Abstract— **Education in every sense is one of the fundamental factors of development. No country can achieve sustainable economic development without substantial investment in human capital. Education enriches people's understanding of themselves and world in a better way. It improves the quality of their lives and leads to broad social benefits to individuals and society. Education raises people's productivity and creativity and promotes, employability, entrepreneurship, and technological advances. The employability of Indian youth has emerged as a major concern in recent years. Ironically, it is not just the uneducated and untrained that lack skills but it is also the educated that consistently lie below the required standards. In addition, employment plays a very crucial role in securing economic and social progress and improving income distribution. The greater challenge is therefore, to prepare our larger lot of the educated graduates from the general education streams for the emerging skill needs of employable youth. This paper will focus on the generic case study of interdependence of the education, employment and economy and its perspective view in technical education sector.**

Index Terms— Education, Employability, skill gaps, higher education, educated job seekers.

INTRODUCTION

The issue of education and employment exists in different context in the modern era. While the nature of modern living is responsible for it in some sense, people's orientation towards this issue is also responsible for it. Education means acquisition of knowledge, while employment is about earning one's livelihood. Education awakens one's intellect, knowledge and broadens his capacities. It bestows on him superior will and confidence. All this empowers one to act best in his chosen field. We can say that the purpose of education had been earned if the person acquires these abilities. The question of earning livelihood is not necessarily connected with education. We can see all around persons who received little or no education yet are skilled and successful businessmen. Many times, they are seen much more successful than the educated ones. But this does not discredit the value of education. Education is must for man if he wishes to evolve. It can be said that the issue of education is linked with how it can bring better jobs. We are witnessing a senseless race for diplomas and degrees these days. Everyone wants to secure degrees, using fair or unfair means because he sees it almost a guarantee of good job. Parents too wish to send their children to good schools or colleges in hope of their landing good jobs afterwards. It is this mentality that has corrupted the purpose of education and has made it a business. In our country where a large section is either unemployed or not well-off, it is but natural for them to see education the means of getting a livelihood. In the current scenario where prices 94 skyrocket and it is difficult securing the basic amenities too even, the educated minds too first think of the material gains. If the other sections think along these lines, it is hardly unexpected. Any education could be said successful only when it is in accordance with current need of society and the individual. Our time demands that the issue of education and jobs is integrated judiciously. Some steps have been taken to introduce employment-oriented courses in universities, but it is still in its primary stage. Most of the syllabi taught in schools and colleges are still old and irrelevant which keeps producing thousands and thousands of unemployed individuals. It is impossible to absorb all of them in the available jobs. There are higher institutions for technical learning, but they produce limited workforce – for the greater mass of people, there is still not much provision for receiving education. All this calls for basic and conceptual changes in the education system to suit the needs of individual well. Unless it is brought at that level, cosmetic changes will not help much. Not only that current system of education has failed to deliver, it has led to some negative consequences as well. A deeper analysis would show how its inadequacies have resulted in graver repercussions. While on the one hand, it increases the capabilities and aspirations of the individual; its inability to give them suitable outlet wreaks havoc with them. After a long education when the individual is still left without a proper livelihood, it depresses him. Education is universally recognized as a central component of human capital. India is currently spending 4.6-8 percent of its GDP (March,2019) on education. A change in education policy came in 1992 towards building an empowered and knowledge society mainly because of LPG and Information Technology (IT) revolution in form of proliferation of use of IT in the field of education largely due to varying initiatives being implemented by the Government of India. The Tenth Five Year Plan (2002-2007) has estimated the backlog of employment around 34.85 million (Defined as CDS Basis) in the year 2001-02. The sector wise growth

of overall employment indicates declining growth rate due the slower growth in agricultural employment. A task force on employment opportunities that was set up by the Planning Commission for suggesting strategies of employment generation of 100 million people over next 10 years advocated in favor of pursuing suitable policies for education and skill development, that would upgrade the quality of the labor force and make it capable of supporting a growth process which generates high quality jobs. Educational institutions of higher learning have now begun to transact curriculum using varying tools and information technologies but even as on now IT education merely implies computer technology. Earlier IT meant TV or language libraries. The evolution and growth of IT industry has brought about a revolution in the education industry as one finds its use and applications in classrooms, libraries, laboratories, museums, shops etc. We find that educators, universities, coaching centers, software professionals, executive trainers and corporations, both large and small are joining hands to bring the promise of technology-mediated learning to India. But, poor penetration, connectivity, reach and training are few of the big barriers although; interactive content on the Internet is so much better than blackboard and chalk. Indian economy has to therefore now to look for a development strategy, which shall not only revamp these sectors but also brings in comparative advantage for generating additional employment opportunities. 95 The strategy of Economic development followed by India from 1951 onwards started undergoing changes from the middle of 1980s. The Soviet model of central planning of economy started yielding to market forces. The public sector, which once occupied the commanding heights of economy, has been brought down in importance. Correspondingly, the importance of private sector started to increase. The closed economy has gradually started opening up to the outside world. The trend of Liberalization, Privatization and Globalization (LPG) accelerated from the middle of 1991, when India was forced to borrow heavily from International Monetary Fund and the World Bank following a massive balance of payment crisis that lead to implementation of Structural Adjustment and Stabilization Programs. Education is universally recognized as a central component of human capital. The role of education as a contributor to the economic growth and its impact on population control, expectancy, infant mortality, improving nutritional status and strengthening civil institutions is well organized. A policy change in 1992 came in the wake of a coalition government coming to power. The report of the Review Committee was responsible for the change in the education policy described as “Towards a Human and Enlightened Society” which reflected the change in emphasis referred to as the social tasks. The move from this social task to the building an empowered and knowledge society is on its way of advent. The credit for this shift goes to the Information Technology (IT) revolution. Unemployment occurs when a person who is actively searching for employment is unable to find work. Unemployment is often used as a measure of the health of the economy. For many of us the notion of unemployment is one of those who do not have a job or, are paid no salary. This is partly correct but not wholly. Such a notion would apply largely to the educated people who are not able to find work or to those in urban areas who come seek employment. Unemployment has thus reached such an alarming situation today that is perhaps considered the most serious of the problem affecting India and one that is steadily worsening as the gap between the rapid rising member pressing for work and the new employment to opportunities being created widen.

OKUN’S LAW

In its most basic form, Okun's law investigates the statistical relationship between a country's unemployment rate and the growth rate of its economy. The economics research arm of the Federal Reserve Bank of St. Louis explains that Okun's law "is intended to tell us how much of a country's gross domestic product (GDP) may be lost when the unemployment rate is above its natural rate." It goes on to explain that "the logic behind Okun's law is simple. Output depends on the amount of labor used in the production process, so there is a positive relationship between output and employment. Total employment equals the labor force minus the unemployed, so there is a negative

relationship between output and unemployment (conditional on the labor force.

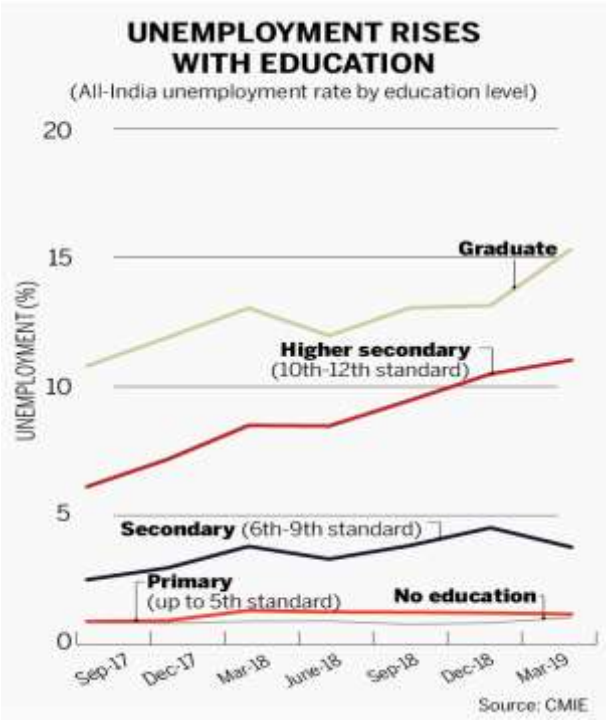

Figure 1: Unemployment versus education

Problems caused due to unemployment: -

- Unemployment and poverty go side by side. The problem of unemployment gives rise to the problem of poverty.
- Young people after a long time of unemployment find the wrong way to earn money.
- To get rid from the unemployment stress, they accept alcohol or drugs.
- Unemployed youths accept suicide as the last option of their life.
- Lower economic growth
- Increase rate in crimes. As the employed youth don't have anything to do, they start doing robbery, murder etc.
- Health issues i.e. it affects mentally as well as physically.

LITERATURE REVIEW OF TECHNICAL EDUCATION

The scale and scope of technical higher education in India is significantly different from the Global North, presenting its own set of unique challenges. We briefly discuss the context of higher education in India in order to illume the Ameerpet model of technical education, addressing gaps in the education system especially in the areas of employability and job readiness.

Higher Education and Un-employability

In 2017, there were a total of 6447 approved technical institutes, which enrolled 2,871,007 students. Out of these institutions, the top government-backed institutions that are recognized in Global North, such as the Indian Institute of Technology (IIT), make up only a small fraction of the total intake (the total number of seats offered in all Government Funded Technical Institutes (GFTIs) in 2017 was a mere 36,200).The acceptance rates at these institutions are the lowest in the world by a wide margin, with the IIT acceptance rate of 0.7% in 2014 being 8 times less than that of Ivy League institutions such as Yale and Harvard. With the 'killing' level of competition in 'first-tier' institutions, many industrious and bright students turn to a variety of other institutions. The 'second-tier' institutions vary widely in the context of regulation, number of students, examination pattern, syllabus, quality of faculty, and fee structure. State universities are run by the governments of each of these states and territories of India, and cater to anywhere between 67,000-120,000 undergraduate students, distributed amongst colleges affiliated to them. All of these colleges share the same syllabus, and conduct a common entrance exam. Private universities in India are regulated by the University Grants Commission, but derive their funding from a number of bodies, funds and corporate entities, and have significantly more leeway in designing their fee structure and curriculum. Each university is free to conduct its own examination.

The high number of institutions, and the increasing number of students opting for technical and engineering courses, create a serious demand for quality teaching. The best teachers opt for top-ranked colleges or private institutions (which can match corporate pay packages leaving many others without quality faculty. Most of the low-quality institutions are unable to address the diverse backgrounds of the student body - in terms of linguistic variation, level of pre-existing knowledge, previous training, within a single course structure and content. Some efforts have been made in this

regard by the GFTIs in the form of English and mathematics bridge courses, but these courses rarely show any tangible benefits. Students we spoke to in Ameerpet, all of whom were from ‘second-tier’ institutions, alluded to the lack of out-of-class tutoring, mentorship or guidance in their institutes. As a result, students who are lagging in the first year fall further behind through the course. Uneven quality of teaching, a limited focus on practical knowledge, and lack of a participative classroom culture, creates an exam-focused atmosphere, with students focusing on memorizing material rather than developing practical knowledge of the subject. A technical report places 18.4% of the total number of engineering graduates employable in general, and only 3.2% for jobs in the IT industry. Large companies such as Infosys and TCS hire students from campus interviews in lesser ranked institutions and provide custom training to new hires. HCL, the fourth largest IT company in India, has gone one step ahead and started offering IT training to high-school students allowing them to bypass college education entirely. These individual corporate efforts are disparate, unregulated and insufficient to deal with the volume of fresh graduates that the system churns out each year.

Education and Employment in context to Engineering Sector: A Survey Report

As many as 97 per cent of graduating engineers want jobs either in software engineering or core engineering. However, only 3 per cent have suitable skills to be employed in software or product market, and only 7 per cent can handle core engineering tasks. According to the HRD ministry, India has 6,214 engineering and technology institutions which are enrolling 2.9 million students. Around 1.5 million engineers are released into the job market every year. But the dismal state of higher education in India ensures that they simply do not have adequate skills to be employed. Though the quantity of universities, colleges and programs are going on increasing in the country, the lack of quality education persists. Profit-hungry managements, lack of skill education, resplendent corruption, focus on rote-learning methods, and shortage of faculty (both in quantity and quality) are the major issues plaguing higher education. Graduates are collecting their degrees despite not being skilled enough to be a productive part of the Indian economy. The general quality of India's engineering graduates is exactly where it was a decade ago, with next-gen tech skills still a chimera, the new Annual Employability Survey 2019 by Aspiring Minds has revealed. On top of a shocking series of revelations is the finding that 80% of Indian engineers are not fit for any job in the knowledge economy. Any changes whatsoever to the education system have been at best ad-hoc, which has kept the unemployability numbers very high and stubborn, the survey has found. The survey provides many dead giveaways about the Indian engineer's ability to code — which basically is bread and butter for everyone in the techie profession. "Good coding skills (the ability to write functionally correct code) are possessed by only 4.6% of Indian job applicants," goes one major finding that shows Indian engineering education for what it is. However, more Indian engineers (4.6%) can code correctly compared to their Chinese peers (2.1%), the survey found. That, however, is poor consolation for India, because a far higher number of American candidates (18.8%) can write correct codes. The India-China techie math has a significant catch, though. "If we consider only those candidates who can write correct code with few errors, the gap between China and India narrows (8.6% vs. 9.8%, Interestingly, while the percentage of Indian engineers who code well is greater than the number of Chinese engineers, a much higher proportion of Indian engineers (37.7%) cannot write a compliable code compared to Chinese engineers (10.35%).

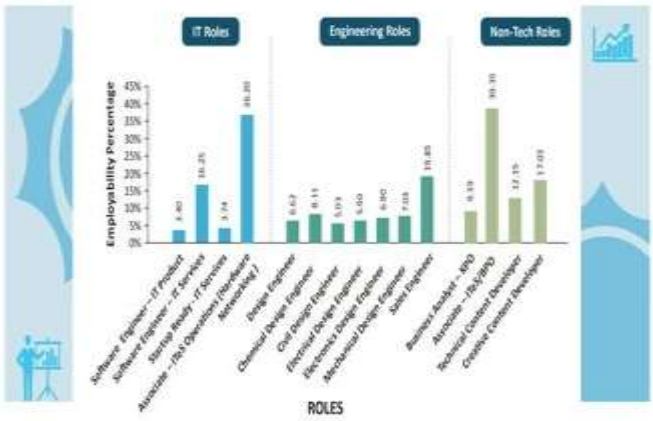

Figure 2: Employability percentage of engineering graduates in different role

This means that India must do more to educate its general population in proper coding skills, the survey suggests.

ROLE	EMPLOYABILITY
Design Engineer	
Chemical Design Engineer	8.11%
Civil Design Engineer	5.03%
Electrical Design Engineer	5.90%
Electronics Design Engineer	6.90%
Mechanical Design Engineer	7.03%

Table 1: Employability percentage of sub-categories in design engineer role

But that's not all. "Only 1.5% - 4.5% of engineers possess the necessary skills in data engineering, while only 2.8% - 5.3% are qualified in wireless technologies. These figures pale compared to the percentage of engineers (5.5%) that are qualified for basic programming," As if these numbers are not shocking enough, the real unemployability figures are even more abysmal. For data sciences, the number of the employable stands at "only 50% - 60% of these numbers (or 1.5% total) when we factor in other skills such as cognitive and language that are key for career success". The employment ratio of different sectors of engineers in shown in figure 2. Only 40% of students perform internships while only 36% undertake projects beyond their required coursework." The survey hits the nail on the head when it analyses the reason behind this galling lack of ability. "Students are trapped in a college bubble. They have little industry exposure. Only 47% of students attend industry talks. The employment ratio of sub categories of engineers in shown in table 1. Sixty percent of faculty do not discuss how engineering concepts apply to industry.

India Unemployment Rate 1983-2017

Unemployment Rate in India decreased to 4.90 percent in 2013 from 5.20 percent in 2012. Unemployment Rate in India averaged 7.32 percent from 1983 until 2013, reaching an all-time high of 9.40 percent in 2009 and a record low of 4.90 percent in 2013. Unemployment Rate in India is reported by the Ministry of Labour and Employment, India. Unemployment Rate in India decreased to 4.90 percent in 2013 from 5.20 percent in 2012. Many of the graduates are even not get direct placement groom college as shown in figure 3. Unemployment Rate in India averaged 7.32 percent from 1983 until 2013, reaching an all-time high of 9.40 percent in 2009 and a

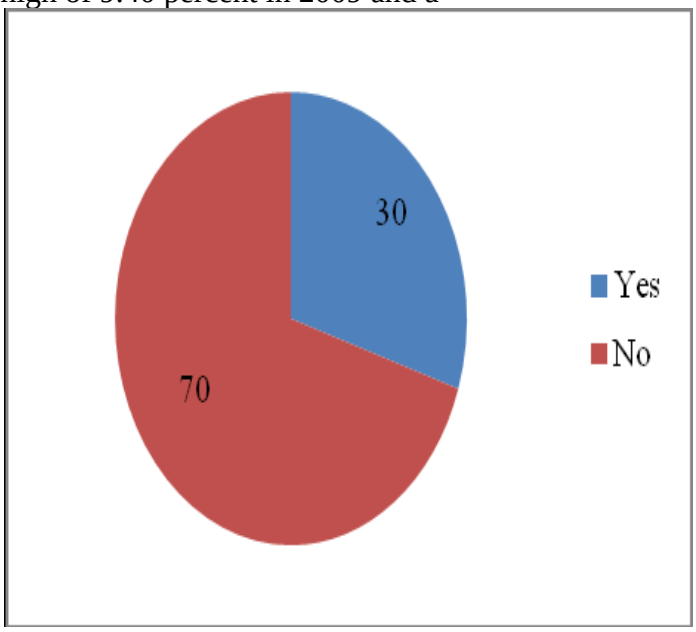

Figure 3: Job opportunities from college

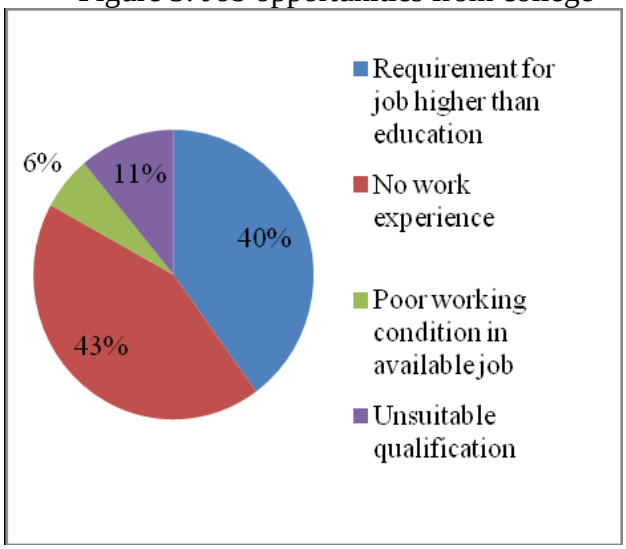

Figure 4: Obstacles in finding jobs

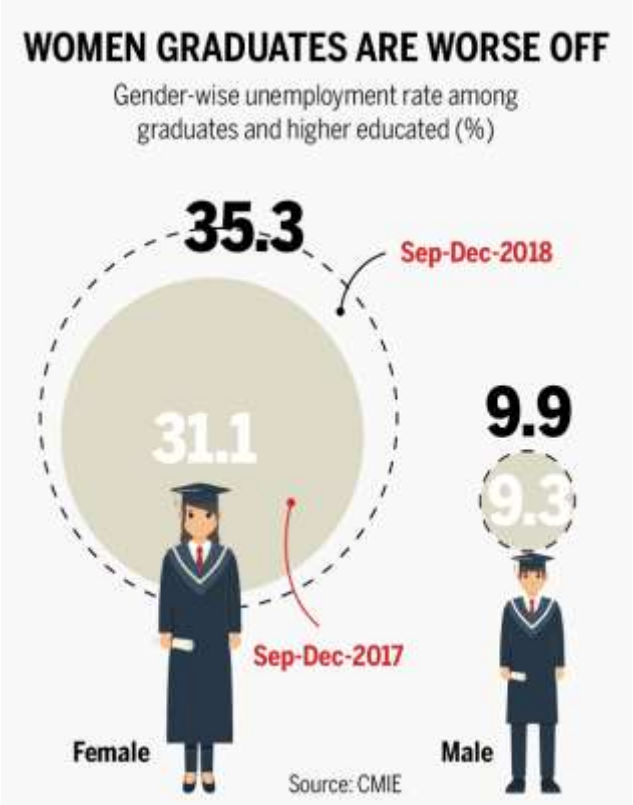

Figure 5: Gender wise unemployment rate

Major problems with engineering education in India

1. Syllabus not updated regularly:

The course contents do not focus on areas which will actually help in the job industry after employment. There is a big gap between what the market needs and what Indian education equips its future employees with. Despite exponential changes in science and technology round the world, the syllabus is hardly ever updated. For instance, while mobile computing is proving to be the next growth driver for the Industry, the curriculum does not reflect it.

2. Lack of innovation and research:

Students need to be motivated enough to innovate or think for themselves. Students must be given the space and scope to think and innovate, to question and come up with solutions. This applies to both school education and higher education.

3. Lack of skill-based education: "One of the major problems facing the fresh graduates is their insufficient understanding of basic concepts. The lack of in-depth understanding of technical information, lack of client-handling skills and insufficient knowledge across domains are the major skill gaps in the areas as shown in figure 4. While the vast numbers of engineering students in the country study their textbooks, give their exams and collect their degrees, it is only when they encounter the real-world problems do, they realize their shortfall. By then, they have to take extra time in order to skill themselves or suffer unemployment.

4. Importance of college name:

According to the report, companies are prone to visiting only top colleges to recruit potential employees. Thus, resumes from relatively unknown colleges do not get shortlisted. This not only creates a lack in equal opportunities, but also causes a deficiency of quality employees as this process ignores a huge number of meritorious students who do not study in top tier colleges.

Policies for Promoting Youth Employment in India

(a)National Employment Service or Employment Exchanges (b) Role of Employers' Organization and Trade Unions (c) Role of Legislation (d) Vocational Guidance and Education (e) Apprenticeship Scheme (f) Training of Craftsmen (g) Prime Minister's Scheme for Unemployed Urban Youth (h) Training of Rural Youth for Self-Employment (TRYSEM)

Conclusion

The employability, however, is a more serious problem and is a major challenge to the entire educational system and the content of the curriculum as well as the emphasis on the theoretical as distinguished from practical applied training. A long-term development strategy must be established that does not change with any political or economic shifts. In order for the country to successfully chart and effective path forward, questions related to issues of skill alignment, gender opportunity, and the wage gap need to be addressed. Finally, India must strategically increase technology penetration among its population a majority of "young India" continues to boom beyond the big cities, and that’s where technology must go. It is important the tech industry works with the government to steadily increase technology penetration, and in parallel, provide skilling opportunities for those in the unorganized sector, while offering re-skilling opportunities for the others.