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Is India's higher education system future ready?

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Rajesh is an engineering graduate from a State engineering college. This was his tenth job interview and the results are not encouraging. He has been unemployed, since he passed out from college. He has once read about a quote of Nelson Mandela, where Mr. Mandela famously said that Education is the most powerful weapon, through which we can change the world. Now Rajesh is contemplating about how he is supposed to change the world, when he cannot even change his own life.

A recent report by Economic Times stated that around 80% of graduates in India are unemployable due to lack of market demanded skills. In the land of great universities of ancient times like Taxila, Nalanda, not even a single university comes in Top-200 ranks in TIMES Global University ranking. In the present state of situations, it can be contemplated easily, that we are not future ready in reaping

the benefit of our Demographic Dividend ②
due to poor condition of our Higher
education system. In the following
paragraphs, we will try to under-
stand the malaise affecting this
system, the actions we had taken
to remove the malaise and the
steps that are required to be taken
to make us future ready.

Higher Education System: The Roadblocks

Gross Enrolment ratio in higher
education system is just 19%. So
accessibility is a big issue. GER falls
particularly for vulnerable groups like
SC/ST/minorities and is poorer in
less developed states like UP, Bihar et al.
The rich-poor divide and Rural-Urban
divide is clearly visible. Reasons
include lack of availability of
colleges, poor transportation facilities
and socio-cultural bias against
women. The cost factor is also a
concern.

Affordability of higher education.

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takes a beating due to high fees in private colleges, lack of availability of affordable loan and scholarship for poorer sections of society. Capitation fee is acting as a cancer in stopping growth of higher education system.

This becomes debilitating when case of girl child comes, where parents prefer sending their boys to colleges and girls have to face burden of traditional gender responsibilities. All is not well on Quality front also.

Delayed updation of curriculum, lack of flexibility in exam pattern, poor training of teachers, and non-incorporation of technology based tools hinders the quality improvement.

~~Less~~ ^{more} emphasis on outdated theoretical aspects and less on practical learning methods, which Gandhi famously termed as "Learning by Doing" is largely missing. Scourges like mass copying in exams, puts another blot on quality.

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Lack of accountability has created a unique scenario, where there is no grievance redressal and checking mechanism. Teacher absenteeism, Ad-hoc appointment of teachers further reduces accountability. The promotion prospects of teachers are not linked with their performance, which creates complacency in the system. The biggest casualty of this is inclusiveness and innovation.

Lack of availability of financial resources, poor motivation level, lack of systemic support and a poor feeder mechanism in terms of school education acts as a break on spirits of innovation and creativity. India's research publications are one seventh of that of China and research budget is just 0.8% of GDP. Condition is more precarious in state universities where research support is abysmally low. Regulatory system is also far from perfect.

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multiple regulators with fractured mandates has done the system more harm than good. There is over-regulation and poor monitoring, where local autonomy and innovation is the casualty. Poor co-ordination among regulators and regulatory arbitrage makes the issue worse.

Inclusivity gets lost, when social science is relegated to back seat vis-a-vis technical education. This reduces not only morale of students in social science discipline, but the country also gets deprived from the contribution of these disciplines in public policy e.g. Sociology, Anthropology etc. But in face of these issues, are we sitting on the fence?

Journey so far

India's present higher education system has some notable achievements. The reputation of IITs/IIMs globally is very high. Some universities like DU, JNU commands global respect. This is also true for some state universities.

like Anna University and private institutes like BITS, Manipal etc.

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Recent efforts by govt, to increase the ~~nos~~ numbers of IIT/NIT/IIITs/IISER has resulted into increased enrolment in higher education system. This has also given opportunity to poorer sections to fulfill their dream for socio-economic mobility.

Emphasis on increased autonomy of institutes via Institute of Eminence Status and on basis of NAAC ranking is step in right direction.

Increased funding is provided via market based mechanism e.g. HEFA, to ensure outcome based approach in improving the system.

Streamlining of regulatory system by creating National Medical Commission in place of corruption ridden MCI, and proposal of establishing overarching higher education regulator named NHERA, are the steps taken in right direction.

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Increased role of states in improving higher education system with support from central govt; is being ensured via Rashtriya Uchchatar Shiksha Abhiyan.

Sharing of human and material resources via NKN, GIAN and creating an open source library like MOOC can have huge benefit in improving inclusivity. Recent proposals of National Education Policy, in creating National Research Fund can go a long way in improving present conditions. Now what is required to be done further?

The journey ahead

F.D. Roosevelt once said that teaching a man in mind and not in heart is akin to teaching a menace for the society. So Ethical education is need of the hour. In the present conditions of fractures in society, only emphasis on liberal arts education and promotion of values of equality, justice, love, tolerance can take us forward. Promotion of critical

thinking, emotional intelligence, creativity should be done via higher education system. ②

We need to emulate example of Bhutan, which has mandated that at the same rank, salaries of teachers will always be more than civil servants. It can improve status of teachers in Indian society and will attract most capable youngsters to become teachers.

In this age of knowledge economy, human resources are most valuable assets. Introduction of updated curriculum, adequate training of teachers, increasing enrolment of vulnerable sections of society can go a long way in this.

There is a need of creating specialised institution for Research and hierarchy of institutions at lower level which emphasises on teaching cum research and are autonomous.

Role of media is important here. They should shift their focus away from quantum of salary got by students in IIT/IIM, and put focus on more

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substantive method for evaluation of quality of education.

Recently some districts in M.P. have adopted e-attendance in colleges, which have reduced teacher's absenteeism and ensured accountability in system.

Recruitment of teachers should be only tenured and ad-hocism should be stopped. A fair and merit based approach can attract good talent in teaching profession. Combining this with adequate career prospects, can result into creation of highly motivated teachers.

Political class needs to shift their attention towards higher education reform. Only then the impetus will be fast and potent. This should become a part of their election manifesto, so that accountability can be ensured.

It has been famously said that King is worshipped only in his territory while knowledgeable person is respected everywhere. If India wants to reclaim its position as world leader, it needs to venture into fourth

generation industrial revolution, where importance of higher education system is paramount.

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An ethical education. has the capability of breaking narrow domestic walls and promote humanity to higher levels. Only then we all can become truly "World Citizens" and can realise true meaning of "Vasudhev Kutumbakam"

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Data is the oil of 21st century: the raw material that modern civilizations are increasingly being built on

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Rakhim Khan is a small farmer living in Chathigarth. Yesterday, govt. organised a camp to collect biometric data in his village for making AADHAR. He has been told that by this, he will be able to get govt. services like PDS easily and timely. Now Rakhim is optimistic, that his family need not remain hungry due to corruption in PDS shops, which reduces the availability of grain at PDS/Ration shops.

In other case of data collection and its use, world was stunned after Snowden leaked the nefarious activities done by NSA under its PRISM program. Where metadata of calls/internet was captured of millions of people and was used for wholesale surveillance without legal backing.

These two instances show the recent trend in world regarding data collection, storage, analysis and its use but with diametrically opposite outcomes. Data is the modern currency in the world, on which basis the

Laws, rules, regulations are designed and institutions are built. But if proper checks and balances are not applied, then it can take the form of "Blasmasuk" and will try to destroy its master. Here we will analyse, why data is new oil, what is its role in modern civilisations and the challenges underlying its utilisation.

Data Use: A historical narrative

The collection and use of data for various purposes is prevalent throughout history. Personal data of citizens have been collected by states since Greeks and Romans, and used for governance purposes. Corporates have used market surveys in understanding personal preferences of customers in changing their marketing strategies and launching new products. But never in the history, use of data is as large as is being prevalent now.

The emergence of term "Big data" clearly indicate this. 90% of all data collected till now, has

been generated in past five years. The variety, volume and velocity of data has become huge. This is primarily due to availability of huge storage space, faster processing algorithms and equipments at an extremely cheap cost. Wide prevalence of internet is the backbone behind this process. Now new business models have been created on the basis of data analysis and data science.

Role of Data in Modern Civilisations

Google Chairman Eric Schmidt has famously equated data science and Artificial intelligence with Birth of Fire in the life of ancient humans. Its usefulness in every aspect of human lives is very high.

In economic aspects, corporates can benefit from it by improving their business models and aligning as per demands of customers. e.g. Amazon gives recommendation of products to customers based on past purchases. Agriculture can benefit by adopting Precision mode of agriculture to

improve yield and reduce cost.

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Knowledge based economy can get inputs from data analysis and can improve its outcomes. e.g. Artificial Intelligence can be advanced only by use of data.

Understanding geological data, better prediction about availability of natural resources can be ascertained. Its relevance in social aspect is also big.

Delivery of basic social services can be improved. Education system can become more personalised based on past learning speeds and health system can become more targeted with improving accuracy in health problem diagnosis, personalised medicine, reducing negative effects of drugs e.g. in T.B., and launching new and more effective drugs for deadly and neglected diseases e.g. Malaria.

Not only this, but governance structure of state can have a big push. Policy making can become

evidence based, faster monitoring, review and course correction of policies can be done, ~~can~~ with accurate targeting and reduced corruption e.g. AADHAR enabled PDS.

This can infuse transparency, accountability and responsiveness in governance process, thereby making it truly SMART and democratic.

Urban governance and infrastructure can get a big boost with this. Better migration management, improving quality of urban public amenities, prompt grievance redressal system can be the result of data based governance. e.g. Use of participatory budgeting by Surat.

SMARTNESS in city infrastructure can be increased by this. This will result into reforms in Transportation, waste management, water management and energy management e.g. Time of the day tariff and smart electricity grids. Ecological impacts can be significant.

Collection of environment data, its analysis can give inputs for policies. e.g. Even-odd system of Delhi can be better improved with this. This can also result into awareness generation among citizens about environmental pollution and can result into citizens' movement to improve quality of environment.

Response to Disasters (both natural and man-made) can become prompt with better predictive ability. Past data about earthquake, flood can lead us to better policy making & response infrastructure. Climate change models based upon worldwide data collection is an example of that.

In Financial sector also, it can lead to responsive fiscal and monetary policy and better management of cycles of instability. This will improve overall credibility of financial system e.g. Crisis like 2008 financial crisis can be predicted in advance and recuperative measures can be taken.

• Legal reforms are another important aspect. Better case management, faster disposal of cases, future planning of human and ~~not~~ physical infra needs of country can be reliably done.
e.g. National Judicial Data Grid

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Another critical sector is security.
Data analysis can be used for predictive policing, surveillance, countering probable terror attacks and capacity building of intelligence and law & order agencies with the power of information.
e.g. CMS of India.

Now what is the other side of the coin?

Data! A double edged sword

In a recent report, it was mentioned that some credit companies are identifying single women Afro-American citizens to give them loans and later capturing their assets when they were unable to repay it. This is clear example of Digital kleptocracy.

Misuse of data for profiling of individuals by states and for surveillance purposes is widely reported.

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in media. This is a clear violation of Privacy and human dignity which are fundamental rights enshrined in Indian constitution.

Data science provides convenience, but a balance with privacy is generally missed. Data collection is considered as Digital capitalism and part of aggregation of power by State and corporate sector.

Materialistic tendencies are promoted with luring offers by applying concept of psychology with data science to capture attention of customers and forcing them to buy unnecessary objects. This is not only economically problematic but ecologically destructive.

Use of data by Big data algo-rithms are probabilistic models and can never ensure 100% correctness. In 2008, Google Flu software which was created to identify Flu outbreaks in US failed miserably as reality is more complex than normative models.

Promotion of neo-colonialism to capture data is also criticised.

Large MNCs and powerful states are capturing and using data of citizens from developing countries for their personal use and excluding others of the same benefit. e.g. Google and Facebooks model of capturing personal data allowed them access to 60% of internet advertising market.

Cyber threats are a serious concern. Falsely capturing personal data by cyber espionage and its misuse are increasing e.g. Credit card frauds. Lack of capacity building in cyber security in developing countries, and non-availability of data protection laws are exacerbating the situation e.g. in India, which has become 3rd most vulnerable in terms of cyber security threats.

In the present context of globalisation, application of restrictive laws by other countries e.g. GDPR by EU, is creating problem in cross-country data flow, which is against the spirit of mutual development in global arena.

Proposed laws of data localisation by countries like India are also being objected on similar concern by US.

Some ethical concerns are also prevalent: Profiling of people based on data can lead to unethical outcomes e.g. Prospective employers may reject application of those candidates, which are declared by their software as unsuitable, without any personal meeting. This will significantly reduce importance of human values and personal interaction which can increase social distances and can create conflict.

Data is like a weapon. Its use depends upon the character of the person and rules/regulations defined by institutions. We need to create an ethical/moral framework where qualities like justice, equality, trust, sustainable development and mutual security becomes the basis on which data is collected, shared, analysed and used.

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The owner of data is required to be given importance and emphasis should be put on informed consent, freedom to modify data and right to be forgotten. This can result into increased inclusiveness and democratic spirit in data science.

Data is truly a global entity. The ~~underlying~~ principle given by Gandhi in his Talisman regarding giving benefit to most socio-economically deprived person in society, if applied in case of data sciences and its use, can lead us towards a new and progressive stage of humanity.
