

4. BUILDING QUALITY TECHNICAL INSTITUTIONS

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1. INRODUCTION

The economic progress of a country is strongly linked to the Quality of education - more importantly in technical education. With its plurality and paradoxes, India never ceases to fascinate. And education in India is only one among various other elements that have captured the attention of the world. While the United Nations is worried about the presence of a large number of illiterates, various other countries are amazed by the quality of some of the human resources that the Indian education system has produced. Lauding India's technical education system, US Secretary of State Hillary Clinton believes the country is one of the best in this field, though it faces a challenge of providing adequate primary education to millions of children. "You can look at the very best in Indian education, and it's the best in the world. You can look at the technical education and it is to be envied. It is so effective," Clinton said in response to a question which was texted to her during her recent trip to India. [1]. India, alongside Brazil, China and Russia, is among the largest of the emerging markets, which are expected to become the giants of the twenty-first century. Emerging countries' citizens have reaped the benefits of such rapid development with higher standards of living. Over the last decade, GDP per capita has risen by 30% on average, to reach over USD 9,000. In India, the rise has been even faster, with a doubling of real GDP per capita in the last ten years. [2]. The growth of the Indian economy in the recent past and

the compulsion to sustain it is also forcing the Indian government to accelerate the process of developing all the branches of the Indian education system. Quality educational infrastructure at the technical institutions is an essential parameter for producing competent technocrats. This enables the building up of technological capabilities of the nation, which drive the socio economic development at the state and national level. The government funding was mainly responsible for providing infrastructure at educational institutions before the liberalization era. However, economic reforms initiated in the early 1990s opened up avenues for private players to play a key role in the establishment of educational institutions on self-financing basis. Since 2004, the World Bank-assisted Technical Education Quality Improvement Program (TEQIP) has been playing a major role in developing educational infrastructure in select engineering institutions. [3]

2. FUELLING INDIA'S YOUTH WITH QUALITY EDUCATION

2.1 The World Opinion

Last year before demitting office, the then British Prime Minister Tony Blair mentioned in Parliament that unless technical education was upgraded and strengthened in Britain, technical jobs would be in the hands of the Indians and Chinese! On October 2, 2008, , US Senator Richard Lugar, speaking in the US Senate, said, "The educated middle class of India is more in

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numbers than the entire population of the United States. We have to understand their technical prowess.”. This raises a pertinent question: Are we really a technical powerhouse? Yes, the country churns out hundreds and thousands of technical students each year. What about their technical competence? It was only a decade ago that Indian IT professionals came into prominence when they solved the Y2K problem to meet the challenges of computing to face the new millennium. Apart from the Y2K breakthrough, it has to be acknowledged that Western countries still lead in technological innovations, new discoveries and designs. The investments by our big corporate giants on research and development is a mere pittance when compared to their Western counterparts. We have not learnt to invest for the future of our students and the institutions.

2.2 The Growing Skill-gap

As countries like India race to embrace the next phase of growth and become more globally competitive, it is technology that will provide the advantage. Every country today is vying for a place in the global economy and the network can give them the edge they need. Given India's 1.1 billion population it maybe difficult to imagine how we can face a shortage of talent. However, with literacy at 52 percent, high poverty levels. India's wide rural-urban divide, and the quality of education available, the paucity of talent is indeed becoming a cause for worry. In particular, this demand-supply gap is already being felt by India's burgeoning IT industry and fears of the gap widening in the future are being examined carefully. In fact, according to NASSCOM, each year over 3 million graduates and post-graduates are added to the Indian workforce. However, of these only 25 percent of technical graduates and 10-15 percent of other graduates are considered employable by the rapidly growing IT and ITES segments. Hence, what we have today is a growing skills gap reflecting the slim availability of high-quality college education in India and the galloping pace of the country's

service-driven economy, which is growing faster than most countries in the world. In this demand-supply gap scenario, a look at the Indian education system will reveal that the number of technical schools in India, including engineering colleges, has actually more than tripped in the last decade, according to the All India Council of Technical Education. Part of the skills gap problem is that only a small percentage of India's youth pursue higher education. No more than 7 per cent of Indians aged 18-25 go to college, according to official statistics. Even a more fundamental level of education is proving difficult with nearly 40 per cent of people over the age of 15 being illiterate [4].

2.3 The Real Problems

However, problems associated with a dearth of skilled teachers, funding, language, outdated syllabi, etc are commonly faced by educational institutions. Furthermore, today there is a situation wherein the best and most selective universities generate too few graduates and new private colleges are producing graduates of uneven quality leading to an imbalance. As businesses propose to double and triple their workforces and Indian companies strive to maintain their position in the global marketplace, it has become imperative to prepare and plan for a world-class, competent, talented and innovative workforce. It is estimated that India would require a workforce of 5,00,000 capable IT professionals in the IT and IT-enabled services sectors by 2010, according to the Economist survey. However, over the past fifteen years, India has produced only 1.6 million professionals and faces the uphill task of producing another 0.8 million in the next two years.

3. STRATEGIC PLANNING GOALS

- 3.1. **Partnerships:** Strengthen and expand community partnerships with local, regional based businesses and industries to create advancing career opportunities for students in the progressive areas of

healthcare, manufacturing, and technology, as well as energy and natural resources.

- 3.2. **Construction:** Decrease class sizes and increase each student's technical education by creating Student Service Centers and renovating existing spaces for classrooms and labs.
- 3.3. **Encourage Admission:** Build and establish enrollment to support the workforce needs by collaborating with the Department of Education/ HRD ; increasing our direct and web-based marketing efforts,.

4.0 PROGRAM DEVELOPMENT GOALS

- 4.1. **Support workforce needs:** Develop programs with emerging industries by maintaining strong relationships with the Department of Labor, HRD, Department of Industries and the Central office of Economic development to prepare students for advancing careers, as well as developing and maintaining relationships with regional development corporations.
- 4.2. **Provide quality technical education:** Partner with the Department of Labor and the Department of Education to showcase simulator technology by utilizing state of the art equipment and developing funding sources for equipment replacement.
- 4.3. **Innovative use of technology:** Explore new web-based learning platforms, increase online programs, and reinforce on-campus instruction with various forms of media to challenge and engage Millennial Learners [5].

Applied research and development activities at regional state colleges and universities bolster their primary mission of undergraduate education as well as contribute to local and statewide economic growth. As states boost efforts to fund and stimulate research as part of an integrated economic development

strategy, they should seek to fully harness the research and innovation capacity of all four-year public colleges and universities.[Ref.6]

5. THE CHALLENGES, LEADERSHIPS AND RISKS

5.1 The Challenges

The challenges in building a quality institution is in creating the passion, the obsession and the trust with quality involving all in the organization. The established principles are challenged to create the culture of quality that penetrates to the smallest elements, processes and system of an institution. Under the same set of rules and regulations, with the same set of teaching and supporting staff and students having somewhat similar background, the institute will degenerate or retain status-quo or achieve a level of excellence by the hierarchical change. Ordinary non-quality institutions can always remain satisfied with non-performing leaders at the top; but not the quality institutions.

5.2 The Leader

The leader directs an organization towards a well defined goal based on a SWOT analysis. Key decisions are taken personally. He relies upon structure and system to control decisions. The value-driven leader is a pace setter, leading by example. Some of the important attributes of an effective leader are ;

- Management about walking about,
- Customer focus,
- Autonomy, Experimentation and Failure support
- Creating a sense of belongingness

There should be emphasis on the empowerment of teachers through involvement in decision making , delegation of more powers and autonomy as leadership traits in a quality based education.

5.3 The TQM Model

A TQM model as outlined below will promote a quality based technical institution (QBTI).

- Collective Responsibility
- Managerial Leadership
- Accountability
- Participation
- Performance & Process expectation
- Flexible Planning
- Bench Marking
- Concurrent Performance Appraisal
- Kaizen

5.4 Transformational Leadership (TL)

TL is necessary to change the culture of the system so that the leader and all the members commit to the same set of values. Attributes of TL are ; creating a great vision, modeling the values of the vision, trusting and enabling talents of the followers, creating an environment for learning, maintaining constancy of purpose. The most remarkable feature of a TL is nurturing leadership by trusting and nurturing leadership qualities in others.

5.5 Developing the Process

Institution building implies the process of developing certain capabilities which makes the organization continue with not only its ongoing operations but also innovate and continuously improve on its performance. To that extent, institution building is developing the process capability of the organization for self renewal and traversing the path of continuing change. The differences in the developmental experiences among the colleges and universities are primarily due to the differential emphasis on and different processes of institution building. Large majority of the

institutions do not experience any deliberate and planned effort in institution building. Few institutions that experience growth and development indeed experience institution building.

5.6 Risks and Roadblocks

whenever any change has to be achieved beyond the existing status, some risk element is always there. Leadership for building quality institution involves the ability to take risks and these risks are generally calculated risks. Innovations upset the dynamic equilibrium in institutions and therefore it encounters resistance. Quality building also involves identifying the roadblocks and bottlenecks and surmounting them entirely. This requires perceptiveness to understand other's problems and a pro-active mindset.

6. THE GROWING IMPORTANCE OF RESEARCH

6.1 Research in other places

A brief narrative description of the journal article, document, or resource. Research universities throughout the world are part of a larger effort by nation-states to bolster science and technological innovation and compete economically. The US remains highly competitive as a source of High Tech (HT) innovation because of a number of market positions, the result of long term investments in institutions such as research universities and in R&D funding, and more broadly influenced by a political culture that has tended to support entrepreneurs and risk taking. In essence, the US was the first mover in pursuing the nexus of science and economic policy. Thirteen variables are used to assess the overall comparative ability for creating Knowledge Based Economic Areas (KBEAs) including the vitality of regional and national research universities, patterns of R&D investment, access to venture capital, intellectual property laws, educational attainment levels of the workforce, access and retention of global labor

force, and political interest and forms of government support for promoting science and technology. [7].

6.2 Research in India

About half of the work on Intel's recently announced "teraflop research chip" was done in India, highlighting the country's growing importance to Intel's research and development efforts. Researchers in Oregon and Bangalore designed the programmable chip, which crams 80 cores onto a fingernail-size device that draws just 62 watts of power. The chip has spurred research projects in the areas of cooling, high-bandwidth interconnects and power management, [8]. Many of the IT MNC's, viz, Cisco, Intel, Microsoft, Infosys & Wipro have alliances with academic institutions on specific initiatives covering skills based ICT education, faculty upgradation, internships, curriculum workshops, research incubation, etc. aggregating the architects of the new global economy

6.3 The Minnesota Measures

Minnesota Measures provides policymakers and educators with a statewide look at higher education effectiveness in the context of broad state objectives and national and international performance comparisons. Findings are reported across five goals:

- Improve success of all students, particularly students from groups traditionally underrepresented in higher education (Participation, Retention, Graduation Rates and Achievement Gap);
- Create a responsive system that produces graduates at all levels who meet the demands of the economy (Enrollment Rates, Online learning, Degree Attainment, Program of Study and Occupational Demand);
- Increase student learning and improve skill levels of students so they can compete effectively in the global marketplace (Learning Outcomes Assessment, Student

Engagement, Graduate Preparation Certification/Licensure and Preparation for Employment.

- Contribute to the development of a state economy that is competitive in the global market through research, workforce training and other appropriate means (Research/Discovery and Workforce Development); and
- Provide access, affordability and choice to all students (Student Choice, Net Price, Affordability and Borrowing Patterns). [Ref. 9].

7. THE BENCH MARKERS VS THE GOVERNMENT

Till yesterday, the Indian Institute of Technology (IIT) was the only Indian brand known worldwide along with the IIM's. The IITs achieved such fame because they had huge finances and their faculty did hard work. They also enjoyed considerable autonomy in financial and academic matters. Regrettably, the government has taken the view that finance is the basic problem and once that is assured everything else will fall in place. This is simplistic and fails to take into account the need for high-quality faculty. The DST funds graduate programmes in engineering with grants that can exceed a crore of rupees, but on one condition - the college should obtain similar grants from industry. Over the past decade, of these, several thousand engineering colleges in the country, barely 15 institutions have qualified. The IITs have the kind of faculty that other colleges do not have. Competent faculty cannot be secured overnight; they have to be nurtured for years. Our politicians have ignored this in starting up new IITs [10].

8. THE GOVERNMENTAL ROLE

The Centre has decided to spend around Rs 31,000 crore to support the state universities across the country to improve the quality of higher education, [11]. Improvement in quality of higher education is required to arrest the

brain drain. About 1.6 lakh students go abroad every year for higher studies. It could be checked if the quality of education is improved within the country. At the time of independence, there were only 20 universities and 450 colleges with combined strength of one lakh students. The number of educational institutions in the country has increased manifold and there now 480 universities and 22,000 colleges with 1.25 crore students and 5 lakh teachers. But the quality of education is not up to mark at many places. The government is encouraging establishment of educational institutions in the public private partnership (PPP) mode, in setting up of world-class educational institutes in the country. Efforts are being made to invite private partners from within the country and overseas to participate in opening up of high quality educational institutions in the PPP mode. [12]

8. CONCLUSIONS

1. The time is ripe for us all now to reboot the India education system by various programmes, joint initiatives and other measure by individuals, the government, industry and academia. Such activities have the potential to play an important part in plugging the talent gap in the years to come.
2. Training individuals for the jobs of the future and allowing them to visualise what is possible today will not only make a difference in their lives but will enrich our communities now and for years to come ,simultaneously contributing to national economy and advancement.
3. Research in academic institutions ,strongly supported by industries will nurture young scientists which will add to the quality of the institution.
4. Applying TQM Models and Transformational Leadership principles can significantly contribute towards building quality based technical institutions.
5. To be the leader in educational excellence and innovation which enables our workforce to capitalize on the emerging technologies of the 21st century and assist India to impact economic development solutions in the global market place is the prime need . This should be the mission of all Builders of Quality Technical Education in the country.

Our mission is to provide students with the attitudes, knowledge, and technical skills necessary for entry into and advancement in their chosen career field.

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