FUTURE OF TECHNICAL EDUCATION IN INDIA

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ABSTRACT

In India Technical Education has been drastically growing from the past few decades. Previously only a hand full of students was able to access this technical education. But in today's scenario, Technical Education is one of the most popular choices of lakh of students. The southern most states of India accounts to have more than 69 per cent from the total count of technical education. Last year around 8.19 lakh student enrolled in 2,297 engineering colleges all across the country. In the present academic year, Tamil Nadu alone has around 85 new self-financing colleges which were approved by the AICTE. The total number of engineering colleges adds up to 444. Andhra Pradesh is having the highest number of engineering colleges which add up to 523. In other states like UP, Rajasthan and Orissa jointly add up for just 14 per cent of India's technical colleges. This regional disproportion and quality are at present the serious apprehension of the authority concerned.

Keyword: Technical Education, quality, authority, research work, skill gap

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1. TECHNICAL EDUCATION SCENARIO

India has established vast infrastructure facilities with regard to the Technical education. This has provided the country with a niche advantage in the globalized economic environment. The technical education will aid for the growth of a countries economy and also in national growth. In the past 25 years the growth rate of technical education was phenomenal. There was a huge rate of increase in the total number of institution from 158 in the year 1980 to 1,346 in the year 2005. This has also increased the intake of students in the Engineering degree level from a minuscule of 28,500 to around 4, 52,260 in the same period. At present the total intake has grown to 8, 19,000 in the last year. The manifold boost in the intake and augmentation in the total number of technical institution has resulted in a major increase of pressure on the excellence of educations of engineering and technology field [1].

1.1 All India Council for Technical Education (AICTE)

This can be easily seen in the obvious increase of courses being offered in these institutions. The engineering courses have almost quadrupled recently. Previously there were just three basic branches in the engineering which were commonly known as Civil, Electrical and Mechanical. These courses were on the basis of Soil, Coil and Oil branches. At present these 3 major branches have been stretched and expanded to 41 courses in under graduation alone and more than 100 courses in Post graduation. Some of the latest and very popular areas include Biotechnology, Nanotechnology etc. Environmental Engineering, Ocean Engineering and Climate Change etc are few other courses in relation to the advancement of the branches in engineering. To perk up the technical education and arrive at global standards there are certain areas which require immediate attention.

1.2 Significance of Technical Education

Education is an imperative feature for each person in a country. It has a very important role which aid in changing the gaze of a nation. No country will get in the path of success unless and until every person is educated enough to meet the challenges which might occur. Education is the only means through which a person gets a realization about himself and the future goals. Fundamentally, Education is alienated into three clusters. The first part teaches and educates a person about the concerns of the society, which is commonly known to be as the Social Education. The second will uplifts ones personality through Spiritual Education and the third one deal with the professionalism and

is known as the Vocational Education. Technical Education comes beneath the branch of Vocational Education. This deals with different areas like trade, commerce, agriculture and also medicine and engineering.

2. Global Certifying Standards

The inclusion of large number of manufacturing industry in the 1990's and the addition of IT industries in the late 1990's has generated a huge demand for quality and skilled engineers in large quality. As a matter of fact, the professional services from skilled engineering professionals are required highly for the planning and execution of ideas. The main factor which acts as the corner stone's for success in similar practical oriented courses are the infrastructure and faculty strength. By getting official approval by national agencies like NBA will definitely helps in ensuring quality of these educational institutions. At present the standards and procedures are not as rigorous as that of international agencies like ABET, IET etc. Consequently a widespread authorization system has to be changed for setting up unvarying global standards for the promotion of global community.

2.1 Ethical framework - The invisible element

A professional course is intended for crafting professionals, whose awareness and behavior possibly will be trusted at face value. Ethics and proper principles like self-discipline, dedication, temperament and truthfulness are as important as intellectual vividness. It is paradoxical that ethics, which are supposed to be part of the personality and line of work, is persisted and passed on through additional special lectures and add-on courses. This is even followed for the most experienced engineers even now. Students are clearly unaware of such standards and imparting it is more intricate as compared to passing on knowledge. It has to be taken in from excellent teachers and senior colleagues who are supposed to serve as role models. The administration and management of all educational institutions along with authorization bodies and Councils must make certain the system has been installed this feature in position.

2.2 Facilitation for the deprived category

India being an agrarian country, around 70 % of the nation's population is in the rural areas. Most of these areas are deprived from the advanced facilities available in the urban settings. This results in the lower rate of reach of students in to the Technical Education. This divide of rural and urban must be eliminated by facilitation. The education system must give serious attention to the language and communication skills along with various cultural and practice in these areas through molding methods.

3. Major challenges in Technical education

Some of the major challenges faced in the field of Technical education include implementation of a science based modernizing engineering environment in the institutions. This includes creating technology savvy campuses, using Information Communication Technology (ICT) to augment teaching effectiveness. The ICT will also help to develop a knowledge centric learning environment. Developing a research centric culture at all level of education is another major issue. There should be a proper system which will tie together the power of mind and the power connectivity to foster talent of engineering students. Another major concern faced in the technical education sector is developing faculty competence for enhanced teaching and creative research. The institutions which offer technical education must be capable of offering the right mix of knowledge, skills and competencies as to deal with the presently rigid core specialties and also increase autonomy. The growing skill gap in India is given in Fig 1.

Fig -1 Skill Gap in India

3.1 Technology

Education technology is a major part of the 21st-century learning experience. When incorporated properly in the classroom, tools such as computers, video conferencing, and even artificial intelligence can be used to supplement children's education, provide support to students with disabilities, and have a wide variety of additional applications and benefits. However, implementing education technology in the classroom is not always done smoothly or successfully. Many teachers and administrators face obstacles that prevent them from sourcing, installing, and using technology that they can use to enrich their students' educations. Read on to learn about the top seven challenges facing the adoption and use of education technology today.

3.2 Budget Limitations

By far the greatest factor limiting the efforts of teachers and administrators to provide education technology to students, budget cuts and limitations are a major hurdle that proponents of education technology must overcome in order to successfully introduce tech into their classrooms. A recent study even demonstrated that 75.9% of respondents saw budget restrictions as the biggest challenge preventing them from embracing education technology. Budget limitations are especially challenging to overcome because great education tech tools don't come cheap: while tools like Google Cloud can be a powerful tool for education, simply adopting that one tool also requires schools to provide Chrome books to students and fund training sessions for teachers, which strained budgets simply can't handle. Finding the funds to implement and sustain technology in the classroom can be a major barrier to its adoption in cash-strapped schools.

3.3 Lack of Professional Training

Increasingly new and advanced education technology appears every day. Teachers need to be able to know not only how to get the most out of each new tool themselves, but also how to train their students in its use. Providing classrooms with a shiny new tool that neither teacher nor student can use is unlikely to make an impact in any child's educational experience, and requiring busy teachers to teach themselves how to use a new tool can be frustrating and time-consuming. Although professionally training teachers, faculty, and staff may require time and money, it's necessary if students are expected to get the desired effects out of their technological experience.

3.4 Poor Network Infrastructure

Simply handing a room full of students a box of laptops or notebooks won't have any beneficial effects if the school doesn't have the network infrastructure it needs to support them. A strong network infrastructure requires fast, high-quality WiFi at school and at home, as well as data privacy and security, access to digital resources, and much more. Designing, building, and supporting a strong network infrastructure must be done with a great amount of care and forethought, as it is necessary for the effective and responsible continued use of technology in education.

3.5 Resistance to Change

Many teachers have demonstrated a resistance to change and unwillingness to adopt education technology. However, studies have shown that this resistance is not because teachers dislike technology. Rather, it's partly because teachers view learning a new teaching tool as a risky approach for which they're not adequately trained. It's also partly because their school administrators don't present a united front by highlighting which specific tools can have positive outcomes for their students. Although this resistance to change can be difficult to overcome, working with teachers to support them in adopting new education technology can help make them more likely to embrace it.

3.6 No Systems in Place to Utilize Technology in Curriculum

Although granting teachers access to tablets and smart boards may help boost their comfort with education technology, many teachers simply have not thought about how they can best utilize technology in their curriculum. Indeed, the way a history teacher utilizes laptops in the classroom may be very different than the way a math teacher utilizes a smart board. Both likely require plenty of time for trial, error, and experimentation to bring their lesson plans up to date. A major challenge in the adoption of new tools is not providing teachers with the guidance they need to make education technology work for them in their specific classroom.

3.7 Unreliable Devices and Software

The lack of a strong infrastructure can also be compounded by a lack of reliable devices and software, all of which can present major barriers to the adoption of education technology. An unreliable device can simply be a notebook that doesn't function properly, or it could be a bug causing students to have trouble accessing tests or staying logged in at school. In more extreme cases, Common Core test disruptions in 2015 and other test-based technical glitches represented an unforeseen challenge associated with using education technology to administer testing. Although education technology can be a powerful tool, devices and software need to be consistent and reliable for it to remain a viable option in the future.

3.8 Administrators Don't See the Need for More Technology

Finally, another challenge facing technology in education is the fact that many administrators are simply unwilling to immediately adopt it. The reasons for this vary but are likely due to budget considerations as well as the fact that the benefits of education technology are not yet well-defined. This makes it challenging to pinpoint specific areas in which this technology could help raise test scores or boost other metrics. However, with distance learning on the rise and education technology becoming increasingly widespread, it seems likely that administrators' resistance to adopting technology will soon become a thing of the past.

4. Six Steps to Overhaul Technical Education

Education technology is a new field that continues to evolve every day. At WPG Consulting, we provide technical support and top-notch professional guidance for a variety of IT systems. From Cloud Computing to IT Consulting & Product Management, our dedicated and experienced staff has the skills and dedication to help you learn more about education technology and how to avoid common pitfalls in its implementation and maintenance.

4.1   Professional Development

.   There is a lack of sufficient, continuing professional development for teachers who have to integrate new technologies into their classrooms but are unable due to a lack of preparedness or understanding of these technologies.

4.2.   Resistance to Change

There is a "comfort with the status quo" which results in teachers and school leaders believing that learning about new technologies is outside of their job description.

4.3.   MOOCs and Other New Models for Schooling

Massive Open Online Courses (MOOCs) are the new kids on the education block so to speak, and are encouraged as many higher education institutions have already embraced MOOCs and seen success. K-12 schools should be looking for ways to integrate this idea to make education more accessible.

4.4.   Delivering informal learning

Much like number three above, lecture-and-test models of learning fail to challenge students to practice or take on informal learning. Informal learning is found more often in non-traditional classroom settings like flipped classrooms, which provide a combination of formal and informal learning and have much more non-traditional approach that embraces multimedia into its standard curriculum.

4.5.   Failures of Personalized Learning

There is a gap between the idea of differentiated personalized instruction and the technologies available to make it happen. Even though K-12 teachers see the need for personalized learning, they don't have the tools or time available to make it happen.

4.6.   Failure to use technology to deliver effective formative assessments

Although testing has always been an important driver for educational practice and change, many teachers now "teach for the test." The curricula and skill sets have adapted to our society's needs, and in turn current testing methods have become an antiquated assessment. New technologies and our understanding of different learning patterns needs to play into the new way students are scored for the understanding of the topic. Despite increasing adoption of technologies for K-12, there seems to be a problem with widespread implementation. Older teachers seem to lack an understanding of how new technology works. This lack of an understanding is exasperated when an older teacher is trying to teach a student who grew up using that technology. We've all seen YouTube videos of toddlers using an iPad, we've also watched our grandparents struggle to understand what an iPad is, or what it can do. Older teachers also struggle with this sort of thing and that's when the problem with implementation comes up.
 Every parent wants their kid to be successful and have a better life than they did. Embracing new educational technologies is one way to do this.

5. CONCLUSIONS

The future of technical education must be in harmony by providing equal weightage to science, engineering and technology. The vision of the technical education must be to develop logical thinking, intellectual analysis and research pertaining to industrial development. Practical utility of the academic knowledge is necessary for technical education and institutions must give priority to industrial training and entrepreneurship development. Students must be job-supplier relatively than job-seekers. Technical Education in India is at the doorstep and could do with major reforms as for building a trustworthy and reliable professional workforce which has to put together the country for the wellbeing of future generations.

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BIOGRAPHIES

Dr.J.Anandha kumar has completed his **Doctorate in Textile Processing** from **ANNA University** Chennai. He has also completed his M.B.A. in Apparel Management from University of Madras. Earlier he worked in various Academic Institutions like University college of Technology, Osmania University, Hyderabad, Angel college of Engineering and Technology, Tirupur and worked as a Scientific Officer at The South India Textile Research Association (SITRA), Coimbatore. He also worked in various Textile Industries occupying key positions. He is an active member of various Professional Institutions and societies. He is the Life Member of Indian Society of Technical Education (ISTE), New Delhi, Institution of Engineers, Kolkata and Patron Member of Textile Association of India. He obtained Best Faculty Advisor Award given by Institution of Engineers, Kolkata, India. His area of interest in Research includes Bio-processing of textile materials, Polyester fabrics hydrolysis, Colour analysis of textile substrates, Eco printing of Textile Materials and salt free reactive dyeing of cotton materials. He has published numerous research articles in leading National and International Journals and presented papers at various conferences. He obtained one International patent and two Indian patents are under evaluation. Currently he is working with the Department of Textile Processing, GRG Polytechnic College, Coimbatore, India.