oxygen Bed facility was made available. A team of doctors attached to the center was available for consultation via post-Covid care. An online Consultation facility was also provided.
5. **RT-PCR Booth:** RT-PCR Sample Collection Facility with an ICMR approved Lab was started in the parking area and outside Gate no 1. It was available at less than standard government rates i.e., INR 500/- and the facility was extended to all within the center's designated functioning time, which stretched from am to 3.30 pm. Test reports were also made available within 24 hours.
6. **Free Covid Vaccination Centre:** Taking forward the initiative of its Health and Wellness Centre, Lakshmibai College decided to launch a vaccination drive for all the eligible and interested members of the college (Teaching and Non-Teaching) and nearby areas. A Google form was circulated to estimate the precise number of doses required to conduct the Vaccination Drive. The number was not encouraging earlier in April. In line to contribute to the fight against the pandemic, the college continued with its efforts to provide services for Covid Care. Later on, the institution in collaboration with the office of the District Magistrate, North West, Government of NCT of Delhi announced a Walk-in Vaccination Drive from May 28, 2021 onwards, functional from 9 a.m. to 4 p.m. (Sunday closed) for 45+ eligible people. No prior registration was required and strict COVID-appropriate protocols were put in place.
7. **Open to Public:** From 21st June 2021 onwards, the center was made open to all 18+ eligible beneficiaries, all Delhi Univ/College students, staff, and their families. (a)An ambulance was donated to the Covid Care Centre. (b) Two Oxygen concentrators were received as donations (c) The Vaccination centre was shifted to the college canteen premises keeping in mind the long duration of the initiative.

Post Covid Initiatives:

1. Networks of Psychological Support: 'Saarthi' In an important initiative, the Department of Psychology, Lakshmibai College, University of Delhi, created a COVID-19 Support - Mental Health Resource named 'Saarthi' to facilitate emotional and mental well-being in these testing times. The setting up of the Centre was a timely response to how the pandemic could exacerbate various mental health issues such as Stress, Anxiety, Self-Harm, Grief, Anxiety related to Academic issues/ future, etc.' Saarthi' was set up to extend a helping hand in addressing these.a) A Psycho-social Support Helpline was launched by the Department of Psychology, Lakshmibai College.
2. **Parampara Aahar Seva** was inaugurated on the occasion of World Friendship Day, July 30, 2021, to boost the immunity of people so that they can survive in Covid and post-Covid times. A minibus was renovated to serve traditional Indian immunity booster snacks and beverages. It stands amid lush green surroundings with Neem, Tulsi, and Giloy plants. The initiative promotes the idea of a society built on a healthy nutrition model besides providing internship opportunities to Food Technology students.
3. **Innovative approach:** An old college bus has been refurbished and Recycled into a Food Truck called Parampara, owing to its showcasing and rustling up of traditional recipes from different states of the country. It promotes public health through the use of minimally processed, hot-cooked food that boosts immunity and prevents lifestyle-related non-communicable diseases. The initiative revives the use of Indian cereals, pulses, nuts, and seeds. The news of our new initiative Parampara was covered by the Jagran newspaper
4. **Panchgavya Therapy and free consultation -** On the occasion of Azadi ka Amrit Mahotsav, Lakshmibai College decided to promote healthy living through Panchgavya Therapy. An MoU was signed on August 15, 2021, for Panchgavya Therapy and free consultation is being provided to the staff and student community with effect from 16th August onwards.
5. **Health and Wellness Centre 'Arogyam'** in collaboration with Aryavart Vaidic Chikitsalya provides consultation services to the staff and student community of the college
6. **Students Community Outreach:** An initiative for community outreach by students was launched. It was named -WISHVAS -Women Initiative of Strength Happiness, Values, Awareness, and Services. Its message was -Ab padhna kathin Nahi. WISHVAS, an initiative towards social responsibility, was started in 2017, by us. The initiative is l led by me with a belief that educating and empowering underprivileged children is crucial to the nation's development. We aim to contribute towards the holistic development of children and the community, at large. The project so far has positively impacted several children. Children are the future of a nation and being groomed by young adults is iconic. With this thought, WISHVAS builds a system where students of

Lakshmibai College voluntarily teach children residing in nearby slums. A plethora of activities are also conducted in the community to create awareness on matters of importance such as hygiene, education, and nutrition as well as to achieve the overall development of the body and minds.

To Sum Up:

" In culmination, the initiatives undertaken by Lakshmibai College in alignment with the United Nations Sustainable Development Goals (SDGs), reflect our steadfast commitment to promoting biodiversity, sustainable development, and an eco-friendly environment within our campus premises. Through a collective effort involving faculty, students, and administrative staff, we have demonstrated our dedication to fostering a culture of environmental stewardship and innovation, serving as a beacon of inspiration for educational institutions worldwide.

" Our initiatives, ranging from the development of a dynamic and user-centric website to the implementation of sophisticated student data entry systems, have not only streamlined administrative processes but have also facilitated seamless access to essential information and resources for our campus community. Furthermore, our investments in state-of-the-art ICT infrastructure and cutting-edge I Card systems equipped with RFID technology underscore our commitment to enhancing campus security, access control, and convenience.

" Additionally, our efforts to incorporate location-based services (LBS) and foster a culture of innovation and continuous improvement highlight our institution's proactive approach to shaping a digitally-enabled campus environment that advances excellence in teaching, learning, and administrative practices.

" As we look towards the future, our commitment to health-oriented campus environments remains unwavering. Through the implementation of initiatives such as on-campus health infrastructure enhancement, comprehensive health promotion programs, and robust Community Outreach initiatives, we are dedicated to safeguarding the health and well-being of our campus community and extending our impact beyond the confines of our institution.

" In essence, this initiative serves as a testament to the transformative power of collective action and innovative thinking in driving positive change. By sharing our experiences and insights, we aim to inspire and guide similar initiatives in educational institutions worldwide, furthering the global agenda for sustainable development, well-being, and community engagement. Together, we embark on a journey towards a brighter, more sustainable future for all.

In conclusion, this underscores the multifaceted efforts undertaken within our educational institution to foster sustainable development and holistic well-being. Through a comprehensive digital initiative, we have successfully created a dynamic and adaptive space that enabled students and faculty to navigate the challenges brought forth by the COVID-19 pandemic, demonstrating the pivotal role of technology in facilitating continuity and resilience.

This paper forms part of the project report submitted by the author in fulfillment of the International Diploma in Educational Leadership- Higher Education, organized by SEED-CHEST, Delhi.

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- Ms. Purabi Boruah, MD, Next Gen Smart Education Foundation, Guwahati,Assam
- Additionally, Dr. Sashi Kanta Saikia, Principal, DHSK College, Dibrugarh received an additional certificate for completing an advanced term covering Planning, Policy and Finance courses.
- Convocation Address: The ceremony concluded with an inspiring address by Professor Ikbal Hasnain, Padma Shri awardee and former Vice Chancellor of Calicut University.

To sum up:

1. Governance Revamp: The revised governance structure of ICF aims to enhance participation and efficiency at national, state, and district levels.
2. Student Empowerment: SEED-CHEST's initiatives in ethics, values, life skills, and critical thinking align with NEP 2020 and UGC guidelines, fostering holistic student development.
3. Technological Advancements: The seminar-workshop on AI, Blockchain, and Quantum Technology highlights the growing importance of integrating advanced technologies into higher education.
4. Leadership Development: The IDEL-HE program continues to empower educational leaders, contributing to the overall improvement of higher education governance.

These developments underscore ICF and SEED-CHEST's commitment to transforming higher education in India through innovative programs, collaborative efforts, and leadership development.

PLASTIC WASTE, STRATEGIES FOR CONTROL AND USE OF ARTIFICIAL INTELLIGENCE

DR (MRS) MALTI GOEL *

This article describes plastic waste, plastic waste disposal, and the challenges of managing plastic waste. It also showcases adopted strategies and national, regional, and international regulations on plastic waste management.

1. PLASTICS IN OUR LIFE

In 2006, Jay Sinha and Chantal Plamondon, who lived in Wakefield, UK started the store 'Life Without Plastic', looking for a plastic free milk bottle for their first son. In another initiative to fight plastic pollution Rhea Shukla and Abhishek Kumar spearheaded 'The Switch Fix' store to fight against excessive plastic use in consumer items. They developed #NSFWChallenge which stands for 'Not Safe For World'. This is where you purchase NSFW stickers from The Switch Fix and simply identify nine plastic items around you.

Plastics have extreme versatility and ability to be tailored to meet very specific needs. This has made plastics essential for variety of uses, making them integral part of our life. They are useful in all walks of life and their use especially in food packaging, agriculture and automobile industry and scientific equipmentis becoming indispensable.

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Plastics are made of polymers having long chains of identical small molecules linked by 'weak' or 'strong' chemical bonds. The basic building block of a polymer is called a 'monomer', a single molecular entity, which combines into large numbers with identical or similar molecules through chemical arrangements and forms a long chain. Polymers can be engineered into plastics, which are moldable, durable, low density, lightweight, corrosion resistant, inexpensive and water & shock resistant. Most plastics are sourced from crude oil refineries waste, produced by fractional distillation. Being light weight plastics are climate friendly materials as their use consumes less energy and help in reducing greenhouse emissions during operation of a device. Savings in energy and natural resources demand from use of plastics has been a big achievement in reducing CO2 footprints [1]. But their durability meant that they do not decompose for more than hundred years after use. Plastics are not easily recyclable and contribute to long-term pollution.

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2. PLASTIC WASTE

Worldwide plastic production has been growing exponentially and is approaching 430 million tons per year. At the similar pace waste is increasing and because of its long-life it remains in the environment and causing ecological problems. Almost 40% of the production is for single use. Single use plastics (SUPs) as the name suggests are used once and disposed. Plastic of less than 40 micron thick plastic bags for grocery, plastic cutlery, straws, packing material and mineral water bottles are categorized as single use. Milk pouches and liquid soap sachets are also single use. All of such waste is primarily generated by households and commercial entities namely; hotels, restaurants, markets, office buildings, schools and tourism industry. The waste collects on roads, parks and tourist places and gets littered everywhere. That gets disposed on land collects into landfills and that thrown in and around water bodies, traverses to rivers and then gets transferred to sea. Inside the ocean, lighter plastic get collected as Marine Debris and remains there causing not only pollution but also huge damage to ecology. In the presence of sunlight and sea salt water fragmentation of plastic takes place converting it into micro-plastics. These micro particles through aquatic food chain are consumed by fishes, and end up in human bodies. It is said that there could be more plastic than fish by weight in the ocean by 2050, if no corrective actions are taken.

India won global acclaim for its "Beat Plastic Pollution" resolve, after being host for UNEP campaign on World Environment Day 2018, under which it pledged to eliminate single-use plastic (SUPs) by 2022. The phase out of single use plastic in daily life was announced on October 2, 2019, the 150th birth anniversary of Mahatma Gandhi [2]. The educational institutions were advised to join hands amongst students and other stake holders to promote healthy life style and avoid single use plastic. The University Grants Commission issued notification for general information and adoption by the higher education institutes, for combating the plastic menace.The Swachhta hi Sewa 2019, a plastic waste-

free campaign gained popularity in the schools, colleges and universities. Public institutions, offices and society ran campaign to pick up any plastic waste in their surroundings and bringing them to a central location, where it is collated and taken for disposal. Shopkeepers were not allowed to use thin plastic bags and were fined heavily.

3. PLASTIC WASTE DISPOSAL

Long-term plastic pollution menace is caused by the accumulation of plastic waste in the environment. The plastic industry had put crude waste from the petroleum industry into a usable form, Marc Hillmyer, director of the Center for Sustainable Polymers (CSP) at the University of Minnesota, once observed about plastics, '….although they're durable in use, they're also durable in waste[3]'. This aptly describes the reasons for high plastic pollution and the need for its proper management. Plastic waste disposal can take different forms arising from;

i) Land Disposal - Plastics after use are disposed on land and get collected into landfills. It is estimated that nearly 8 billion tons of plastic waste exists on the planet. Plastic waste when burnt for disposal is a source of greenhouse gas pollution, while many other harmful gases and contaminants are added to the atmosphere. In the case of chlorinated plastic, incineration leads to emissions of carbon dioxide, nitrogen oxide, sulfur oxide, etc. It is also known to generate volatile organic compounds such as dioxins, black carbon, pyrene, and polychlorinated furans. The SUPs dumped in landfill sites give rise to emissions; 50% of this gas is methane, which is a greenhouse gas. To increase the reuse of plastic waste, the government of India in 2015 made it mandatory to use plastic waste in road construction. Shredded waste plastic mixed with bitumen at high temperatures was used in several Indian cities - Pune, Indore, Surat and Chennai and Delhi in pilot demonstrations for road construction. These roads are longer lasting, do not develop cracks and potholes, there is savings in the cost of bitumen and the plastic waste is reused. In 2019 Reliance Industries Ltd (RIL) achieved a 40-km of road network made using 50 tonnes of plastic waste within Nagothane Township in Maharashtra to instill sustainability and circularity concept.

The waste can be categorized in primary plastics, microplastics - small particles (<5 µm) of plastic dispersed in the environment, and nanoplastics. The presence of microplastics has detrimental effects on the soil properties, contaminates surface and underground water resources thereby affecting human health and also food security. From land the waste can travel to rivers and to oceans. In oceans, it floats beyond the EEZ of the source country, lead to trans-boundary problem and becomes global pollution.

(ii) Marine Debris Disposal - First evidence of marine pollution was reported in 1969 when plastic items were founds in the stomach of seabirds. In presence of salted sea water and sunlight, plastic waste gets fragmented into micro particles, which are eaten by the fish and other sea mammals. Microplastics degrade human health due to cardiovascular diseases, chronic kidney disease, birth defects, and cancer.The UNEP predicts that 10-20 MT [4] plastics are being added to oceans every year. Jenna et al estimated that out of 275 MT of plastic waste generated in 192 coastal countries in 2010, 4.8-12.7 MT entered the ocean [5]. It is said that by 2050 there could be more plastic in oceans than fishes measured by weight. Ocean gyros lead to plastic waste patches on sea surface causing harm to marine life. According to researchers Biraja Kumar Sahu and B. Baskar in 2019[6], the pristine beaches of the Great Nicobar Island in India were found to have plastic litter originated from Malaysia (40%), Indonesia (23.9%) and Thailand (16.3%). Today plastic pollution has emerged as one of the severest threats to ocean ecosystems and its concentration has reached 5,80,000 pieces per square kilometre.

Managing marine debris is a highly complex issue because of ocean dynamical changes. In recycling several hurdles related to degradation of materials, distribution of residues, size of plastics waste and others are faced [7]. Various chemical, biological and physical approaches have been launched. Technologies are under development. Hydrothermal carbonisation using sea water as solvent for converting marine plastic debris into oil [8] is a promising technology of future, when economically viable.

4. STRATEGIES TO CONTROL PLASTIC POLLUTION

The Climate Change Research Institute (a non-profit organization in India) has held science campaigns and lectures for dissemination of information on plastics pollution. To beat plastic pollution the Climate Change Research Institute brought out a PolicyPaper on Strategies for Controlling Plastic Pollution in India [9] in 2019as an outcome of the brainstorming workshop and recommended five folds strategies (5Is) to be adopted;

(i) Implementation of Plastics Regulations, both at government and state levels
(ii) Integrated management of plastic waste through recycling, refuse and reuse
(iii) International Agreements for controlling plastics pollution in oceans
(iv) Incineration techniques for conversion of plastics into fuel / hydrogen
(v) Innovation in Technology to produce bio plastics or green plastics

Recycling helps reduce the amount of plastic waste

ending up in landfills or oceans by reusing the material to manufacture new products without changing its chemical structure. It has a relatively low cost and extends the lifespan of plastic by physically transforming it into functional products. A wide variety of products, from jewellery, recreation to exhibition halls, can be created. Technological recycling and development of alternate sustainable/ biodegradable plastics are other options.

(i) Awareness and Education

Awareness campaigns for limiting the increase of SUPs as waste have become an urgent worldwide priority. While a greater awareness is needed among the producers and consumers, many such campaigns have taken shape in different countries. 'Plastic Free July' is an initiative of an Australia-based Plastic Free Foundation to empower individuals to reduce their SUPs consumption. The colourful Tulip garden in Basilan, Philippines has come up from 26,877 bottles collected from 45 villages around Lamitan City to showcase an example of plastic reuse.

Fig. 1 A Tulip garden in Philippines from plastic waste

(ii) Plastics Regulations

Plastics Regulations have been sought to reduce production of plastic bags and impose ban on their use. Many countries and regions have taken steps to regulate or ban single-use plastics in various capacities due to environmental concerns. Each country adopted its own legal bans, policies and actions to minimize the SUPs waste. However, the specifics of these bans, their enforcement, and their effectiveness can vary significantly (Table 1).

In India, the plastic problem has been receiving attention of the civic authorizes, and regulations started pouring in since 1999. A series of Plastic Rules and Amendments have been issued. New Plastic Waste Management Rules, 2016 attempted to resolve and sought to extend the responsibility of the plastic producers and generators to create an effective waste

Table 1

Organization	Policy	Function
International organizations on plastic waste		
United Nations (UN)	Sustainable Development Goals (SDG) (2016)	Certify the conservation and sustainable use of all marine resources and it aims to prevent/ reduce marine pollution from land activities.
United Nations Environment Programme (UNEP)	Resolution on marine plastic litter and microplastics (MPs) (2019)	Ensure the long-term elimination of MPs and litter in the ocean. Prevent/ reduce plastics and MPs from land-based activities.
	Addressing single-use plastic products pollution (2019)	Encourage the promotion of policies to control single-use plastics at national and regional levels, use plastic alternatives, and the improvement of waste management.
	Sustainable consumption and production (2019)	Ensure changes in consumption and production patterns that are reflected in the 2030 agenda of sustainable development.
UNEP, International Union for Conservation of Nature (IUCN), and Life Cycle Initiative	National guidance for plastic pollution hotspotting and shaping.	Guidance is given to the identification of plastic leakages through a framework and tools to assess the progress of the intervention.

World Health Organization (WHO)	Assessment of MPs presence in the environment and impact on human health (2019)	Encourage scrutiny of MPs in the environment and their human health impact. Establish methods to measure MPs and are expected to remove up to 90 %.
United Nations Convention on the Law of the Sea (UNCLOS)	"Constitution for the oceans" 1982, entered into force in (1994)	Constituted an unprecedented attempt at regulating the use of sea resources and forming a stable mankind life (not specified for plastic, but considered as hazardous material such as other marine wastes)
Regional organizations on plastic waste		
European Union (EU)	Reduce the impact of certain plastic products on the environment (2019)	Ensure environmentally sound waste management to prevent and reduce marine litter from both sea and land sources.
Marine Strategy Framework Directive (MSFD)	Achieve Good Environmental Status (GES) of the European marine environment.	Aims to protect the marine environment across Europe while allowing the continuation of sustainable uses of the sea.
Oslo and Paris conservation commission (OSPAR)	Protection of the marine environment of the North-East Atlantic	EU and 15 governments and work towards the protection of the marine environment and its resources. Establish specific guidelines for monitoring marine litter on beaches.
UNEP's regional seas conventions (RSC)	Protect the coastal and marine environment (1974)	Encompassing 18 regions of the world and promotes the protection of their common marine environment, through a "shared seas" approach.
Regional Action Plan on Marine Litter Management (RAPMaLi)	Aimed to manage marine litter	Focused on the education and awareness of the society, encouraging "persons to dispose of waste properly and address the issues of illegal dumping on abandoned beaches and gullies"
Pacific Ocean Pollution Prevention Program (PACOL)	Strategy and work plans on "Clear Pacific"	Comprehensive blueprint details the waste and pollution management priorities of the region by focusing on the different fields.
Association of Southeast Asian Nations (ASEAN)	Combating marine debris in the ASEAN member states (2021–2025)	Committed to reducing plastic release, increasing mop up and reducing leakage, and enhancing waste reuse by value chain creation.
Policy and strategies by countries		
Africa (34 out of 54 countries)	Laws banning plastic bags	The laws impose plastic bag ban/ impose levies.
China	Law on the prevention and control of environmental pollution by solid wastes	Regulates waste dumping sites, prohibits plastic dumping in waterbodies, and promotes circular energy.

Korea	Plastic waste control plan	Aimed to reduce plastic waste generation and recycling of generated plastic waste and re-establishment of production and consumption structures and a circular economy.
Malaysia	Road map for zero single-use plastics	Instituted a tax on single-use plastic bags and plastic manufacturers, set up a public awareness unit, and encourages research and development on plastic alternatives.
France	Circular economy law	Banned single-use plastics and promotes circular economic models.
Italy	Plastic packaging law	Imposes a tax on single-use plastics, production, business purchasers, and sellers of plastics.
Sweden	Plastic bag tax	The tax was placed on importers and producers of plastic bags to prevent the spread of MPs and reduce per capita use of plastic bags annually by 2025.
Canada	Canadian environmental protection act (1999)	Addressing plastic pollution using tools at different stages of their life cycle.
USA	Microbeads free water acts (2005)	Prohibited the sale of personal care products containing microbeads and set up a committee to create a response strategy.
Australia	Recycling and waste reduction (2020)	Banned plastic export and provided a flow chart of waste management and recycling.
New Zealand	Waste minimization (microbeads) regulations	Prohibited the sale and manufacture of wash-off products containing microbeads.
UK	Resource and waste strategy	Ensure all plastic packages on the market were recyclable, reusable, or compostable by 2025 and imposed a plastics packaging tax.
Sri Lanka	National environment act	Mainly covers environmental protection, quality, and assessment by prohibiting plastic product use and disposal.

management system, including collection, recycling, and a phase-out of plastic which could not be recycled. Plastic waste management rules have been amended in 2018, 2021, 2022, and 2023 mainly to curb pollution due to SUP items and strengthen Extended Producer Responsibility (EPR) compliance. The Second Amendment to 2016 Rules notified in October 2023 aims further strengthens the regulation of plastic waste management with a focus on environment sustainability. It permitted use of biodegradable plastics in carry bags.

The Norwegian Plastic Strategy has identified construction and buildings, process industries, wholesale and retail trade and the bio-based sectors (agriculture, forestry, aquaculture and fisheries) as sectors with the greatest potential for value creation in a more circular economy. Barriers and policy instruments that can be used to promote the transition are identified. Through Norway India cooperation, the Norwegian government launched a new development programme in 2018 to combat marine litter and microplastics [10].

(iii) Technology

In the hindsight various regulations and mode of devising standards have had little impact on plastic usages or waste management so far. Banning the single use plastics is not enough, because plastic product which has a life of 10-12 years would need about 400-450 years to degrade.

Experimentation and innovation continued,plastic-to-fuel could be a promising solution for recycling plastic waste. Plastic-to-fuel technologies are tailor-made depending on the nature of waste. It offers several advantages such as; production of green fuels, avoided CO2 eq. emissions by 60-70%, reduction in pressure on landfills and reduced collection of marine debris. However, in view of the special characteristics of plastics having long chain molecules, known waste-to-fuel technologies do not apply to plastic waste successfully. For example, Incineration requires higher temperature and results in high concentration of pollutants and toxic chemicals in the environment, so not advisable.

Applications of plastic pollution control technology demand that plastic reuse have to be a business proposition for industry. Selection in waste recycling technology options for adoption on large-scale to tackle the problem of plastic waste is needed [11].

A GLOBAL TREATY

Towards a global treaty for plastic pollution control the process of International law began from Stockholm Convention in 2004 to restrict the production and use of persistent organic pollutants (POPs). In 2011, Basel Convention on the Control of Trans boundary Movements of Hazardous Wastes and their Disposal, giving emphasis to plastic waste was evoked. In May 2019, an Amendment to Basel Convention has been made with the objective to regulate the movement of plastic waste in oceans.

The Global Plastic Action Partnership (GPAP) was another key step in 2018 in which World Economic Forum, the Ellen MacArthur Foundation, and UN Environment committed to finding comprehensive solutions [12] to plastic pollution. The High Ambition Coalition (HAC) having 133 countries as its members, chaired by Norway and Rawanda has set the goal of ending plastic pollution by 2040. The coalition is expected to provide information on science-based objectives in the International negotiations. An Intergovernmental Negotiating Committee (INC) was created to develop a global legally binding treaty on plastic pollution, including the marine environment. INC has held five sessions until December 2024, starting from its first session 28 November-2 December 2022 in Punta del Este, Uruguay. Fifth Session of United Nations Environment Assembly (UNEA-5.2) held in March 2024 subsequently took a major decision by adopting a resolution to develop an internationally binding treaty on plastics pollution by the end of 2024, to achieve the goal set by HAC.

A draft International Deal is in offing. At the end of fifth session of UNEA has outlined 32 articles addressing plastic production, regulation and waste management, the points of consensus and contention, negotiated among more than 200 country representatives. The global treaty has taken a new turn and is seen as crucial for addressing fossil fuel usage globally, as plastics primarily derive from fossil materials. Countries have disagreement from plastic producing, plastic consumingand developing nationsfinancing issues. The proposal suggests that parties under the agreement shall establish a mechanism for providing financial and technical assistance. While a final treaty is expected to come out soon with an agreement, which on similar scale as is Paris agreement on Climate Change 2015, it may have another round of discussions.

5. USE OF ARTIFICIAL INTELLIGENCE

The use of Artificial Intelligence can play a vital role in managing plastic pollution.A study undertaken on role of digitization in achieving sustainable waste management of plastic and other waste materials under GiZ addresses the city challenges of solid waste management and global concerns about marine litter. It provides data sets in the pilot cities of Kanpur, Kochi and Portblair using artificial intelligenceto understand the flow of plastics from cities and monitoring mechanism adopted by ULBs [13]. AI targets digitalization as the third pillar in focus which have digital business models and customer access as other two pillars. As part of the study, detailed understanding of the current recycling scenario of plastic waste and other non-biodegradable waste was made througha digital portal called 'Sansaadhan' deployed and tested to facilitate visualization of waste flow patterns and stocks from within the coastal cities. It enabled informed decision-making to accelerate progress towards sustainable plastic waste management. Through enhance digital monitoring lacuna in data availability and material linkages could be traced increasing the capabilities in waste sector management. The "Sansaadhan" created waste exchange platform to compare performance of MRFs across their boundaries, an analysis of 17 materials in MRFs - recyclable and non-recyclable in pilot cities to comprehend trends and materials getting picked up for recycling.

Use of artificial intelligence in integrated smart waste management practices leveraging technology and implementing innovative solutions in smart cities can play a vital role.In smart cities, smart garbage bins have sensors that send alerts to authorities when they are full so waste can be collected faster before trash overflows

onto streets. This information can then be used in making effective policies that promote less plastic usage by analysing the data collected [14].Advanced segregation systems, IoT-enabled tracking, and localized recycling ecosystems, help to tackle plastic pollution and promote sustainability. Many examples of global initiatives for successfully adopting circular economy principles in waste management including Indore and Panaji cities in India exist.A synergy between Artificial Intelligence and plastic Pollution can lead to more effective pollution management and sustainable practices.

6. CONCLUSIONS

Plastic represents 83% of the marine litter found. It is estimated that 80% of marine litter comes from land. This pollution comes mainly from household waste, which is poorly recycled, dumped in landfills or abandoned in nature. The waste is carried by the rains into sewers, streams, rivers, and finally in the oceans.This pollution can have harmful effects on the land and ocean by affecting wildlife and marine life, but also on human health.Plastic pollution has therefore emerged as a matter of serious concern.

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NEW BOOK ON PLASTIC POLLUTION

The book 'Plastic Pollution: Challenges and Green Solutions', Eds. Malti Goel and Neha G. Tripathi, Springer Nature is recently published in 2024.It examines plastic pollution crisis, exploring its impacts on our environment, controlling plastic use and adopting innovative technology solutions. The book has a Foreword message from Prof G. D. Sharma, Chairman SEED, where he writes "Every challenge comes with solutions, and plastic pollution is no different. The use of plastic to carry hot foods is a huge health hazard. It's crucial that we tackle plastic pollution with comprehensive policies governing its creation, distribution and individual use…….We need a collective movement, akin to the 'No Smoking' campaign, and 'No Plastic' to stand against the pervasive use of plastic [15]."

The book published by the Climate Change Research Institute is in two parts. The first part on 'Plastic Pollution Challenge' in its seven chapters is dealing with challenges from plastic pollution on land and in oceans. Environmental and health risks associated with plastic molecules, microplastic contamination across India's coastal boundaries,in the mangrove dominated Indian Sundarbans, oceans and the need to preserve coral reefs through policy interventions are some of the highlights. Potential strategies through sustainable material development and Norwegian strategies and government policies to deal with the plastic pollution crisis and the cooperation between Norwegian and Indian stakeholders, policymakers, and researchers to work for a cleaner and healthier ocean are discussed.

The second part of the book is on 'Green Solutions and Technologies'. It has a focus on desirable technological interventions, use of artificial intelligence for managing waste in cities, innovative solutions for marine litter and the need for comprehensive monitoring systems in oceans, use of autonomous robots for intercepting plastic waste in the oceans etc. In eight chapters of this section strategies and solutions to mitigate the menace of plastic pollution; and the need for deploying new technologies such as artificial intelligence to address this pressing environmental challenge is raised. A multi-disciplinary view on advancing innovative and inclusive solutions is presented. Researchers, students, industry leaders, policymakers, municipal authorities, entrepreneurs, advocates and informed citizens seeking to drive progress on sustainable plastic waste management will find crucial insights and inspirational models in this book.

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states governed by parties opposed to the ruling party at the national level. The College Post has published insights into these confrontations and observations made by Supreme Court Justices on related conflicts in its previous issues.

UGC Draft Regulation, 2025: Complications

The situation has become more complicated due to the UGC Draft Regulation regarding the minimum qualifications for the appointment and promotion of teachers and academic staff in universities, as well as measures for maintaining standards in higher education. The UGC initially set the qualifications for Vice-Chancellors (VCs) at a requirement of 10 years as a professor in 2010. This requirement was revoked in 2013, reintroduced in 2018, and has now been broadened in the current draft regulation to allow for 10 years of experience in industry, administration, or the public policy sector.

It's important to note that the appointment of a VC does not strictly fall under the category of appointing teachers and academics in universities. Therefore, prescribing qualifications for this position may be beyond the UGC's mandate. Additionally, the qualifications for teachers and academic staff are recommendatory and must be adopted through the Acts of the respective Central and State universities.

The matter is further complicated by the definition of the selection committee for the appointment of a Vice-Chancellor, which falls under the jurisdiction of state or central legislation regarding universities. The introduction of Clause 11.0, which outlines the consequences of violating UGC regulations, will likely add to the complications, as the UGC Act of 1956 does not support this clause and could lead to litigation between state governments and the University Grants Commission.

Private Universities

While private universities appear to have avoided such conflicts, their autonomy has been weakened conceptually under the provisions of private university Acts. The Chancellor of state private universities is appointed by the respective Governor of the state, based on certain academic credentials. However, this provision has been broadened to allow sponsors of the institution to serve as the Chancellor. As a result, private universities are increasingly resembling business entities rather than autonomous institutions aimed at fulfilling their educational objectives.

UGC Notification 2025

This situation is not limited to state governments; the Central Government has also attempted to intervene directly in universities, often through the University Grants Commission (UGC) to enforce its directives. A recent example is the UGC's notification regarding the implementation of NEP 2020, which employed a binary "yes" or "no" evaluation system with quantitative qualifiers, linking it to funding conditions and the potential de-recognition of universities under Section 2(f) of the UGC Act. However, there is no provision in the UGC Act that supports such actions.

Towards Resolution of Conflicts

We urge that this matter be debated in the Central Advisory Committee on Education, which includes all state and central education decision-makers. It should also be discussed in Parliament. Notably, the NEP-2020-an excellent policy statement-has not been debated in Parliament. While a majority can decide outcomes, debate is essential to ensure alignment with the provisions of the Constitution of India regarding the allocation of roles and functions under the central and state lists of activities, along with all its amendments. This practice was upheld in previous policy announcements, and its discontinuation indicates a significant deviation.

Additionally, the role of the Governor as Chancellor should be examined in Parliament. We should avoid resorting to the judiciary for resolving every political matter, as this often leads to delays and stagnation until a ruling is delivered.

FATHER OF 27,000 DAUGHTERS - AN INNOVATIVE EXPERIMENT OF GIRL WORKERS' EDUCATION BY KPR MILLS*

This is an AI (Perplexity-deep research) generated article with modification and changes based on several prompts given to Perplexity - deep research.
Background story- I saw a write up on this experiment in Whatsapp Group 321. It spoke about Father of 27000 daughters. Another write up of an interview of KPR published in Textile Magazine also spoke of the same. I wrote an e-mail to KPR Corporate office to supply the details. But there was no response. I thought of exploring generative AI to help put up the piece on this Nobel experiment. What it did with several prompts was, give a good account of this experiment. Since the experiment is unique, College Post thought appropriate to bring it to the notice of its readers. This may lead to an in-depth study on this experiment. -Editor

1. INTRODUCTION

KPR Mills, a prominent textile manufacturing company based in Coimbatore, India, has embarked on an extraordinary journey by transforming its factory into a hub for education. This pioneering initiative, spearheaded by its founder KP Ramasamy, aims to empower thousands of girl workers by providing them with access to higher education. The program, which began in 1998, has not only educated over 41,000 (the figure shown by KPR is 27,000) women but has also opened doors to new career opportunities for them. This essay explores the innovative approach of KPR Mills in educating its girl workers and the profound impact it has had on their lives.

The program, which began in 1998, has not only educated over 41,000 (this figure shown by KPR is 27,000) women but has also opened doors to new career opportunities for them. This essay explores the innovative approach of KPR Mills in educating its girl workers and the profound impact it has had on their lives.

2. BACKGROUND AND MOTIVATION

The idea behind this educational initiative was born out of a poignant moment when a young woman employee expressed her desire to continue her studies but was constrained by financial limitations. This heartfelt plea resonated deeply with KP Ramasamy, who himself came from a humble background and understood the value of education in transforming lives. Recognizing that most of his employees were women from rural areas who had limited access to education beyond Class IX or XII, Ramasamy decided to establish an in-house educational facility. This bold move was driven by his belief in the potential of his employees and his commitment to helping them achieve their full potential135.

3. EDUCATIONAL PROGRAMS AND INFRASTRUCTURE

KPR Mills had set up a comprehensive educational infrastructure within its premises, including a team of dedicated teachers and facilities for various courses. The programs offered range from Class X and XII to graduation and post-graduation degrees, as well as vocational training in fields like teaching, nursing, and computer skills. The company had partnered with institutions such as Tamil Nadu Open University and Alagappa University to ensure the quality and recognition of the education provided135.

The Women's Employment Education Division, an integral part of this initiative, provides a structured environment where women can pursue their educational aspirations alongside their work commitments.

4. EDUCATION PROGRAMMES OFFERED

KPR Mills' education program offers a wide range of courses to empower its employees, particularly women and migrant workers. The specific courses and programs include:

1. Class X and XII Education:
   - The company provides coaching for Class X and XII through the National Open School system. Subjects offered include business studies, social science, home science, data entry operator, and languages like Hindi and Oriya2.
   - Initially, the program was focused on Tamil Nadu workers, but it was later extended to migrant workers from other states2.
2. Degree and Post-Graduation Programs:
   - KPR Mills offers degree programs in various fields, allowing employees to pursue higher education alongside their work45.
   - The company facilitates admissions and provides support for employees to complete graduation and even post-graduation degrees5.
3. Vocational Training:
   - Vocational training is also part of the program, with courses in fields like nursing and computer skills4.

**An AI Generated Article*

- This training helps employees acquire practical skills that can enhance their career prospects.

4. Civil Services Preparation:
   - The company supports employees who wish to attempt civil services exams, providing necessary resources and guidance2.

While the specific courses offered under KPR Mills' education program are not exhaustively detailed in the search results, the focus is on providing a comprehensive educational framework that includes both academic and vocational training. This initiative aims to empower employees by offering opportunities for personal and professional growth.

5. CHALLENGES OF IMPLEMENTATION

Implementing an education program for girl workers at KPR Mills presented several challenges, although specific details about these challenges are not extensively documented in the search results. However, based on the context and similar initiatives, some potential challenges can be inferred:

1. *Initial Resistance and Skepticism:*
   - Convincing employees and their families about the benefits of education alongside work might have been challenging. There could have been skepticism about the feasibility and value of such a program.
2. *Resource Allocation:*
   - Setting up a full-fledged educational infrastructure, including hiring teachers and establishing partnerships with universities, required significant financial investment. Managing these resources effectively would have been a challenge.
3. *Balancing Work and Education:*
   - Ensuring that employees could manage both work and study schedules without compromising either would have required careful planning and support systems. This balance is crucial to prevent burnout and ensure the success of the program.
4. *Cultural and Social Barriers:*
   - Overcoming cultural and social barriers that might discourage women from pursuing education, especially in a traditional or conservative setting, would have been a significant challenge. Encouraging families to support their daughters' education would have been essential.
5. *Attrition Concerns:*
   - There might have been concerns about employees leaving the company after completing their education. However, KPR Mills' approach encourages employees to seek better opportunities, which aligns with their goal of empowering women16.
6. *Scalability and Sustainability:*
   - Scaling the program to reach a large number of employees while maintaining quality would have been a challenge. Ensuring the sustainability of the program over time, despite potential changes in the company's financial situation or leadership priorities, is also crucial.

While the search results do not explicitly detail these challenges, they are common issues faced by similar initiatives aimed at educating workers in industrial settings.

6. IMPACT ON EMPLOYEES

The impact of this initiative on the lives of KPR Mills' employees has been transformative. Many women who joined the factory with limited educational backgrounds have gone on to become graduates and even post-graduates. This education has not only empowered them with knowledge but has also opened up new career avenues. Several employees have secured jobs in prestigious companies like Tata Electronics, Tech Mahindra, and Titan, while others have pursued careers in IT and even moved abroad57. The sense of independence and confidence that comes with education has been a game-changer for these women, enabling them to break free from societal constraints and forge their own paths.

7. SOME SUCCESS STORIES:

KPR Mills' education initiative has produced numerous success stories of women who have completed their degrees and gone on to achieve remarkable career advancements. Here are some examples:

1. *Ashwini Sethumadhavan:*
   - Ashwini joined KPR Mills in 2009 and pursued a BCom degree while working. She also prepared for and cleared the police exam, becoming a constable with the Chennai battalion. She credits KPR Mills for providing her with the necessary support and resources to achieve her goals13.
2. *Nurses and Healthcare Professionals:*
   - Many women have completed nursing courses and secured jobs in nearby hospitals. This career shift has not only improved their personal lives but also contributed to the healthcare sector12.
3. *IT and Corporate Careers:*
   - Some graduates have secured jobs in IT firms and other corporate establishments. This transition demonstrates how the education initiative has opened doors to diverse career paths beyond traditional roles12.

4. *Police Officers and Civil Services:*
   - o A few women have successfully cleared civil services exams and become police officers, showcasing the initiative's impact on empowering women to pursue careers in public service7.
5. *Graduates Returning to KPR Mills:*
   - o Many women who completed their graduation have returned to work at KPR Mills, bringing back new skills and perspectives that contribute to the company's growth13.

These success stories highlight the transformative impact of KPR Mills' education initiative on the lives of its women employees, enabling them to achieve personal and professional growth.

8. INVESTMENT ON EDUCATION PROGRAMME OF GIRL WORKERS

The search results do not provide specific information about the total investment made by KPR Mills in educating its girl workers. However, it is mentioned that the company allocates a portion of its profits under 'employee welfare expenses' to support its in-house Women's Employment Education Division, but the exact amount is not disclosed3.

Given the scale of the initiative, which has educated over 41,000 women workers and involves a staff of around 72 full-time teachers, significant financial resources must have been committed to establishing and maintaining the educational infrastructure, hiring faculty, and providing necessary materials and facilities25. Additionally, partnerships with universities like Tamil Nadu Open University and Alagappa University would also involve costs, though these might be partially offset by the benefits of having a more skilled and motivated workforce.

To estimate the investment, one would need to consider costs such as:

- " Faculty Salaries: With around 72 full-time teachers, the annual salary expenditure would be substantial.
- " Infrastructure and Facilities: Setting up classrooms, libraries, and other educational facilities within the mill premises.
- " Course Materials and Resources: Costs associated with textbooks, computers, and other educational materials.
- " Partnership Fees: Any fees paid to partner universities for degree programs.

Without specific figures, it's challenging to calculate the total investment, but it is clear that KPR Mills has made a significant commitment to this initiative.

9. CORPORATE SOCIAL RESPONSIBILITY AND BUSINESS GROWTH

KPR Mills' educational initiative is a shining example of corporate social responsibility (CSR) that goes beyond mere philanthropy. By investing in the education and development of its workforce, the company has fostered a culture of growth and loyalty among its employees. This approach has contributed to the company's success by creating a skilled and motivated workforce, which in turn has driven business expansion into diverse sectors such as garments exports, sugar, ethanol, and renewable energy7. The company's philosophy of "grow your people, grow your business" has proven to be a winning strategy, demonstrating that investing in human capital can yield long-term benefits for both the employees and the organization.

10. CONCLUSION

KPR Mills' experiment in educating its girl workers is a testament to the power of visionary leadership and the potential of education to transform lives. By providing access to higher education and vocational training, the company has empowered thousands of women to pursue their dreams and achieve economic independence. This initiative serves as a model for other businesses, highlighting the importance of investing in human capital and demonstrating that corporate success can be aligned with social responsibility. As KPR Mills continues to inspire and educate its workforce, it sets a precedent for a more inclusive and equitable approach to business growth and development.

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INTERVIEW OF KP RAMASWAMI PUBLISHED IN TEXTILE MAGZINE, JUNE, 2021

Our initiatives have helped 27,000 girls to complete their higher education. Many of our girls have been gold medallists. We plan to offer 50-100 seats in our college to our employees who score above 95% in their plus-two examinations. We will provide them free education, food and accommodation,".

"Whether they want to become a chartered accountant, engineer or aspire to clear the civil services examination, we are there to support them. We will always support bright students. For us, it is our own humble way of giving back to the society. Whenever we happen to see one of our girls working in established concerns in good positions, it makes our chest swell with pride. We will definitely continue to focus on the education programmes in the future too,".

About Cover Page…

Alan Turing (born June 23, 1912, London, England—died June 7, 1954, Wilmslow, Cheshire) was a British mathematician and logician who made major contributions to mathematics, cryptanalysis, logic, philosophy, and mathematical biology and also to the new areas later named computer science, cognitive science, artificial intelligence, and artificial life. Artificial intelligence pioneer. Turing was a founding father of artificial intelligence and of modern cognitive science, and he was a leading early exponent of the hypothesis that the human brain is in large part a digital computing machine. He theorized that the cortex at birth is an "unorganised machine" that through "training" becomes organized "into a universal machine or something like it." Turing proposed what subsequently became known as the Turing test as a criterion for whether an artificial computer is thinking (1950). In late 2022, the advent of ChatGPT reignited conversation about the likelihood that the components of the Turing test had been met.

This column brings out briefs of: Ph.D, M.Phil Researches in Education, Economics of Education, Social, Political, Psychology aspects of education/ economics conducted in University /College departments. It also brings out briefs on researches done by Research Institutions, Industry and NGOs. This column was introduced from April-June, 2016 issue of College Post. Method of reporting the researches completed and in progress was given in that issue. Interested researchers, professors and Heads of institute are requested to send their brief accordingly. Purpose of this column is to high light the researches in education conducted in university and college departments and in any other institution / industry and NGO for the benefit of policy makers, research scholars, thinkers. Readers are welcome to encourage relevant person and institute to send briefs on research done and being done in education/ economics.

This issue brings to you brief on following Researches in Education/Economics.

Title : Impact of education on economic growth a global perspective, Researcher : Tiwari, Bhavna, Guide : Nisha Bhargava, Department : Economics, University: Punjab University, Study Completed 2021

Aim of the Study:

The aim of the present study is to analyse the impact of education on economic growth using secondary data. The panel data of eighty two developed and developing countries for the period 1990-2014 has been used on the basis of World Bank's income classification i.e. high income, upper middle income, lower middle income and low income countries.

Methodology

- The growth accounting framework is applied in the analysis to understand the sources of economic growth. In growth accounting, the output in production function is a function of input and the objective is to maximize the average productivity ratio i.e., output divided by input.
- Also the Data Envelopment Analysis is employed and Malmquist total factor productivity index is used to measure productivity
- The present study, firstly, decomposes the output growth of world economy into input growth and total factor productivity (TFP) growth and then focuses on the impact of education on output growth across the countries. It also emphasises on effect of education on health i.e. life expectancy amongst countries
- Lastly, it analyses the impact of education at different levels on education index itself. For the calculation of productivity of nations, the software Data Envelopment Analysis (Computer) Program (DEAP) has been used. The impact of education using the gross enrolment ratios is studied by applying Random Effect Model via STATA on output growth and its components (Total factor productivity and input growth).

Key Findings

Overall Change:

- It is observed that on an average there exists acceleration in TFP growth. Overall there is significant acceleration of 3.8 percent in TFP growth (i.e. TFP progress) at global level. All the 4 income categories of countries have witnessed a positive TFP growth during the entire period.
- The high income countries show an acceleration of TFP growth approximately 2 percent and there is an average acceleration of 5.96 percent of productivity growth in upper middle income countries. Further, there is an acceleration of 4.95 percent of total factor productivity change in the lower middle income countries. There is an overall acceleration of 3.75 percent of productivity growth in low income countries.

Technology Change:

- Technological changes indicates innovations adopted or developed or absorbed by the country or nation or entity; in other words, it represents frontier shift component.
- The average of technological change is 1.008 which means it shows positive growth of 0.8 percent. It is due to technological progress that there is positive average annual growth of technological change.
- It has been noticed that there is an overall acceleration of 0.09 percent of positive growth of technological change in high income group of countries. Though there is an acceleration of technological change but it is not very significant.
- There is a growth of 1.35 percent of technological change in upper middle income countries.
- There is a growth of 1.47 percent of technological change in lower middle income countries
- There is a growth of 1.06 percent of technological change in low income countries.

Technical Efficiency Change :

- There is increase in technical efficiency change by 2.9 percent. The mean value of EFFCH i.e. technical efficiency change registers 1.029 which indicates positive efficiency change and progress.
- There is an overall acceleration of 1.89 percent of efficiency change by high income countries. The positive growth of efficiency change infers improvement in their managerial efficiency or scale efficiency.
- It has been noticed that there is an overall acceleration of 4.54 percent of efficiency change by upper middle income countries.

- There is an overall acceleration of 3.45 percent of efficiency change by lower middle income countries.
- It has been witnessed that there is an average acceleration of 2.65 percent of efficiency change by low income countries.
- The maximum increase in technical efficiency change is 4.54 percent in upper middle income category followed by lower middle income group (3.45 percent), low income group (2.65 percent) and high income category (1.89 percent

Technical and Scale Efficiency:

- In global scenario, there is acceleration in technical efficiency change. This efficiency change comprises of pure efficiency change (PECH) and scale efficiency change (SECH). There are improved operations and management which are confirmed by the grand mean of PECH which is 1.029 i.e. improved averages by 2.9 percent globally.
- Across the classification of countries on the basis of income, it has been analysed that there is positive and considerable acceleration of managerial efficiency or PECH. Further, the result shows that SECH plays a minimal or negligible role in the productivity of nations. The SECH reflects movement towards most optimum production scale. The SECH average is 1.001 which shows positive scale economies effect
- There is disembodied technical progress at the world wide level because of the dominance of efficiency change. The similar trend has been observed in all income categories i.e. the efficiency change outweighs the other component of productivity growth
- The upper middle income country category comes out to be the most productive amongst other groups. The results show that the high income countries are behind the upper middle countries in terms of output growth because the former have achieved the highest possible stage of growth.
- That efficiency plays an important role in increasing the output growth. The estimates reveal the dominance of total factor productivity change in explaining output growth which is primarily reflected in efficiency change due to managerial efficiency. However, the contribution of input growth is negligible in explaining output growth.
- There are huge variations in trends of total factor productivity growth and its components; efficiency change and technological change. Countries from different categories show acceleration and deceleration in productivity growth.
- Efficiency change has a strong impact due to better managerial skills than scale efficiency and the former comes out to be a dominating source of total factor productivity growth/progress.

Education :

- The impact of education using the gross enrolment ratios is studied by applying Random Effect Model via STATA on output growth and its components. The study is based on growth accounting framework. The productivities are calculated using Malmquist productivity index. Hence, by using growth accounting and Malmquist productivity index (non-parametric) approach, the impact of education is studied on output growth and its components (i.e. input growth and technological change and technological catch-up)The last two components constitute total factor productivity growth.
- The balanced panel data are drawn from Penn World Table (PWT 9.0) and World Bank for eighty two countries over the span of twenty five years (1990-2014). The results indicate that the coefficient of secondary education is positive and statistically significant at 1 percent level of significance in explaining output growth. In other words the output growth increases with the increase in secondary education and thus it is a positive determinant of output growth.
- The overall results indicate that the coefficient of tertiary education is negative and statistically significant. Further it is observed that the primary and tertiary education adversely affects input growth while secondary education has positive but insignificant impact on input growth. The estimates reveal that the coefficient of secondary education is positive and statistically significant at 1 percent level for explaining TFP growth rates.
- The empirical results show that total factor productivity growth and output growth are significantly attributable to secondary education. Increase in school enrolments at secondary level of education significantly contribute to the overall productivity growth which in turn leads to output growth. It is worth noticing that secondary education is a positive determinant of output growth in all four income categories.

Education and Human Development:

- The role of education in explaining the growth of two human development components i.e. education and health, using balanced panel data of 82 countries for the period 1990-2014. Human capital is an important and a special component of economic and social development.
- The study focussed on the growth rates of gross enrolment ratio at primary, secondary and tertiary level of education; and growth rate of life expectancy and also the impact of education on life expectancy (health variable) using secondary data. The impact of education using the gross enrolment ratios (at all the three levels of education) on life expectancy and

education index is studied by applying Random Effect Model via STATA

- It is observed across the countries that the overall average growth rate of gross enrolment ratio isgreater at tertiary level of education at around 5% followed by secondary (1.87%) and primary level (0.47%) when all the countries are taken together.
- That at the global level, the overall average growth of life expectancy is 0.40%. It infers improvement in longevity of people as there is positive growth in it.
- The low income group countries have greater difference of maximum and minimum average of growth of life expectancy in comparison to all other income groups countries. It might be possible that the rate of investment on medical or health facilities is increasing which will lead to better life expectancy in low income countries.
- The results reveal that the coefficients of all levels of education i.e. primary, secondary and tertiary are positive and statistically significant at 1 percent level of significance in explaining its impact on life expectancy. In other words life expectancy increases with increase in education at all the levels and thus educational variable is a positive determinant of life expectancy
- It is found that the overall average growth of education index of countries is 1.39% for the period of 25 years. The aggregation method (geometric mean) is applied to all the years between 1990 and 2014. The low income group of countries shows more growth in education index, depicting the increased educational attainment in these countries.
- The low income group of countries shows a greater growth in education index as 3.25% and the least growth is noticed in high income countries as 0.86%, although upper middle income countries register growth of 1.19% and lower middle income countries exhibit average growth in education index around1.03%.
- The results reveal that the coefficients of all levels of education i.e. primary, secondary and tertiary are positive and statistically significant at 1 percent level of significance in explaining its impact on education index
- So as per the empirical estimation, if an economy wants to raise the education parameter, the education at all the levels should be promoted and increased. And most importantly the level of development will decide which level of education is important for a particular country. Therefore, education is fundamental in enhancing the quality of human life and ensuring social and economic progress.

The study also makes several policy recommendations based on its findings.

Source Sodhganga, Inflbnet-IUC-UGC

Education News Analysis ...contd. from page 28

%. In 2024-25 BE. This has slightly reduced in BE 2025-26 to 34.53%. There are: 56 Central Universities and another 33 Public Deemed to be Universities. These have nearly 800 thousand students. Thus these have double the number of students and share less level of funds.

The allocation on the UGC was reduced to Rs.2500/ Croes in BE 2024-25 from the previous budget of Rs.6000 Crores which is 2023-24. This year it has increased to Rs. 3335.97 Crores. The Allocation on the UGC accounted for 5.24 % of BE 2024-25. It has increased to 6.66 % BE 2025-26. Yet the allocation to UGC which attempts to allocate funds for the improvement of quality of higher education under various schemes for state universities and colleges is very low. There are more than 1000 state public and private universities. These enroll more than 50 Lakhs students. Besides, there are more than 42 thousand colleges and these have more than 3 Crore students. Keeping these figures in view, the challenges of improving quality and implementing NEP 2020 in these institutions and their huge number of students the allocation of funds to UGC is extremely low.

THE PATTERN OF BUDGETARY ALLOCATION THESE TWO YEARS LEADS TO THE FOLLOWING INFERENCES:

Thus focus of budgetary allocation during the previous and this year has been on a select few Technology, Engineering, and Management education. These are better endowed in terms of funds than a relatively large number of Central and Deemed-to-be universities enrolling a relatively much higher number of students. A good number of students in select Technology and Management institutes also come from better-endowed families and also migrate to developed countries to contribute to the wealth of these countries.

Whereas a large of Universities and Colleges both in central and state sectors significantly contribute to the creation of wealth in India. The allocation on them needs to be pushed further to improve the quality of institutions and students coming out of their portals.

UNESCO'S INTERNATIONAL CENTRE FOR HIGHER EDUCATION INNOVATIONS:

Under the auspices of UNESCO, an International Centre for Higher Education Innovations (ICHEI) has been established. This initiative is part of China's Belt and Road Strategy (BRS) and Silk Route initiative, supported by the Tencent Foundation, among others. The ICHEI has also launched the International Institute of Online Education (IIOE), which offers several skill-based courses under the Micro Credit scheme.

The International Institute of Innovation has formed partnerships and communities with numerous institutions and UNESCO regional centers in Asia-Pacific and North Africa. In India, it operates through the UNESCO regional office in Delhi. This initiative leverages the UNESCO platform to reach young students and professionals for capacity and skill-building.

The mission of ICHEI includes:

1. Applying Information and Communication Technologies (ICT),
2. Empowering university teachers in Asia and Africa, and
3. Accelerating digital transformation in higher education.

For more details, visit [ICHEI's official website](https://en.ichei.org/dist/index.html#/).

NEED FOR A CHANGE IN MIND-SET AMONG ACADEMICS ON THE USE OF AI IN HIGHER EDUCATION:

A report published in *University World News* by Suvendrini Kakuchi, based on the outcomes of the 2024 International Association of Universities conference held in Japan, highlights the transformative role of AI in higher education. The report states:

"The use of generative AI tools, including ChatGPT, which can function as personal assistants providing information and writing essays, is already widely embraced by university students and is transforming learning. However, a change in mindset is needed among academics to facilitate greater investment in artificial intelligence and enable universities to fully meet the needs of a rapidly changing global environment. Universities can better harness AI to reverse the weakening social trust in higher education."

Key Insights from the Conference:

Several delegates shared their perspectives:

Professor Huang Ronghuai:, from the Faculty of Education at Beijing Normal University in China, emphasized:

"AI learning is critical, especially in the sciences and marketing fields, given its ability to process massive amounts of data. However, there is a mismatch between universities and the labor market. The World Economic Forum indicates that 23% of global jobs will change in the next five years due to industry transformation driven by AI. Companies are increasingly seeking students with AI skills."

- Ann Gvritishvili, a member of the steering committee of the Global Student Forum in Georgia, representing 300 million students worldwide, noted:

"Today's reality is about enhancing the implementation of AI in higher education with the goal of achieving equality and accessibility for students. AI cannot replace interaction in learning and teaching, but it can serve as a helpful add-on, both in classes and in tasks assigned to students, to support student-centered learning and innovative teaching methods."

- Professor Tshilidzi Marwala, a leading researcher in AI, engineering, and science, and the seventh rector of the United Nations University, spoke about the concept of "Effective Citizens":

"We need to ensure the effective use of AI in universities to help students become effective citizens- people with the ability to verify information and identify missing aspects in the technology. I am also concerned about issues such as cyber-hacking, transparency, and the powerful hold of big tech companies, which threaten to sideline universities. The debate we face is between cyberspace and human space in the digital world."

- Hitcham El Habti, president of Mohammed VI Polytechnic University in Morocco, highlighted the issue of the digital divide:

"There is a huge digital divide in Africa: 60% of the continent's 1.5 billion population do not own computers or have access to high-speed connections or digital tools, either individually or in institutions. Additionally, students with limited English proficiency face obstacles in using digital technology. Universities must develop more inclusive strategies, which can be achieved through interconnectedness across institutions."

Balancing Benefits and Risks:

The report underscores the dual nature of AI in higher education. While scholars agree that online education facilitates university collaboration and expands access to students worldwide, there is also concern that algorithm-led study could threaten traditional university values.

*Courtesy: Suvendrini Kakuchi, *University World News*, 01 December 2024. [Read the full report here](http://www.universityworldnews.com).*

GLOBAL STRATEGIES IN AI POLICIES:

A report published in Spanish by UNESCO- International Institute of Higher for Latin America and Caribbean related to Global Strategies in AI Policies and recommendations

Please read further at page 32

1. UGC GUIDELINES TO IMPLEMENT NEP 2020

The University Grants Commission (UGC) has introduced draft guidelines to implement the National Education Policy (NEP) 2020, aiming to bring flexibility and innovation to higher education in India. Key highlights include:

- Biannual Admissions: UG courses will now offer admissions twice a year, in July-August and January-February, providing students with more opportunities to join higher education programs.
- Extended and Fast-Track Programs: Students can opt for an extended duration to complete their UG program, allowing up to one additional semester. Conversely, high-performing students can fast-track their degrees through the Accelerated Degree Programme (ADP), with no cap on the number of students eligible for this option.
- Recognition of Prior Learning (RPL): Students with prior knowledge in a subject can seek credit exemptions by undergoing an assessment, saving time and avoiding repetition of coursework.
- Multiple Entry and Exit Options: Aligning with NEP 2020, students can enter and exit programs at different stages, earning credits that can be accumulated toward a degree.
- Interdisciplinary Flexibility: Students can earn 50% of their credits in their major discipline and the remaining 50% through skill-based courses, apprenticeships, or multidisciplinary studies.
- Attendance Flexibility: Higher Education Institutions (HEIs) will have the autonomy to decide minimum attendance requirements based on the nature of the program.
- Open Discipline Entry: Students can pursue any UG discipline regardless of their 12th-grade stream, promoting interdisciplinary learning.

CHALLENGES IN IMPLEMENTATION:

While these reforms are progressive, their implementation poses significant challenges. HEIs will need to restructure their academic frameworks, train faculty and staff, and upgrade infrastructure. A mission-mode approach involving UGC, the Association of Indian Universities, and other stakeholders will be essential to ensure smooth execution.

2. CONFLICT BETWEEN GOVERNORS AND STATE GOVERNMENTS

A growing conflict between Governors (acting as Chancellors of universities) and state governments has disrupted university administration in states like Kerala, Tamil Nadu, and West Bengal. Key issues include:

- Appointment of Vice Chancellors Delays and disputes in appointing VCs have created leadership vacuums, adversely affecting academic and administrative functions.
- UGC Regulations vs. State Autonomy: The UGC's draft regulations (2025) have sparked debates over their constitutional validity. While some Supreme Court judgments uphold UGC's authority to override state university laws, others argue that UGC regulations are merely recommendatory for state universities.
- Impact on Universities: The standoff has led to delays in staff appointments, degree conferrals, and overall governance, causing a decline in the quality of university administration.

BUDGETARY ALLOCATION ON EDUCATION AND HIGHER EDUCATION : 2024-25 AND 2025-26 BE

Compared to Rs.1, 20,628 Cores were allocated to education during 2024-25. BE, this amount has increased to 1, 28,650 Cores in 2025-26. There is an increase of 6.22% from the previous year. However, the allocation of education as a ratio to GDP is only.0.35 %. This compares poorly with the ratio of the education budget to GDP in the year 2014-15 which is 0.55% of the GDP. It also compares poorly with the percentage of share of education to the total budget between these points of time i.e. 2014-15 and 2025. It is 4.16 percent and 2.25 percent respectively for these two time points. This is a matter of concern when NEP 2020 has indicated a gradual increase in education expenditure to 6% of GDP by 2030. During the last couple of years, it has ranged around 4.1 to 4.6 percent of GDP. Funding for Education needs a special push.

ALLOCATION TO SCHOOL AND HIGHER EDUCATION:

The major share of allocation to the education sector in BE 2024-25 was for School Education. It accounts for 60.9% and Higher Education accounts for 39.47%. During BE 2025-26 share of School education further increased to 61.7%. Whereas the share for Higher Education has declined to 38.92%.

HIGHER EDUCATION:

The total allocation on higher education was Rs. 47619.77) Croresin BE 2024-25 This amount has increased to Rs.50,077 Crores in BE 2025-26. The increase is 7.74% from the previous year.

A major share had gone to Engineering Education institutes i.e. IITs and NITs In BE 2024-25 engineering education accounted for 32.008 % in BE 2024-25. This has increased to 34.01% in this year 2025-26 BE. If we add allocation on IIITs and IIMs (1.31%) the share of allocation on engineering and management education further increases to 35.32% in BE 2025-26. The total number of institutions is nearly 107 (IITs NITs, IIITs IIMs Put together) and enrolling nearly 400 thousand students.

The Central Universities and Deemed to be Universities (supported by the Centre) put together accounted for 34.66

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BIRTH OF A NEW COST-EFFECTIVE OPEN AI: DEEPSEEK - R1 (A company founded by Liang Wenfeng in May 2023. He also founded and runs a hedge fund called High-Flyer. Its headquarters is in Hangzhou, China)

AI designed to mimic human reasoning:
When Sam Altman launched OpenAI's ChatGPT, ChatGPT 4.0, and the latest model, o1, designed to mimic human reasoning, it was thought that no parallel could exist. The o1 model processes information step by step, making it highly skilled at tackling complex scientific problems in fields such as chemistry, mathematics, and coding. Many researchers quickly adopted it. When former Google executive Rajan Anandan asked Altman whether it was possible to develop a large language model (LLM) on a relatively low budget, Altman responded, "We will explicitly tell you that it is completely hopeless to challenge us in training foundational models, and you should not even attempt it." However, just two years later, the situation has changed dramatically.

The Chinese Model: DeepSeek R1:
The DeepSeek R1 model has the potential to reshape the future of artificial intelligence. Unveiled on January 20, 2025, this cost-effective model rivals the capabilities of OpenAI's advanced o1, surprising many researchers. One of DeepSeek's most significant achievements is its cost-efficiency. The DeepSeek version 3 was built for a mere $5.6 million, compared to the billions invested annually in developing advanced AI models by competitors. This stark contrast has left the AI community in awe, as a relatively modest budget has produced results that rival the most advanced AI systems on the market.

DeepSeek claims to have outperformed major models, including OpenAI's ChatGPT-4 and Meta's LLaMA, on various benchmarks such as mathematics, coding, and reasoning evaluations. Its performance stems from an innovative approach to model training. Instead of relying on cutting-edge hardware like Nvidia's H-100 GPUs, DeepSeek leveraged older-generation Nvidia H-800 GPUs, sidestepping U.S. semiconductor export restrictions. This demonstrates the adage that necessity is the mother of invention.

Open Source Advantage:
DeepSeek is an open-source model, allowing developers worldwide to access, modify, and build upon its architecture. This openness enables cost-effective application development and democratizes AI innovation. For instance, DeepSeek charges just 10 cents per million tokens, compared to $4.40 charged by proprietary OpenAI for the same number of tokens. This cost-effectiveness has made DeepSeek a highly attractive option for developers and has significantly influenced the AI market. Shares of many high-tech companies have fallen as a result.

The move toward open-source models could revolutionize the AI landscape. U.S. restrictions on semiconductor exports were intended to slow China's progress in AI. However, these limitations have spurred innovation, resulting in more efficient model training processes. DeepSeek employed techniques like "distillation," where a smaller model learns from a larger one, enabling cost and computing efficiency. Eric Schmidt, former CEO of Google, recently admitted that China's AI capabilities have caught up remarkably in just six months.

Challenges for Closed-Source Giants:
The rise of open-source models poses a challenge for closed-source giants like OpenAI and Google. As open-source platforms gain traction, proprietary models may need to justify their higher costs. DeepSeek's emergence signals a broader shift in the AI landscape, emphasizing accessibility and affordability.

Criticism and Concerns :
Despite its achievements, DeepSeek's rise is not without criticism. Critics point out that open-source models developed in China are mandated to align with government-enforced core socialist values. This raises concerns about censorship and bias in the dissemination of information. These issues highlight critical questions about the future of AI governance under different political systems-capitalism or socialism. There is a pressing need to address biases of any kind. UNESCO has established groups to focus on AI governance, offering hope for a reasoned system of global AI regulation.

Strengths of Different AI Models:
Meanwhile, the strengths of various AI models have been articulated by Professor Ethan Mollick at the University of Pennsylvania's Wharton School. A specialist in AI, Mollick has analysed different LLMs and categorized them according to their capabilities. A summary of his findings is presented in the table below:

India Announces to initiate AI Development:
India has announced an investment of Rs.10,370 Crores and hopes to develop own foundational model in six months or so. It is reported in most of dailies that India decided to build a domestic Large Language Model (LLM) under India AI Mission. It has enlisted several companies for acquiring Graphic Processing Units (GPUs) numbering 18,693- the high end chips needed to develop machine learning tools. It is reported that of the 18,693 GPUs , nearly 10,000 GPUs are ready to be installed. It reported that the Government of India has received bid to install 12,986 Nvidia H100 GPUs -the best units to train AI

LLMs Capabilities										
Service	Best Model	Live Mode	Reasoning	Web Access	Generates Images	Executes Code	Data Analysis	Sees Images	Sees Video	Reads Docs
OpenAI ChatGPT	GPT-4o	✓ (Full multimodal)	✗	✓	✓ (DALL-E)	✓	✓	✓	In Live Mode	✓
	o1/o3 family	✗	✓	✗	✗	✓	✗	✓	✗	✗
Microsoft Copilot	Copilot	Voice Only	✓	✓	✓ (DALL-E)	Limited	✗	✓	✗	✓
Anthropic Claude	Claude 3.5	✗	✗	✗	✗	✓	Limited	✓	✗	✓
Google Gemini	Gemini family	Voice Only	✓	✓	✓ (Imagen-3)	Limited	Limited	✓	✓	✓
Kai AI Grok	Grok-2	✗	✗	✓ (Mostly X)	✓ (Aurora)	✗	✗	✓	✗	✓
DeepSeek	DeepSeek v3	✗	✓	✓	✗	✗	✗	✓	✗	Limited

Models. It has also plan to procure 1480 Units of H200 GPUs and 742 Units of AMD's MI300x and MI325X as an option proposed by its bidders. Government of India seems to have fixed cost of accessing GPUs as Rs.150 Per Hour and using lower end GPUs asRs, 115.85 per hour. It also proposes to give 40% subsidy to end user on the total price. This will encourage developers to build AI models. It is reported that Government of India has selected 18 Application level AI solutions for the first rounding of funding. It says applications will focus on Agriculture, learning disabilities, and climate change among others.

Our view is that higher education institutions can work out the areas of contents and languages that can be used for the development of AI models. AI requires huge contents called data base to train the machine. The contents can best be provided by institutions of higher education and researchers.

SOME USEFUL SITES FOR ACADEMICS:

www.refseek.com - Academic Resource Search. More than a billion sources: encyclopedia, monographies, magazines.

www.worldcat.org - a search for the contents of 20 thousand worldwide libraries. Find out where lies the nearest rare book you need.

https://link.springer.com - access to more than 10 million scientific documents: books, articles, research protocols.

www.bioline.org.br is a library of scientific bioscience journals published in developing countries.

http://repec.org - volunteers from 102 countries have collected almost 4 million publications on economics and related science.

www.science.gov is an American state search engine on 2200+ scientific sites. More than 200 million articles are indexed.

www.base-search.net is one of the most powerful researches on academic studies texts. More than 100 million scientific documents, 70% of them are free.

INCOME AND WEALTH INEQUALITY IN INDIA, 1922-2023 -Working Paper No. 2024/09, World Inequity Lab, by Nitin Kumar Bharti, Lucas Chancel, Thomas Piketty and AnmolSomanchi. March, 2024

History of Mankind is replete with inequalities in society's across globe.Inequalities are not only in income and wealth which are of immense social and historical relevance, but also those which are rooted in Education, health, Political voice beside others .

Piketty in his book Brief History of Equality (2022) provides a frame work for income and wealth inequality analysis when he says human being need to live in harmony with nature, but they also need housing, food, clothing and access to education. Above all they also need justice. He says unless we are capable of measuring income, inequality of its distribution and its development outcome, it is hard to see how we could develop norms of justice. The norms that would allow us to concentrate our efforts on the wealthiest people and rethink the organization of the Economic system in a way that is acceptable to the humblest without a resolute action seeking to drastically compress socio -economic inequalities. (page 26)

If the long ran trends in income and wealth and its distributes as are measured and presented in their working paper are seen in this framework, they make it abundantly clear where we are heading to before taking up trends in the distribution of income and wealth as measured by the authors of above mentioned report.

In section 3-4, the report provides us with the trends in GDP growth between 1960-2022 suggesting that: till the mid-seventies (1970's) aggregate national income experienced significant year to year variations and its growth really picked up in the 1980's and then accelerated during the 1990's and 2000's. The period from 2005-2010 and 2010-2015 saw the fastest growth. Growth, however, has slowed in recent years.

Section I of the report provides review of literature on the distribution of income and wealth making use different sources of data and periods. Major findings of various studies can be summed up as: distribution of income was more or less fair and stable till the 1990. Economic inequality markedly increased during 1990' in several forms. Top income shares declined post-independence but began rising during the 1980's. In spite of the various drawbacks in many studies in the type of data used, when data from different sources is combined by one of the authors of this report,to create a homogenised long-run series from 1922-2014, income inequality indeed began rising in the 1990's and was on the rise until 2022 implying benefits of growth have been concentrated at the top and marginalized the poor further.

Studies on wealth inequality in India were initiated for the first timeonly in the 2000's. Since then a good number of such studies have appeared. The report has cited the inconsistency in the use of data which makes it difficult to draw unbiased conclusions. However. It is argued that if we abstain away from difference in all these works, there is consensus in the literature that wealth inequality was more or less stagnant pre-1991 after which a very clear trends of rising top shares is evident.For the purpose of the current study, the authors have created a long-run income series by extending their earlier income series of 1922-2014 to 2022 and wealth series from 1961-2022. The source for these data and methodology used for creating the series is explained in section II of the report.

Section III and IV of the report are devoted to the presentation of income and wealth inequalities as measured by them over the period 1951-2022 for incomes and 1961-2022 for wealth. The results from income data are broadly described under three heads: (a) Rise of Indian billionaires Top 1% andbeyond; (b) top shares v/s bottom shares and (c) growth incidence curves while that of wealth inequalities within in top 1 % and top10% shares, and bottom 50% and middle 40% shares.

The outcome of their income distribution show (given in figure 4) shares of national income going to top 10% fell from 37% on 1951 to 30% in 1982 after which it began steadily rising from the early 1990's onwards; the top 10% share increased substantially over the next three decades, nearly touching 60% in the most recent period. At the other end of the distribution, the bottom 50% were getting only 15% of India's national income in 2022-23. The growth incidence curves have been put to discern in possible distributional consequences of different periods of growth in India since independence. Long -run wealth inequalities (Fig.9) reveal wealth shares of different groups during 1961-1981 remained stable. From 1991 an uptick in wealth concentration started and continued till 2022-2023 unabated.

For the year 2022-2023 they estimate wealth levels and their share for different wealth groups. The result so obtained reveal while top 1% possess an average of rupees 54 million in wealth which was 40 times the Indian average, the bottom 50% and middle 40% held Rs 0.17 million (0.1 times national average and INR 0.96 million (0.7 times national average (respectively). At the very top of the distribution 10,000 wealthiest individuals out of 920 million Indian adults owned an average of Rs. 22.6 billion in wealth which worked out to be 16,763 times of the average Indian. When wealth share of 10% were disaggregated some very interesting results were seen: the growth of 10% shares slowed down from 2012 onwards till 2022 between 2012-2018 top 10% shares declined marginally by two percentage points from 63% to 61%. This contrasts with the shares of top 1% and beyond which have continued to rise over the last decade implying

that within 10% wealth distribution in concentrated in top 1 % shares.

Section V of the report addresses behaviour of wealth to income ratios in recent years. A couple of interesting facts were observed when income and wealth inequalities were compared in the last two decades.The trends suggest that the steep rise in inequalities starting the mid 1990's is indeed structural and related to the underlying growth process. In general when the results for 2002 and 2022 are compared it is observed that wealth to income ratios rise as we move up the distribution (fig 14)

In Section VI the income and wealth inequality levels in India in 2022 when compared with inequalities in a global perspective: comparisonwith Brazil, China, France, South Africa, UK and U.S.A. showed that top 10% income shares of India stood second to South Africa but for top 1% India has the highest level at 22.6% in terms of wealth shares. Both top 10% and top 1% in India is found in the middle with Braziland South Africa standing out with their extreme wealth concentration levelsof (85.6% and 79.7%) top 10% respectively. In terms of both income and wealth inequality both UK and France had the most equal distribution.

In section VII the authors of the report evaluate the last decade with respect to the state of the economy .In doing so they discern a very grim macroeconomic picture: growth rates of income and other economic indicators including, exports, share of manufacturing and industry, rate of unemployment and wage rates. Besides this trend in income and wealth inequality during 2014-2023 have also been evaluated by breaking them in three phases: 2014-2017, 2018-2020 and 2021 onwards. Seeing the behaviour of income and wealth inequality against the rates of growth in national income, pro-cyclical nature of inequalities are discerned: rich tend to benefit disproportionally from boom and a disproportionally are hurt during slumps.

Main findings in the form of conclusions summed up in section eight suggest that inequality levels declined post-independence till the 1980's after which both top income and wealth shares began rising and then skyrocketed since the early 2000's.By 2022-23 top 1% income and wealth shares were at their highest historical level at 22.6% and 40.1% respectively. Top 1% income shares when seen in global prospective showed almost the very highest in the world, higher than even South Africa, Brazil and the U.S.A. Finally a look at the growth of billionaires suggested that it is now more unequal than in the British Raj headed by the colonial forces. In the light of the above findings one can easily conclude that in India "oligarchy" is fast taking root, which means economic power is getting concentrated more and more in few hands.

This if continue without initiating corrective steps, social and economic situation will be volatile. These corrective stepscould be political, and is a matter of debate, but economic steps of progressive taxation regime which existed in the country till the 1980' when the distribution of income and wealth was fair can be brought back. Similarly competitive forces could be unleashed to increase participation of Entrepreneurs in the country. Sincere efforts are needed to debate - How can current state of democracy fight against oligarchy? This is the need of the day.

SC Sharma

Across the Globe...contd. from page 27

for Universities mentions that "higher education (HE) is participating in three key areas: talent and workforce development through AI education (95% of the countries analysed), promotion of research and development (91%), and contribution to ethical and regulatory frameworks for AI governance (48%)."

The document reveal that "44% of countries have adopted a dual approach, integrating AI education with research and development, while 30% have implemented a comprehensive tripartite strategy combining skill development, research, ethical frameworks, and regulatory oversight within HE systems. These strategies aim to maximize the benefits of AI while minimizing its potential risks, highlighting the importance of HE in preparing society for the AI era." The report further recommends that "integrate AI skills across all academic disciplines to build fundamental and specialized knowledge, promoting collaborative and multidisciplinary AI research, and advancing ethical AI governance with university-led initiatives. "

The report mentions that "recognizing the growing importance of AI in contemporary society, major global powers have initiated a race to achieve technological supremacy in this field. This competition has been driven by the perceived potential of AI to enhance economic competitiveness and transform social and governmental structures.

Finally, the report states that there is"need to expand AI competencies and foster knowledge transfer, not only in technical fields. Establishing dedicated AI research centers and promoting public-private collaborations is essential to accelerate innovation and knowledge transfer. Promoting ethical AI governance through university-led initiatives and ensuring HE involvement in the development of "National Artificial Intelligence Strategies" will guarantee that AI strategies are responsible, sustainable, and aligned with long-term social needs."

seed...

CHEST

Online Course on Critical Thinking - Foundations, Skills & Applications for – Students & Professionals

Course Code: 02, Credit Hours: 4 Credits, Course Duration: 1 Semester

Curse Overview:

This course aims to develop students' critical thinking skills by encouraging logical reasoning, effective argumentation, and problem-solving. Students will learn to identify fallacies, construct sound arguments, evaluate evidence, and make well-informed decisions in academic, professional, and personal contexts.

Learning Outcomes:

By the end of the course, students will be able to:

- *Recognize the key components of critical thinking and logical reasoning.*
- *Analyse and evaluate arguments for validity, soundness, and clarity.*
- *Identify common logical fallacies and cognitive biases.*
- *Construct well-reasoned arguments and communicate them effectively.*
- *Apply critical thinking skills to solve problems and make decisions in real-world situations.*

Course Modules

Module 1: Introduction to Critical Thinking

- Unit 1: Definition and importance of critical thinking
- Unit 2: Critical thinking vs. ordinary thinking
- Unit 3: Characteristics of a critical thinker.

Module 2: Basics of Logic and Reasoning

- Unit 1: Arguments: Premises, conclusions, and structure
- Unit 2: Deductive vs. inductive reasoning
- Unit 3: Evaluating validity and soundness of arguments

Module 3: Identifying and Avoiding Fallacies

- Unit 1: Common logical fallacies: Unit 1.1: Ad hominem
  - Unit 1.2: Straw man argument
  - Unit 1.3: False dichotomy
  - Unit 1.4: Slippery slope Unit 1.5: Hasty generalization
- Unit 2: How to detect and address fallacies in arguments

Module 4: Cognitive Biases and Critical Thinking

- Unit 1: Understanding cognitive biases: Confirmation bias, anchoring, etc.
- Unit 2: The role of perception, memory, & heuristics in reasoning
- Unit 3: Techniques to mitigate biases in decision-making

Module 5: Critical Reading and Media Analysis

- Unit 1: Evaluating credibility and reliability of sources
- Unit 2: Analysing media, news, and online content for bias and manipulation
- Unit 3: Recognizing fake news and misinformation

Module 6: Argument Construction and Effective Communication

- Unit 1: Structuring arguments: Claims, evidence, and reasoning
- Unit 2: Writing and presenting arguments clearly and persuasively
- Unit 3: Debates and discussions: Techniques for effective argumentation

Module 7: Problem-Solving and Decision-Making

- Unit 1: Strategies for solving complex problems critically
- Unit 2: Decision-making frameworks
- Unit 3: Ethical reasoning and moral decision-making

Module 8: Applications of Critical Thinking

- Unit 1: Applying critical thinking in academics and research
- Unit 2: Critical thinking in professional and workplace settings
- Unit 3: Case studies: Real-world problems requiring critical thinking

Teaching Methods Online:(i) Contents on LMS(ii) Interactive sessions (iii) Group activities, debates, and role-plays (iv) Case studies and analysis (v) Assignments and presentations

Online Assessment Methods: (i) Reading of Modules: 10% (ii) Quizzes/Tests: 20% (iii) Assignments and Essays: 25% (iv) Group Debate/Presentation: 15% (v) Final Exam: 30%

IMPORTANT NOTE -
Course will be offered in collaboration with the institutions. Also, students can directly enroll for the Courses. Certificate will be provided jointly by SEED-CHEST and Collaborating Institute(s).

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Online Course on Communication Skills

A 4 Credit Course
8 MODULES COURSE WITH SUB-MODULE UNITS
DURATION: 60 HRS. 6-8 WEEKS

Average Per week self-study 8 Hrs.

and contact /test on Virtual mode 2 Hrs.

Course on Canvas Platform

Virtual Meet on Google Meet platform

Course Over View

This course helps participants develop effective communication strategies for various contexts, improving verbal, non-verbal, written communication, and skills for conflict Resolution, Negotiation techniques, collaboration and effective Teamwork.

Course Objectives

- Develop clear and concise verbal communication.
- Enhance active listening skills.
- Master non-verbal communication techniques (e.g., body language, tone).
- Improve writing skills for reports, emails, and formal documents.
- Overcome barriers to effective communication.
- Build confidence for public speaking and presentations.
- Build skills for Conflict Resolution and Negotiation
- Cultivate interpersonal skills for teamwork and leadership.

Course Modules

Module1: Introduction to Communication

- Understanding the basics of communication.
- Components: Sender, message, receiver, and feedback.
- Barriers to communication and how to overcome them.

Module2: Verbal Communication

- Speaking with clarity and confidence.
- Vocabulary building.
- Formal vs. informal communication.
- Handling difficult conversations.

Module3: Non-Verbal Communication

- Role of body language and facial expressions.
- Reading non-verbal cues.
- Using gestures effectively.

Module4: Listening Skills

- Active listening techniques.
- Empathetic listening.
- Improving concentration and retention.

Module5: Written Communication

- Email and business letter etiquette.
- Writing reports, proposals, and resumes.
- Editing and proofreading skills.

Module6: Public Speaking& Presentations

- Overcoming stage fright.
- Structuring effective presentations.
- Engaging your audience.

Module7: Conflict Resolution & Negotiation

- Dealing with conflicts constructively.
- Persuasion and negotiation techniques.

Module8: Communication in Teams

- Building rapport with colleagues.
- Collaboration and effective teamwork.

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