Federation of Indian Chambers of Commerce & Industry

Industry – Academia Convergence
"Bridging the Skill Gap"

Knowledge Partners

NMIMS, Mumbai

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The Context

Over the last decade and a half, the falling of barriers to international trade and investment has led to a more integrated and interdependent framework of international business. Employers today, as a result, operate in an environment that demands new and constantly developing skills to retain global competitiveness.

Although India's higher education system contributes about 350,000 engineers and 2.5 million university graduates annually to our workforce, yet at any given time about 5 million graduates remain unemployed. A survey done by McKinsey Global Institute shows multinationals find only 25 percent of Indian engineers employable, and a NASSCOM report foresees shortage of 500,000 knowledge workers by 2010. The U R Rao Committee has projected that India needs well over 10,000 PhDs and twice as many M Tech degree holders for meeting its huge research and development needs, but India produce barely 400 engineering PhDs a year.

In response the government has been increasing investment in education and training as a proportion of national income. However, the effort has been inadequate to address the direct needs of the corporate sector. While many employers in both public and private sector invest significantly in the development of their own workforce, they also expect that publicly funded provisions and initiatives meet their requirements.

There is a need for effective intervention to understand employer needs, variable sector specific skills, training requirements that improve business performance, articulation of business expectations in education institutions and engagement of industry leaders with higher education institutions. Given its mandate, **FICCI** through the platform of **Industry – Academia Convergence,** endeavours to bring together higher education institutions and employers to evolve modalities for collaboration with the aim to meet India's medium and long – term skills and business needs for the 21st century.

The Changing Higher Education System in India

a. Massification of Higher Education

In more recent times, especially during the last two decades, there has been an increasing awareness about the role and responsibility of education, and with it, a growing concern in many countries about the manner in which educational systems were organized and administered. The beginning of this concern was, perhaps, the transformation of education from an elitist pursuit to a mass activity. With elementary and secondary education becoming universal in most developed countries, higher education also got transformed into a mass education initiative.

The Robbins Committee (Committee on University Education, UK: 1963) advocated the view that universities should respond to social demand and that they should provide for the education of all those who wished to pursue it and were eligible. Following this, university education in UK expanded rapidly; many more universities were established and a much larger proportion of students passing out from the schools got enrolled in universities. The percentage of students belonging to the age group 18 to 20+ enrolling in universities went up quickly to 17 by mid-eighties and to 32 by 1995.

According to the World Bank's World Development Indicators, 2001, the percentage of the relevant age group participating in tertiary education in the UK was 52 while it was 88 in Canada, 81 in the US, 80 in Australia, and 74 in Finland. The High Income countries, according to this Report, had a participation ratio of 62 per cent of the relevant age group in tertiary education in 1997. The Middle Income countries, in contrast, had a mere 12 percent participation though the Upper Middle Income group among them had 22 percent of the relevant age group in tertiary education. The corresponding figure for Low Income countries, which includes India, was a mere 8 percent (India's own share being 7 percent).

At present, India has more than 15,000 colleges and just fewer than 10 million students. More than two-thirds of these colleges are classified by the University Grants Commission (UGC – the apex government regulatory body for higher education) as "Arts, Science, Commerce and Oriental Learning Colleges" Recent growth is much greater in professional colleges (especially engineering, management and medicine), as well as in private vocational courses catering especially to the IT sector. The fact that India has 1253 medical colleges but just two in public

health indicates the priorities and interests that shape Indian higher education. India produces more lawyers than doctors and nearly 0.7 million students were enrolled in engineering/technology. There has been a rapid expansion in higher education, with student enrollment growing at about 5 percent annually over the past two decades. This growth is about two and a half times the population growth rate, and results from both a population bulge in lower age cohorts as well as increased demand for higher education.

The bulk of students (nearly two thirds) are enrolled in arts and science, with another 18 percent in commerce/management. This is of some importance because most "private investment" in higher education is concentrated in engineering, medicine and management and consequently does little for the majority of students. Notwithstanding the great hopes reposed by a spate of committee reports on alternative sources of funding for higher education (World Bank, 2000), the state will continue to have to occupy the commanding heights of at least this sector of the economy.

It is this transformation of higher education into a mass education system that inevitably raised questions about the ways in which it was being organized and managed. In the first place, in most countries, higher education still depends on public funding. It was natural, therefore, to ask whether the taxpayers' money was being wisely spent, whether the institution on which public money was spent were accountable to the society and the Government, and whether the resources allocated to these institutions were efficiently utilized. The search for answers to these questions naturally began to use the known management tools, and the concepts of performance, productivity, accountability, and so on, gradually, but surely, entered the field of educational administration.

b. Management of Education

India cannot claim to have made any significant change in its approach to the management of education even at the beginning of the new millennium. We are still stuck with the old concepts of educational administration. Our premier training institution is still the National Institute of Educational Planning and Administration. Indian Universities or Management Institutes are not known to be offering any major programmes in education management. The Centre for Advanced Study in Education of the MS University of Baroda was offering some courses in educational planning in its Master's degree programme in education; the Indian Institute of

Management at Bangalore, in its early days, offered some programmes in education management as part of its endeavour to develop a professionally trained managerial cadre for public utilities, but had to abandon the efforts in favour of the more lucrative business management programmes; and the Indian Institute of Technology at Mumbai is known to be offering an M. Phil. Programme in educational planning and development in the last few years.

In fact, in India, we have not even been talking about management of education. It was not until the formulation of the National Policy on Education in 1986 that management of education became an area of concern. This concern was expressed through an affirmation that an overhaul of the system of planning and the management of education will receive high priority. The policy went on to add that evolving long – term planning and a management perspective and its integration with the country's developmental and manpower needs, decentralization and the creation of a spirit of autonomy for educational institutions, and establishing the principle of accountability would be the guiding principles in remodeling the management of education.

In the past, we had been content with looking at the question of university management as an issue of governance. Indeed, a high – powered committee appointed in 1969 under the chairmanship of Justice P.B. Gajendragadkar, former Chief Justice of India, was called to form a Committee on Governance of Universities. The core issue addressed by this Committee, in its report submitted in 1971, was the preservation of the self-governing, autonomous character of the university, and not the issues related to the management of the universities as organizations concerned with accountability, efficiency, productivity, and so on. Naturally, the Committee addressed at great length such issues as who should sit, and in what combination between internal and external members, on various university bodies, and how they should be appointed to those bodies, whether such appointments should be through election or otherwise, and how Governments should keep a distance from the administration of universities.

As for the management of higher education, it was suggested that the existing patterns including the structure, roles and responsibilities of various university bodies should be reviewed in the light of the new demands on the university system, and with a view to promoting the evolution of new, efficient and more effective management systems. The Committee appointed by the UGC in pursuance of these directives in the National Policy, in its report submitted in 1990 dealt with a number of issues involved in the overhaul of university management. It also recommended

certain alternate models of management for universities depending upon their type. For instance,

- Unitary university that has no colleges affiliated to it will have a two-tier structure consisting of the Executive Council and the Academic Council,
- Large affiliating universities will have, in addition to the traditional bodies of Senate, Executive Council and Academic Council, a Collegiate Council to decide academic matters relating to the colleges.

On the more fundamental issue, namely, the pattern of management of universities, the Committee noted "it should be recognized that the academic administration is very different from that in vogue in the governmental or in the corporate system and it should be based on the principle of participation, decentralization, autonomy and accountability". Surely, the Committee stopped well short of advocating any major overhaul of university management; at best, the report suggested a few variations to the existing models of governing structures, with marginal or incremental changes in the composition and functions of existing bodies of universities.

c. Expanding Horizon of Higher Education

These developments had two major consequences: first, it became imperative to bring about greater professionalism in the administration of education, and second, education began to look for good practices outside its own confines to improve its efficiency image. It is no surprise therefore, that today we find several aspects of modern management practices being progressively followed in the field of education. Planning, strategic development, performance measurement, quality improvement, professional development, institutional and cultural change, resource mobilization, marketing, public relations, have all become essential tool kits of today's education manager.

India's top private sector companies rate high on management skills, notes Jonathan Spector, Vice Dean of Executive Education at Wharton, who has made India and China his highest priorities for international programs. Quoting Mr. Spector, "Senior executives at some of the leading companies in India are every bit as good as their counterparts anywhere in the world in terms of sophistication, knowledge of management, functional skills, strategic perspective and vision ... The biggest challenge is simply increasing the number of people who are globally sophisticated general managers. It's a numbers game."

A major concern echoed by both the Industry and the Academic community is that while India has stock of some 22 million graduates, including 6 million science graduates, 1.2 million with engineering degrees and 600,000 doctors, according to data compiled by The Economic Times Intelligence Group, the NASSCOM and other industry sources. This population is growing rapidly, with nearly 2.5 million graduates added in 2004 alone, including 25,000 doctors and nearly 600,000 science graduates and post-graduates. By way of comparison, China had more than 2 million students graduating from its universities in 2003. That included 600,000 in engineering, 200,000 in science and 100,000 in medicine. A piece done by The New York Times indicates that only one in four engineering graduate in India is employable, based on technical skills, English fluency, and teamwork and presentation skills. It is estimated that India will face a shortage of 500,000 knowledge workers by 2010, the BPO services sector alone will need about 350,000 workers by 2010.

The above analysis also highlights the fact that the expanding market opens up new opportunities for training and education of Indian researchers, scientists, managers and others. There continue to be exciting new subfields of engineering, including nanotechnology, biotechnology, information technology and logistics. The present generation of engineers is challenged to find solutions to population, energy, environment, food, water, terrorism, housing, health and transportation problems. These problems require multidisciplinary knowledge, system thinking and an understanding of social issue. An example of immediate market demand is for programs specific to the pharmaceutical industry, such as compliance with U.S. Food and Drug Administration regulations and "current good manufacturing practices". Demand is expanding across industry groups to include programs to bring Indian managers up to speed with their western counterparts on business culture, professional standards and work ethics. This includes programs to support innovation and good practices, improve businesses' use of the workforce and their ability to apply technology.

d. Indian Models of University – Industry Linkages

Research is indicative of the positive impact and the spill over effects of industry – academia linkages through pronounced flow of knowledge and information between the two partners. This is believed to lead to considerable diffusion of scientific and technical knowledge, which in turn impacts economic development. According to a study sponsored by Alfred P Sloan Foundation and the National Academy of Engineering, academic research in a single discipline often

contributes to more than one industry and conversely, a single industrial innovation is usually a result of complementary advances in many fields of research. A major challenge for the universities is keeping pace with the rapidly changing research and human resource needs of the industry.

The significance of University – Industry Linkages (UILs) in innovation and the knowledge-driven economy suggests a more robust alliance between universities and industry. There are already some UILs in India. Up to this point most UILs have been mostly confined to pharmaceutical and chemical industries (see Mani, 2004). The Technology Business Incubator (TBI) programmed and implemented by the Foundation for Innovation and Technology Transfer (FITT) – the industry interface unit of Indian Institute of Technology, New Delhi (IITD) has been in active operation, in the Institute since the year 2000. Since then about 15 companies have been incubated within the campus. **In view to facilitate greater University – Industry Linkage, FITT and FICCI have signed a Memorandum of Understanding (MOU) in November 2006.**

The Indian Institute of Science has 22 projects with eight universities, seven colleges and seven national research institutions in aerospace, IT, defense and space research (Vijayakumar 2005). Similarly, the Society for Innovation and Development located at IISc has university- industry programs in numerous R&D areas (www.sid.iisc.ernet.in 2005). Other explicit UILs have been created between IISc and foreign and domestic companies such as Nortel, Motorola BPL and Satyam Technology in Chennai successfully implemented UILs, with faculty members forming a new IC design company and teaming up with Analog Devices of the US to manufacture chips (Basant 2003). Former IIT faculty and its engineering doctorates are also working in a handful of firms such as Sasken and Softjin, which develop complex embedded system for the Japanese telecom market (Field Research, Bangalore, February 2005). However the number of projects is low, often adhoc, and confined to a handful of research universities and technical institutes and their collaborations tend to be mostly with foreign firms (Anthony D' Costa, World Bank Report, 2006).

e. Focus Areas for Higher Education Institutions

Various studies, research and discussions between leading industry and academic institutions,

have arrived at the following areas the institutions need to focus on:

- Ensure curriculum adaptations moves as fast as the pace of Industry change;
- Build up relationship with industry and career advisors;
- Tailor make education for the unemployed in shortage areas, for Small and Medium size Enterprises (SMEs);
- Collaborate to develop "Learning Models";
- Develop joint Academic – Industry Degree Models;
- Development of research based teaching material;
- Alumni networking and developing broad based relationships, not one of associations;
- Mutually enabling processes for capacity building of the faculty, students and the companies; and
- Explore possibilities of endowed Chairs in specific areas of management.

The Business Perspective

India's talent shortages are hitting the bottom line of business and are reflected in the increase in attrition rates of skilled manpower and wage inflation in various business verticals. This situation is compounded by the increase in demand for skilled and semi – skilled manpower in various sectors. As per a McKinsey report 73 million workers are needed by 2015 i.e. 50% more than today in the automobile and electronic sector. According to the Center for Asia Pacific Aviation, New Delhi about 3,200 additional jobs for pilots will be created by 2010 and Ma Foi Management Consultants Ltd estimate about 2.5 million jobs by 2010 in the retail sector.

Recognizing the sectoral needs is essential and critical, to develop models of partnerships and to provide value to the changing employment patterns. Jobs in some sectors may contract with technological change and new patterns of consumer demand; but in other sectors, those same factors may provide new jobs. Addressing the needs of specific sectors therefore, is one way of helping employers address patterns of industrial change. To be able to identify effect of economic trends on changes in employment patterns requires a strong sector perspective. Although firms may compete and be structured differently, those operating in the same business sector often share common problems. They use similar technologies and face similar challenges. While there are skills common to every sector, firms tend to learn from within their own sector what constitutes good business practice. These similarities are important for the following reasons:

- Distinctive business trends lead to changes in the skills requirement which may be common within sectors;
- Providers of education and training can effectively meet the sector specific knowledge and skill needs;
- Businesses can become more productive when they have appropriately skilled employees.

In strategic organizations, sector specific skills:

- Drive the workforce skill development in their sectors that improves productivity, business growth, public service improvement and employability;
- Build sector specific unrivalled intelligence and analysis of the skill needs that leads to supply of skills addressing the changing and future requirements;
- Directly influence the planning and funding of education and training;
- Forge strong links between employers and higher education institutions; and
- Share winning business cases to benchmark skill investment and the effective use of manpower.

The following section provides an analysis of the needs of some of the high growth sectors like biotechnology, pharmaceutical and IT sectors of the country.

Perspective Analysis of Emerging Sectors

1. Biotechnology

The biotechnology sector in India is witnessing accelerated growth and is rapidly attaining critical mass in terms of skills and capabilities to become a truly global player. The industry is growing at a rate of 37.5 percent annually, increasing from US $ 1.45 billion in revenue for the year ending March 2006 to an estimated US $ 5 billion in 2010. According to analysts, biotech as an industry in India is set to surpass IT and ITES in terms of overall growth, career opportunities, patent registrations as well as foreign exchange. The Indian biotech industry today comprises over 280 companies with six of them generating revenues of over US$ 22.7 million. With the industry zooming past the US$ 1 billion mark, registering revenues of US$ 1.07 billion, the sector has achieved a significant milestone.

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With growth of biotechnology sector in India, not only has the number of opportunities gone up drastically but also the pay packets that a bio-science student commands. With a large number of biological sets to go off patent, the biogenetics' sector seems poised to take the big leap. Unlike in conventional pharmacy, Indian companies are on par with global ones to make good of this opportunity. With an expansion in the biogenetics' sector there will be an expanding need for researchers and scientists with PhD, functional genomic scientists, protein scientists, research associates, quality control analysts, and clinical research associates.

The real boom is expected to happen in the Bio – Informatics sector: a convergence of biology and programming. We can leverage on IT and ITES expertise to grow in this sector. Many large IT companies have already established bio – informatics units and Bangalore has already acquired bio – informatics start – ups. Research professionals who are adept at biotech IT will see at least 6,000 jobs opening up for them in the next three years.

The National Biotechnology Board had launched an integrated short-term training programme way back in 1984, to cope up with the growing demand for highly trained manpower. Under this, universities were selected for initiating M.Sc., M.Tech. and Post Doctoral Training Programmes. According to the Department of Biotechnology (DBT), Ministry of Science and Technology, GoI, India has about 1,700 PhDs qualified in biosciences and engineering. India has a good network of research labs and well-developed base industries — agricultural biotech and pharmacy. In spite of having inherent strengths, such as a large pool of qualified scientific talent, several research labs and R&D institutions, and strong IT skills there are still hurdles facing biotech innovation in India. Indian academia and research labs lack a strong patenting culture, and the academia-industry linkages are weak.

A major issue, Mr. Stephen Sammut, Venture Partner, Burrill & Company says, "is the development of full management teams and CEO functionalities in India". According to him "in the US, there are scientific founders and researchers who become experienced managers. In India, the scenario is quite different".

India has about 150,000 M.Sc graduates and 350,000 B.Scs, but fewer post-doctorates compared to the US and majority of them have no exposure to industrial research. The course content of Biotechnology seems to swing between being either too academic or too general without any specific, well – planned practical training or lab exposure. The faculty, too seem

unaware of the revolutionary changes taking place in industrial biotechnology in the areas of production, R&D, Good Manufacturing Practices (GMP) guidelines among others. This puts biotechnology students at a disadvantage when they set out to carve their career path in the industrial sector.

Dr. Krishna M. Ella, Chairman and MD, Bharat Biotech International Limited (BBIL), contends that the rate at which the Biotechnology Industry in India is progressing is heart-warming. But the same cannot be said in the area of human resource in biotechnology. There are several issues that need to be tackled to ensure the progress that has been made in this sector.

2. Drugs & Pharmaceutical

Globally, the drug sector had grown at a rate of 7% while India's drug sector grew by 10%. The Indian pharmaceutical industry focused almost exclusively on generics, operating under a regime that recognized process patents by acquiring excellent capabilities in process reengineering. In early 2005, the Indian pharmaceutical industry recognized product patents making the Indian pharmaceutical industry to shift its focus from generics to innovative drug discovery.

The drugs and pharmaceutical industry is a knowledge – based industry. The country's world class skills in chemistry and IT attracts the pharmaceutical MNC's towards India, especially for R&D. India offers cost competitive advantage, largely skilled workforce, skills in process chemistry, success in IT, globally harmonized regulations and FDA approved manufacturing facilities. India has a huge pool of talented doctors with 20,000 new doctors graduating every year along with 3,500 units of bulk drug and 15,000 units of basic chemicals manufacturers'.

The growth of the industry is directly dependant on the provisions and enforcement of the Drug Laws on one hand and on the availability of qualified, experienced and expert personnel on the other. The demand comes from the growth of the industry and the policy of the company, while the supply comes from the educational institutions and the market. With the opening up of areas such as clinical research, contract research, and developing new drug delivery systems, nearly three million jobs are expected to be available by 2010. The fields of clinical research and drug discovery (comprising of bio – equivalence studies, clinical operations management, multi – centric clinical trials, data management, phases of global clinical trials to name a few) give an

immense opportunity for students willing to pursue career in clinical research like B Pharmacy, M Pharmacy, medical doctors etc.

Pharmacy Education in India needs to take cognizance of the deficiencies and modify their curriculum, to adapt to the needs of modern pharmaceuticals. There has been a collaborative, effort by the government, academia and the industry to revamp the course content and align them with industry requirements, providing incentives for the pursuit of science and creating career opportunities.

The supply from the educational institutions is enough to meet the demands of the pharmaceutical industry, but there is a lack of experienced people in the industry, which in turn has created an imbalance. The imbalance is critical to the growth of the industry and needs to focus on retention and reverse migration.

Drug discovery and development is a knowledge – based endeavor and availability of quality researchers is crucial for its success. With more and more Indian companies foraying into pharmaceutical R&D and MNCs shifting part of their research activities to India to avail scientific capabilities and the cost advantage that India offers, availability of trained manpower is of prime importance. Indian pharmaceutical industry needs qualified pool of doctors, technicians and scientists.

India needs to focus on specialists and super – specialists like Neurosurgeons, Cardiologists, etc. as opposed to General Practitioners. While companies can conduct analogue research within their laboratories, most of the breakthrough research happens in research institutes. India will need to cultivate and nurture national research institutes to create the right platform for cutting edge research.

In order to bridge the industry – academia gap of trained and professional pharmacists and also to cater to the ever changing pharmaceutical industry, the Indian education should focus on providing expertise in the areas of bulk drug technology, regulatory practices, latest techniques in testing and quality control, IPRs, WTO Regulations among others.

3. IT/ITES

Engineering graduates of all disciplines have been the traditional pool for entry – level software engineering positions in the Indian IT industry. In order to meet the huge manpower requirements, many IT companies do not limit their choice to IT related discipline for the recruitment of entry – level software engineers. Often, the freshmen recruitment process does not give special importance to be ready for a direct fit with requirements of the IT industry (Task Force on Meeting the Human Resource Challenge for IT and IT enabled Services, 2003). The core competencies developed in all engineering disciplines are considered to be sufficient and the companies rely more on their own finishing schools for specialized computer science and IT knowledge. Nearly one third of fresh Indian engineering graduates are currently joining the IT industry irrespective of their specialization.

In addition to the nearly 1.3 million – strong workforce employed directly in the industry, Indian IT – ITES is estimated to have helped create an additional 3 million job opportunities through indirect and induced employment. Indirect employment includes expenditure on vendors including telecom, power, construction, facility management, IT, transportation, catering and other services.

There are certain qualities that India possesses which has made it a favorite of the IT/ITES outsourcing revolution. These could be summed up as:

- A large base of English-speaking graduates;
- Technically-qualified IT professionals;
- Competitive billing; and
- High productivity.

The headcount is steadily expected to grow at the rate of 30 percent per year for at least a couple of years. Besides, IT/BPO makes up around 13.5 percent of the export revenues of the country. In spite of a huge increase in the engineering seats, especially in Information Technology related disciplines, estimates suggest that current manpower resources will not be sufficient to meet the aggressive growth targets. By 2009, based on the current human resource supply trends (NASSCOM – KPMG 2003), it is estimated that there will be a

shortfall of over 0.5 million personnel for the IT and ITES Sector. IT companies have responded to the projected manpower shortage and expedited freshman recruitment process lowering down their recruitment standards to meet the numbers. However, organizations and their clients have limited tolerance for inept performance. Hence, attempts to overcome manpower shortage without addressing the core issue of skill shortage are not likely to yield the expected result (Sanjay Goel, JIIT)

Management Education in India – A Case Study

India and many of the other developing countries face a deficit of available human intellectual capital necessary to manage and sustain their rapidly transforming economic enterprises and capital markets. There is also a huge inflow of Foreign Direct Investment (FDI), and the shift caused by outsourcing businesses in today's globalizing world. India's diverse culture, English-speaking talent, and emerging economic power have all stimulated its business schools (B – schools) to diversify their programs to make students cognizant of the latest technologies and to create cross – cultural adaptability through off-campus activities.

Rapid development of B – schools is essential to bridge the intellectual gap between developed and developing countries. B – schools have the potential, through innovative educational programs, to train global managers and leaders to collaborate and to view the world through a global lens. Through these programs, Indian B – schools can create more awareness about India as well as develop economic strategies aimed at achieving a high economic growth rate.

In India, the number of business schools has gone up rapidly in the last decade. Today, there are more than 950 B – schools in India of various kinds, including the Indian Institutes of Management (IIMs), universities with business departments, and autonomous private business institutes with student strength of 72,000. As the demand for management graduates increased and the existing schools did not expand its intake. To fill up the gap in demand for management education, hundreds of management schools sprang up through the 1990s, some virtually with no infrastructure and without faculty members. Apart from the top 50, the rest of the management schools are relatively unknown.

The IIMs are still regarded as the temples of learning while some other schools, which have come up during the last 30 years have firmly established themselves as institutes of repute. The

reputation of these B – schools throughout Asia marks their considerable potential as emerging world – class institutions.

a. Knowledge Creators, not just Knowledge Disseminators

Industry – Institute interface is a critical dimension for any management institute as this interface decides the extent to which the institute becomes an acceptable brand. Industry – Institute interaction has to be sustained and is beneficial for both. Industry can benefit from the knowledge base available with the management institutes and the management institutes can benefit from the field experience and the industry exposure through projects, guest lectures and update seminars.

It is necessary to have a realistic understanding about the expectations of the industry from management institutes to impart industry relevant management education in order to groom fresh graduates as managers.

The industry interface can also be through faculty exchange programmes – industry experts taking time off from the industry to serve a term in the management institute and / or the faculty member joining the industry to prepare case studies and conduct training programmes. Industry can also participate by sponsoring courses in the institute and participating in the research activities of the management institute.

The gaps pertaining to the curriculum, pedagogy, faculty profile, student quality, placement related expectations, perceptions on overall performance and similar others are the subject matter of concern in this study. This study is an attempt to map the gaps that exist between the industry and management institutes.

b. Gaps in the Indian Higher Education System

Very often company executives express the mismatch that exists between their expectation from the management students and what is been provided to the management students as educational inputs. Some of the gaps are identified below:

- Lack of Industry orientation – the essence of the system still follows examination based evaluation processes and not project based assessments;
- Rigidity – Since all educational institutions are under the ambit of UGC regulations the process of re-evaluation of course content becomes non-flexible;
- Lack of industry experience of the teachers themselves;
- Lack of attention towards pure sciences – Even countries like China and Vietnam have been concentrating on the same, rightly understanding the importance of the ITES in a post-industrial economy.

Besides these obvious technical preconditions necessary in a professional, there are various grooming and personality based qualities, which our education system does not address adequately. These include language skills like diction and fluency; analytical abilities and basic logic; as well as cross – cultural sensitivity and customer service orientation and behavioral attributes.

c. Skills Imparted through the regular MBA programs

Recognizing the importance of research, several Indian committees have recommended promoting a strong research culture in management institutions. Yet, there has been a prevalent Indian mind – block against research in past years, and many management teachers thought that teaching could be done without research. This resistance persists today for various reasons, including lack of motivation, of interactive environment, and of a cohesive mission to guide their research, and is related to a dearth of collaborative research carried out with Western scholars.

To emphasize skill – building and field-based learning, Indian B – schools have followed the example of the case – study method central to Western business education. Using the Harvard Business School (HBS) case – study method brings past business realities into classroom discussions. **However, Indian industries do not provide support for research and case writing, as do industries in Western countries**. Thus, as the B – schools make increasing use of the hallowed Western case – study method, they also import Western case studies at the expense of focusing on Indian cases. This scarcity of Indian cases in the classroom occurs despite the Indian Institute of Management Ahemdabad (IIMA) website's claim of a rich stock of 3,000 Indian cases and 800 books and monographs written by its faculty members.

Indian School of Business (ISB), Hyderabad was contacted to comment on this and it admits, "Local Indian cases are sprinkled, but not poured." Often there are concerns that students are fed a diet of primarily US cases in many of their courses.

While Indian B – schools have incorporated many key elements of successful Western B – schools, even the best Indian B – schools continue to lag behind in some areas. For example, despite the increased incidence of corporate fraud worldwide and particularly in India, not all Indian B – schools teach Business Ethics as a separate course in their MBA programs. In North American B – schools, this course is strongly emphasized. However, the ISB states that it is going to incorporate this course in its revised curriculum in the near future.

The curriculum of regular MBA programmes today stresses on communication skills, both written and verbal, which establishes desirable and qualified student profiles that promote ready acceptance of students by colleagues in a range of workplaces.

The students gain investigative prowess, the ability to look at issues from a multi – disciplinary approach, and the skills to use numerical analysis in business situations using specific analytical tools. Harish Bijoor, Chief Operating Officer of Zip Telecom Ltd., contends, "the IIM output is certainly superior on one count, and that is the ability to think, ideate and conceptualize with a very macro set of parameters." Such a program aims at turning bright, enthusiastic, and ambitious executives into management leaders and agents of change in the global arena.

With the Indian economy booming like never before, B – schools should encourage graduates to use newly developed technology to create innovative domestic and international services, further fostering strong entrepreneurial and dynamic leadership in India's effort to meet emerging challenges. B – schools need to promote a sense of risk – taking among their graduates, who will then have the courage to create new industries. Simply preparing and supplying ready graduates is no longer sufficient. Although Indian B – schools do not yet figure in the top 100 international B – schools in the ranking surveys of Business Week, Financial Times, and Forbes, they are well on their way to building a hub of management knowledge.

d. Industry Views

i) Improvement Areas in Management Education

A recent study carried out by NMIMS on expectations of industry from Indian management schools revealed some useful insights on industry requirements and expectations from the management institutions. Some micro level observations made by the study are given below:

- It was felt that **Dual specialization** should be allowed for marketing and finance, as these were considered highly interdependent, knowledge of both being critical. Students often ignored financial implications of Business/ Marketing decisions. On the whole, respondents felt that the course should be specialization – oriented. However, Spectranet, Delhi opined that too much specialization may increase knowledge levels of students in a particular area, but limits their scope. Radisson MBD felt that it might hinder team building as well. According to SDI Tech, Delhi, "Specialization is not required as it only helps initially. But as one moves up the ladder general management is required. Many people take a particular specialization but end up working in other areas. Specialisation can be brought in through re – education programs"

- **Focus on basics/foundation of a subject** is considered critical. It was also mentioned that students needed to develop qualities like passion, commitment, and integrity. The curriculum needed to incorporate modules that imparted these values.

- **Adequate focus must be put on personal development of students** through membership of associations and attending national seminars. Classroom learning was perceived to have poor retention. This was primarily because faculty did not adapt to the desired learning style of students. Learning style varied based on students' academic background/ knowledge base/ work experience. The importance of networking should be stressed upon.

- **Greater industry interaction was seen as the key to bridge the gap between books and reality**. Students need to think like managers. This could happen if there is awareness of industry/ environment and if they were application – oriented. Students should be encouraged to develop and propose new models. The curriculum could be made far more challenging in this sense. IL&FS, Mumbai questions, "Are they exposed adequately to changing business models?"

ii) Curriculum

- **The curriculum should be finalised in consultation with industry experts and reviewed frequently**. Effective role – plays and relevant case studies are needed. The faculty could bridge the gap between theory and application by bringing in live cases to the institute (for this, faculty needed to be constantly in touch with the industry). Mr. Ajay Piramal, the Chairman of Nicholas Piramal (NPIL) was a regular visitor to B Schools to share his experiences. NPIL believes in knowledge enhancement and encourages training programmes conducted by faculty from reputed foreign universities. This practice, they believe, facilitates sharing of success stories worldwide.

- **Finance**

There is a felt need in the industry that **Corporate Governance** (Sarbanes Oxley Act of 2002) needs to be given more attention. There also needs to be an inclusion of application of real-life stories for Economic Value Added and Six Sigma systems and their implications on operational effectiveness. It has also been highlighted that adequate exposure to retail financing is not given at many institutes. According to Reliance Infocomm, "MBAs who aspire for jobs with Banks/ I Banks/ Mutual funds perform well because money is a product here and they are good at product development and sales. But when money is used as a resource for application, they are weak on NPVs (Net Present Values), debtor turnover models, taxation, legal aspects."

In the area of **Accounts/MIS/Costing** a definite gap has been identified. Updated knowledge on Indian GAAP (Generally Accepted Accounting Principles) and international accounting practices have also been seen to be lacking. CAs are therefore preferred for jobs in these roles.

In the area of **Treasury**, debt raising (both locally & internationally) abilities, managing cost of funds and leveraging together with strong Forex/ Derivatives, MBAs from premier institutes were seen to be okay. In areas like Mergers and

Acquisitions (M&A) where in – depth knowledge of target companies/ brands with strong fundamentals on valuations were required, MBAs were considered good.

Knowledge of **Taxation**, direct and indirect, updated with judicial pronouncements, notifications, circulars etc was considered inadequate. In the 'Commercial' function, where an extra eye for working capital management was required, MBAs needed to dig deeper to gain expertise. The Chartered Accountant with full time MBA combination was much sought after by the industry.

- **Human Resources management**

According to IL&FS, business school curricula should include modules of **Business Laws**, **International Laws** etc., as most organizations do not have the time to spend on training trainees in this field. "HR management trainees come to us without updated subject knowledge of taxation, insurance – it is surprising! ... Management trainees need to understand what counseling and mentoring really is."

It was mentioned that Industrial Relations, trade unions, labour laws should be replaced by more current and new economy concepts. Global models of **Competency Mapping, Compensation Management** also needed inclusion. Management students are often unable to work in Training & Development, where assessment of skill gaps has to be done i.e. systematic training needs audit. Leadership and Working in Teams is still a weak area despite this being an integral part of the syllabus in most institutes.

- **Other Modules**

Eveready Industries, Calcutta pointed out that **Logistics and Supply Chain Management** and an **overview of international business** needs to be included in the curriculum. International agreements signed and their implications should be covered. A deeper exposure to variations in international cultures for MBA students is required.

Services Marketing with focus on Customer Retention and e – Marketing/ commerce/ retailing are also not being taught at depth. Digital, Bangalore had the view that in 'Marketing', institutes needed to go beyond 'Kotler'. Wipro's submission was that Corporate Brand Marketing should be done thoroughly through real – life cases.

Goodricke, Calcutta suggested that **Sales Management** should be totally hands – on teaching. In their opinion, this would help students to actually observe consumer behaviour, customer psychology. The latter otherwise remains a theoretical concept in their minds. Rural marketing, Small Scale Industries sector, NGO Management are not given adequate coverage. According to IFFCO, corporate social responsibility (CSR) and personal ethics also need to be instilled through inspirational cases/stories.

iii) Student Placements

Dabur India feels that it is important to check candidates for their **ability to be team players.** The ability to interact and understand other cultures has also been mentioned as an important attribute. According to Wipro Spectramind, Delhi, "Behavioral tests to identify profiles will help. Also specializations can be identified based on these." CRISIL, Mumbai indicates, "Students who appear for the interview should possess sound knowledge of fundamentals they have learnt in school/college. Often basic knowledge in their subject of graduation/post graduation is missing." Along the same lines, Philips, Mumbai argues, "Competencies are difficult to assess through a Group Discussion /Personal Interview. They are inferred through students who have worked with you or through psychometric tests."

The **ability to lead and direct** are not identified as critical as these can always be imparted at management schools. Students are expected to go beyond street smartness. Life Tree, Delhi believed that over – achievers were not consistent performers. Hyatt, Calcutta on the other hand expresses, "Prospective students should have some work experience even if it is for three months. Students can then apply knowledge gained in management schools. Written examinations are not that important as an intelligent candidate may not necessarily make a good manager."

According to Proctor & Gamble (P&G), Mumbai, "**Sustained leadership roles/activities** are important criteria for selection. At summer/final placement, P&G conducts written and psychometric tests for filtering candidates."

Everready Industries, Calcutta states, "**Group tasks** should also be included as a filter in the selection process. Students should be given a specific task, which needs to be completed in a limited period of time with a team. Since students who come together as a team are not acquainted earlier with each other, it can be a good check on their team orientation."

Bata India, Calcutta contends, "Before the final selection, short listed candidates should have a **one week exposure in a company** so that they know what they are heading for. Prior work experience is not always a good idea as industry may prefer fresh students as they are easy to train/ mould to the specific requirements of an organisation. Fresh candidates do not carry any baggage of previous methods of working which requires unlearning."

Management trainees rarely look at the bigger picture, "How many really walk the extra mile for the organization?" Innovation is limited. According to Philips, "Path breaking analysis is an exception rather than the rule". Deutsche Bank argues that the students lack inter-personal skills and ability to carry a team and tend to form small sub-groups among themselves, which is not desirable for the organization. Amidst a social setting with a client, often management graduates cannot relate or network as they lack wisdom. Few can discuss broader issues beyond work.

iv) Faculty

Most respondents felt that **faculty required post – graduate qualifications in the relevant field and industry experience ranging from 5 to 10 years**. Doctoral programs were seen as an advantage but not essential for faculty. Companies said that core faculty should do at least **50% of content delivery**. It was felt that each subject should be taught by 2 – 3 faculties (one core, one from the industry, one from the visiting panel with core competence in the subject).

In contrast, P&G felt that degrees/doctorates were not important. The faculty should be evaluated for selection through industry exposure (consulting, research, work experience) rather than degrees. "Can they transmit knowledge that is application, real-life oriented? Are there any new learnings that they can impart?" The criterion for selection according to Philips is "Does the faculty really love students or is it just a job for them? Doctorate should not be the criteria or atleast not a clinching factor."

Ms. Anuja Mittal, Senior Executive, Human Resources, Barista, says, "Faculty should be facilitators and guide students on approach and methodology, links and references. However, they should never impose their opinion. They must encourage freewheeling out-of-the-box thinking."

Dabur India, Calcutta feels that the **core faculty should be used for teaching theory and clearing business concepts, the others i.e. external faculty should build on these concepts.** Respondents strongly felt that the core faculty was the one who was ultimately responsible and accountable for the overall performance of students. Visiting faculty and industry experts were less committed. The core faculty influenced students considerably. Touchtel feels that the knowledge level of the faculty affects students the most.

A feature that emerged predominantly was the view that competence of faculty was greatly enhanced when they had industry experience ranging from 5 to 10 years, which gave them an edge over academicians. The respondents opined that **faculty should contribute to consulting and research projects** as it would bring in a fresh perspective from the industry as well as serve as practical learning experience for faculty. This would further enhance knowledge imparted by faculty to students.

Dr. Reddy's Laboratories spoke well of the quality of faculty in reputed institutes like IIMs, SPJIMR, MDI Gurgaon, FMS, NMIMS and XLRI. However, there is no doubt that the full-time core faculty has to be trained or facilitated to become current and updated. Faculty should not be allowed to use the same slides/ material year after year. Faculty should take breaks in between teaching by indulging in consulting or industry placement for few months.

Industry relevant projects must be developed wherein the institute faculty comes in to mentor various summer/ management trainees. Faculty must be present at open meets/seminars, panel discussions. Live case studies should be brought from industry to colleges. Case studies should be filtered, marked for learning outcomes and teaching notes. There should be some standardization on level/ quality/relevance of cases used. **A 'research attitude' is missing amongst faculty and students. They should be "soaked in the research culture."**

A **composite project can be created at the industry level** wherein the faculty comes in to guide/ mentor the various summer/ management trainees through a project. A tie-up with the institute should be done wherein the industry can sponsor books, etc while faculty grooms and sculpts trainees at the work place. Faculty must be present at open meets/seminars, panel discussions. Live case studies should be brought from industry to colleges.

Industry is willing to give projects to faculty if the required domain knowledge/skills of staff are specified. Organizations like CRISIL are open to giving assignments. Core faculty should be available in all areas of specialization with a good student-faculty ratio. Only core faculty can deliver basic concepts clearly and then industry exposure for practical application will be effective. Industry should create a chair to hire the best faculty. Pay scales of faculty should be more market – led and not UGC determined to attract best faculty.

ISSUES	FORWARD PATH
Faculty have a theoretical/ academic orientation	• Introduce compulsory consultancy • Break their teaching periodically for stints with industry/ consulting • Build a 'research attitude' in the institute
Selection of faculty should not be based on degrees/ doctorates	• Select on basis of their ability to transmit new learnings, quality of industry exposure, passion for teaching and students
Core faculty has the deepest influence on students	• Ratio of core to visiting/ industry faculty should be at least 50:50. • Enforce the use of live case studies as done at Harvard Business School • Case studies used should be filtered, marked for learning outcomes and teaching notes. There should be some standardization on level/ quality/relevance of cases to be used at start of each semester

v) Research & Development

Touch Tel believes that **Consultancy & Research would contribute towards personal growth of faculty and consequently of students**. However, faculty should not involve themselves in such projects at the cost of students and lectures. Also, for those in the industry who did not have a management background, faculty would be of great help as consultants. Panasonic India felt that faculty should involve students in such activities.

According to Wipro Spectramind, Delhi, "It is a cycle with many spokes going in all directions, all concerned will benefit from consultancy & research. For faculty it will be personal growth, for students it will amount to great learning experience, for the industry it will result in fresh ideas from faculty and students." Chambal Fertilizers and Chemicals contends, "Consultancy serves as an exposure to both student and faculty and if students got involved, it provides them with hands-on exposure. This will help in nurturing managers for tomorrow."

Ernst & Young urged, "**Faculty should conduct Management Development Programme (MDPs) where they can constantly interface with the industry**. Actual updation of faculty knowledge can only happen through industry and consulting experience."

vi) Industry – Academia – Government Link

There is realization of the **need for students to work for the Public Sector Undertakings** particularly in the context of Industry – Academia – Government linkages. Incentives should be given so that students take up jobs with PSUs, major part of cost incurred by the student should be reimbursed by the Government. A respondent states, "Singapore has a good economy because the best work is done in the Government sector whereas in India the rejected students work in the Government sector." Producing quality managers for the co-operative and agriculture sector should be emphasized.

There must be exchange programs with international institutes. There was a strong need for re-education/ specialized programs even for alumni. A semester could be done either overseas or in another institute to broaden students' vision.

A few powerful 'E'/ VSAT programs should be introduced which would be a better option than doing MBAs from below average MBA institutions. Industry needs to recognize such courses and ensure that candidates undertaking such courses would put in as much hard work as a regular course student.

There should be linkages created between institutes, industry and the government, whereby; industry can sponsor, institute can provide the forum for study and the government will get the feedback.

vii) Governance of Indian Management Schools

I2 technologies contend that management schools should be self-funding. The general trend of discussion indicated that management schools must depend less and less on government grants. It was felt that Companies must contribute to the development of management education.

viii) Conclusion

Institutions of higher learning must make contributions to society. A regulatory body, exclusively for management schools, must be created to regulate, monitor and ensure Q&A (Quality & Assurance) in delivery of education. B – schools should be pro – active in addressing the needs, strengthen linkages with the industry and change with the changing demands of the Indian industry. Grooming of students should focus on creating a pool of effective managers and future leaders.

Strategies for Change – Way Forward

To acquire the important human resource for successful commercialization and industrial competitiveness, various strategies have been adopted by different firms, States, or as a combined effort of both with academic institutions. These strategies range from identification of

skills, shortfalls which may occur, efforts to impart required skills, and adapt existing skills by orienting to new demands. Given the huge gap between the rapidly evolving skill need of Indian businesses and those provided by our higher education system, there is a growing realization amongst the government, academic institutions and the industry, of the urgent need to bridge these skill gaps. However only a holistic approach to reforms in the higher education sector as indicated below can address the issue:

a. Improve governance of academic institutes and industry linkages

- Establish a process for mandatory registration of institutions with sector specific professional body that includes representatives from the industry, academia and the government to ensure quality in higher education and training in the country. This body should be empowered to grant recognition to the institutions meeting the standards set with reference to qualified and trained teaching staff, infrastructure, adequately equipped laboratories, etc., that are essential for a focused education. The accreditation process should be mandatory and consequential. Self-regulation and transparency in the Indian higher education system is critical to ensure quality delivery of education and training. **FICCI – HEN (FICCI – Higher Education Network)** was initiated on March 23, 2006 to promote good practices amongst the member Higher Education Institutions adapting the self-regulation model of Finance Industry Development Council.
- Offer institutes greater autonomy in day-to-day management.

b. Build Centers of Excellence

- Impart quality training to the scientific and professional pool;
- Invest in the shared facilities like "National Resource Center". Build private and government funded time – share facilities with leading edge infrastructure & repositories of Knowledge;
- Promote Research Translation Centers in India. These centers will be useful in translation of academic research into industrial products;
- Upgrade the existing Research Centers to become Centers of Excellence/Innovation Hubs. Each institute may focus on specific areas for research;

- Ally with leading foreign institutes. International linkages should be increased to strengthen the Indian capabilities to transfer the new research & development work at national laboratories to the market.

c. Effective Industry Involvement

- Ensure participation of industry for discussion on major policy issues directly related to its concept to commercialization. Active industry executives may be nominated on the governing board of leading academic institutions.
- Hold business plan competitions jointly sponsored by industry and academia
- Renewal of research grants should be made to the academic institutions contingent on industry linkages.
- Help academic researchers commercialize their research findings by encouraging academic institutions to interact with an industrial partner to promote their products. Academic interaction with industry should be increased through Partnership ventures.

d. Attract Top Talents to the Faculty Pool

- Provide additional incentives to promote industrial cooperation to increase output of faculty/scientists from tier I research institutes.
- Attract high-performing Indian scientists/technocrats back to India
- Offer experts settled abroad greater autonomy in work in India by launching a "Magnet" Programme
- Allow faculty to earn royalty on patents
- Place no limit on earnings from industry – funded projects
- Allow scientists to hold part-time positions in the private sector in order to have the right blend of theory and practice.

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