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EVALUATION INDICATORS

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All the Best

Section - A

(1A)

Is India's Higher Education future ready?

Indians always had no dearth of talent. Sundar Pichai, Satya Nadella etc are some, (IITians) but important references of Indians & Indian talent at widescale. Around 25% of NASA scientists are Indians. Indian diaspora outperform many others in several countries, include U.S. That nearly $\frac{1}{3}$ rd of doctors, thousands of engineers and many important positions had been taken by Indians given a free hand & opportunities.

If such talent is present in India, why India has not performed well, till this date, in development? why India is still developing? why the brightest minds of our country is not staying inside our country? And not trying to find better prospects in India itself?

A more important question that prevails — why brightest of minds are produced in some areas of Indian institutions such as IITs, IIMs, IISc etc.? Nearly more than a million students graduate each year in India and enter the stream of corporate world, research, administration and other personal interests or add to unemployment data, why there is no proportional outcome of talent in other institutions.

In this essay, we will try to see the current status of Indian higher education and its vision; the future needs of world & the demand from Indian higher education; the prospects of current higher education in future world; along with suggestions to improve Indian footprint & talent in India & world.

② Indian Higher Education : Current Status

There are more than thousands of engineering colleges in India, hundreds of

medical colleges, handful of IITs along with other standard govt colleges. Indian higher education improved immensely from 1947 when education was almost nil, through conscious, deliberate policies of Nehru who developed IITs, IIMs as "temples of modern India". He believed that greatest minds will and should come from these institutions that will help Indian nation to usher prosperity.

Engineers are highest number when compared to others and Indian students are more drifted towards engineering because of wide range of opportunities and its technical competence. Though doctors are needed for country and India's doctor to population ratio is lower than many developing countries, enough ~~are~~ number of doctors are not produced in India. Similarly lawyers, judges and other prospects are increasingly get marginal due to over emphasis over engineering.

This has lead to great competition

for some prospects like govt jobs, corporate jobs and lack of adequate lawyers, judges on other hand.

The Gross Enrolment Ratio of Indian higher education is 26%. which means only $\frac{1}{4}$ th of Indian student of particular age group attend higher education and there is severe enrolment gap from primary school where enrolment ratio was 99%. variation is also in respect of certain castes.

The two pillars of a country's graduated students is — skill and opportunity. we have problem with both pillars. Lack of skilled youth is main reason given by foreign companies for not showing interest in setting business in India. or corporation in India. Technical competence and lack of practical approach has been lacunae of Indian youth. The grades of Indian institution do not reflect students skill set, but more of students ability to score, memorise, rote-learning. This is because of outdated education system that still heavily depends on exam for skilling graduates.

and lack of practical approach.

Skill also refers to the desired qualities for what India needs. What needs India is, desperately, not engineers, but leaders— those who could sense injustice and speak out against any arbitrary action. Obviously, this should come from young graduates. But, the pressure of education system, disciplinary actions have rendered lack of political voice by youth today. This is critical because of today's voracious youth will be tomorrow's leaders and more importantly, our rulers. Dissent is the voice of democracy and if government suppresses it, a generation is silenced.

Opportunity, on other hand, has never been completely stabilised since reforms of 1991. What's more important is that a country full of youth who are graduated, skilled, aware did not get enough opportunity. This would be a demographic disaster for India, aspiring to be a great nation. The

instances of youth not seeking job they get because the job is inadequate for their educational qualification is increasing in India. This is called open unemployment.

The research plays important role in nation's progress because it is the intellectual progress of country and very much essential in today's competitive, industrialising world. What makes it more important for India is its large demographic population. India's spending of research is far less than what China, US did and very limited impact has been achieved.

An international comparison will reveal much about higher education prospects of India. India has never reached top 500 institutions at global scale and whatever reaches top 1000 and top 2000 is almost an IIT or an IISc or IIM. Thus, there is wide and increasing divide between other higher institutions and India's premier institutions.

Drift of youth towards better opportunities abroad is causing drain of brain and Indian talent losing, India's prosperity. This also ^{their contribution to}

highlights how much inclusive and encouraging Indian higher education system is. Lack of adequate opportunities, adequate representation of talented people also causing drift of brain.

Inside India, too, there are lack of opportunities because of lack of resources and excessive opportunities present in India that is causing huge cost & competition.

"Knowledge without character" is a sin. This is seen from graduates who enter realm of world and become citizen. The behavioural aspects of citizen will decide the well being of nation. Though, traditional culture of India has promoted values of goodness, compassion tolerance, this is rapidly deteriorating. Quest for money, greed is driving people to forget ethics and unethical practices. It is sadful that education system does not address

this,

What world needs?
& India needs

What are the needs of India and world in future? what drives India to prosper and what does that demand from higher education. There are several aspects of this - which include technical, environmental, social, political, economical, behavioural etc.

The economic prospects of India are huge and there is high requirement from Indian youth to contribute nation's progress. India is set to reach 5 trillion dollar economy. It requires active contribution from Indian youth. The employment aspects of India^{on} to be addressed for this. So, there is need for skill development and employment opportunities in India.

The political needs in future are even more important. Leadership qualities, voiceful, voracious youth is needed. This

has to come from educational institutions. Banning student organisations, will only digress the issue. and step backward. what needs is more active involvement of youth.

Values are more important especially in today's industrialised world where everything is commercial. The future needs ethical beings with human values. As Vivekananda puts it,

"The purpose of education is not knowledge but to impart values"

Education, particularly higher education creates environment where youth develops their traits and it is important that there is enough push for students and youth to be more ethical and dignified. Character is more important than money and this is important in today's world undergoing Fourth Industrial Revolution, when world is continuously pushing under materialistic, consumerist outlook and where everything is seen as commodity.

The environmental aspects for future are dire because of their adverse conditions and man's imbalance between environment and development. The climate change and environmental disasters are getting aggravated and role of education here, is to feel shoes of a responsible human, not just a responsible citizen. Need for human who can have compassion over animals, human respect & dignity, and look beyond national aspiration. There is a need for "Humanity".

The technical competence needed is higher and much diverse because of industrial revolution. The needs required from youth and skillset needed is much more diverse than what today is. So, skill development and self reliance is quite essential for India's future. This also underlines importance of R&D in India, what is regarded as innovative progress. Also, there is a case for cyber space technologies such as Artificial

Intelligence, Internet of Things, M2M (Machine to Machine) learning etc which is increased. Cyber technologies are regarded Disruptive technologies and are important because of their huge employment, critical skill set needed, strategic security of India (as warfare is becoming cyber) etc. The role of higher education is more important to emerge according to future technical needs of world.

Other skills of managerial, behavioural that needed for corporate world are also needed to be imparted with students.

Behavioural aspects of Indian youth need to get finetuned toward liberal, progressive, informed, aware person. The role of women are increasingly commodified and traditional patriarchal setup will be broken in future. The educational institution also need to impart ~~what~~ liberal values of tolerance, compassion, empathy as there is increasing marginalisation of communities, hate, violence etc.

So, is Indian higher education ready for the future needs and aspirations of India? The answer is only partially yes. The main aspects ~~are~~ that are promising are demographic dividend, rising educated middle class, self-reliant youth. These factors, on one hand, show progressive elements, while on other hand, several lacunae such as rising unemployment, substandard quality of education, global slowdown, darkening economic prospects are showing downside and challenges that higher education need to cope up with.

"A nation is not strong because of nuclear power, but because of citizens with ethics"

— Vivekananda

As today's youth and higher education is a last stage of ~~citiz~~ student life and first stage of citizen life, Higher education need to be future ready for India to achieve greater height.

5A

Data is the new oil of 21st Century:

The raw material that modern
civilisations are increasingly being built on.

U.S (United States of America) , the richest, most developed, prosperous and the only superpower in the world. But, what's more important to know is the reason for high prosperity and development of U.S besides the philosophy of capitalism. It is the usage of Data. Almost, whole America's military is critically and heavily dependent of cyber data. The communication technologies developed by U.S are zenith of its kind and allowed rapid industrialisation. But, more important is the private companies of U.S that used data to maximise profit.

U.S firms Amazon, Flipkart have used users data to maximise their profits.

U.S military recently attacked on Iran through

hacking of critical infrastructure of ~~the~~ Iran, thus, winning a bloodless war. Due to ICT (Information & Communication Technology) and data it produces, U.S achieved great penetration of police force over its vast geographic area. It is said that U.S police could reach crime scene within 30 minutes of crime. The doctors, judges and several technologies have utilised data to their fullest extent and achieved development.

The story of U.S underlines the critical importance of data and increasing turning of world toward digitalised world and data being its currency.

why Data is regarded oil of 21st century

Data is processed information. Information is raw and processed form of information is data, which could be readily used. During ancient times, limited knowledge was available to everyone and important information was

Codified as Vedas, Charmastra, etc which was also difficult to codify. These information played great role in transmitting invaluable data through generations and ancient India by early centuries of A.D. was able to develop chemical science, medicine etc.

With the evolution of time, the ease of storing data increased as books were started to print and data became more important.

With Industrial revolution, world changed. The 19th century & 20th century were rapidly changing due to industrialisation and the magic element of this transformation is OIL. Thus, oil is regarded as greatest discovery and it was the raw material that colonial civilisation moved forward and got developed even though they had no resources of their own. "Whoever had oil, ruled the world".

With modern civilisations of 21st century and fourth Industrial revolution along with early 3rd Industrial Revolution, there is a

boom in Information technology (IT). With the advent of IT, the ease of storing, accessing, processing information became matter of milliseconds and its storage became ~~cost~~ extremely cheap. Today's around 19000 books can be stored on a small chip of 12mm x 12mm size.

This began the advent of Data into modern scale. Today, more than any task is achieved easily through ICT and data. Data defines security of a nation and at the same time vulnerability of nation. It gives information for progress and at same time contributes to security threats to a nation. Data could help achieving law & order in a state and at same time, can disrupt law & order of a country. (through cyber war, hacking all people's data etc). Thus, it is now widely regarded that "whoever rules data, rules the world". That's why, Data is regarded "new oil of 21st century". So, what is the importance of data for a civilisation?

Significance of Data

: A raw material

The importance of data is multi-faceted and more diversified in fields of politico-administrative, economic, socio-cultural, technical, technological, strategic arenas. But there are several ways how data is used raw material for increasing basic standard of living for people.

The availability of raw material - data and enhanced accessibility had led development of standard of living of many countries include India. Data led to education, awareness. It improved healthcare needs. Today, any subject, course, specialisation can be achieved easily on internet. Healthcare, nearby hospitals, nutritional food, dietary habits can be easily accessed through data about local areas & GIS. (Geo Information system). Farmers can learn about their soil, crops, patterns,

new technologies through data from govt, T.V, internet etc. Telemedicine is one emerging field due to data where patient is treated on an internet through data over several thousands of Kilometers.

Data drives society to modernity where social evils are eradicated with input of technological data. It has also changed cultural habits of people through westernisation as western powers were more liberal, progressive. Language, food habits, communication, dressing patterns are transforming throughout the world due to ease of access of data.

These are various socio-cultural factors but what are politico-administrative importance of Data?

Data is used for allround development and used as important input towards good governance. Government across the world are pushing their countries toward digitalisation and more & more digital inclusion.

This push is because of ease of administration where citizens could easily access government services and effective grievance redressal could be possible. It ensures timely delivery of justice. Maintaining law & order will be easier because, of effective surveillance, ex: Aadhar - PAN link. Efficiency of administration could be achieved by everyone. All these factors will enhance good governance.

The economic importance of data is more strategic because it enhances prosperity. Achieving financial inclusion and digitalising all financial actions will create huge data which will be useful in tracing illegal activities, at the same time effective usage of govt's (government) money.

It could improve economic activities like mining, exploring resources by mining, developing cities, planning urban areas etc, all these require critical data that will determine how effective, well developed and competitive in world. For ex, knowledge, data about strategic

importance of a place will help develop resilient infrastructure and sustainable cities.

Let us see more about strategic importance of data.

Recently, U.S attacked Iran on cyberfare by hacking into Iran military infrastructure and disrupting it and stealing critical data. Russia, is believed to be involved in U.S elections by hacking voting machines and rigging them. So, a nation can easily be cornered and marginalised with targetting of its critical data.

More & Greater importance is achieved for military and defence where warfare is increasingly concentrated. Availability of strategic data has led countries win wars like world war. So, the importance of data in military is so critical.

All these dimensions shows the importance of data and how countries around the globe are building over data as their raw material. This also highlights how data

can be a resource as well as vulnerability at the same time. While, being vulnerable, it can't be ignored its importance and harness its potential to its extent. This draws the picture of challenges with data, with increasing usage, there is simultaneous rise of threats and vulnerabilities with it.

Challenges with data

Several issues have arisen in past few years about usage of data, and drawn attention across the world to come together over these issues and form international cooperation.

International cooperation is needed for sharing critical data in a globalised world with increasing hostilities. Be it nuclear data, strategic data of a hostile country, data of suspicious transaction of individuals over different countries, control tax evasion between tax haven and other countries, data of terrorists; everything needs critical data to be shared between countries under

international cooperation.

Another challenge is Intellectual property Rights (IPR). With increased access of data, there is huge and unbridled scope for ~~part~~ duplication, piracy etc. that threatens IPR rights of individuals. Biopiracy, another threat where traditional knowledge of remotest tribals is taken from free of cost and sold in millions with obtaining patents. A comprehensive set of regulations are necessary to address IPR issues. WTO - TRIPS agreement (World Trade organisation) is a step forward.

One of the most widely regarded challenge is "Data privacy". With increasing penetration of public data, there is a threat of misuse of public data. Critical data of people like bank details etc. are very important and creates havoc if they are leaked. Some data like fingerprints cannot be ~~be~~ reinforced once get leaked, ex: issue of Aadhar biometric

Several issues of data privacy are

highlighted with supreme court's ruling in K.S. Puttaswamy judgement, 2017 with "Right to privacy" as an intrinsic fundamental right.

public data generated at large scale is now being required to maintain and follow several regulations such as European Union GDPR (General Data protection Regulation), India's Srikrishna Committee recommended DPP Bill, 2018 (Data privacy & protection Bill)

This takes away to another challenge that is "data localisation". RBI (Reserve Bank of India) norms and Indian govt norms of Data localisation are to improve ease of access of data by these companies for government use of maintaining law and order. But, there is backlash from companies because this'll increase interaction of companies with bureaucracy, increase their costs, reduce their profit margins, reduce cost competitiveness among domestic products.

Another lacuna is ^{data} infrastructure, which is another challenge. India has an infrastructure gap with less critical infrastructure

to maintain, regulate, process, store data. India is more dependent on foreign and other private corporation for infrastructure like electronics, microprocessors etc and there is no domestic market for this. This also leave security vulnerability in system. Similar, is the case of many developing and under developed countries.

These are several challenges that engulf country in ^{utilising} data and creating their civilisation over this.

"Data by the people, of the people,
for the people"

- Economic Survey 2018-19

which treats data as public good. It also recommends public usage of data for some cost, generating revenue to government. With the importance of data in day-to-day lives, of people there is a role for government

and private companies to utilise data ethically and follow privacy regulations. At the same time, it is equally important that countries become digitally sovereign and stay secure from various vulnerabilities that arise from data.

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