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ENTREPRENEURIAL UNIVERSITY: India's Response[i]

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Dr. Asha Gupta

Director, Directorate of Hindi Medium Implementation, University of Delhi

ABSTRACT

The object of this paper is to analyze the concepts of 'entrepreneurship' and 'entrepreneurial university' in the broader context of globalization, technological innovations and the emergence of knowledge-based and technology-driven economies. Instead of epistemological and organizational forms of knowledge production and dissemination, the universities today are required to play a protagonist role by training productive intellectual resource and generation of new knowledge that could be converted into wealth or social gains. They are no longer confined to teaching 'about' entrepreneurship but are actively engaged in teaching 'for' entrepreneurship. Instead of preparing their students for seamless path to work, the universities are required to prepare them for uncertainties, complexities and vulnerabilities in future. Besides highlighting some of the issues at stake, an attempt is made to understand the economics, philosophy and legality behind the whole idea of entrepreneurial universities in general and in India, in particular. The idea of social entrepreneurship is also introduced in the context of India. The methodology adopted is analytical, descriptive and empirical.

The Context

With the advent of globalization, liberalization and privatization in the realm of higher education, the sanctity and prestige enjoyed by the traditional universities as social institutions is no longer sustainable. The main focus of the universities used to be on teaching, research and the pursuit of knowledge for the sake of knowledge. With the massification of higher education and rise in democracies, the universities are now under constant public gaze. Now they are no longer confined to the "ivory towers". Nor do they enjoy 'elitist status' or 'unflinching state protection and support' anymore. They have to compete for public funding with many other social sectors and seek alternative funding like any other entrepreneurial organization. Moreover, their job is not just to

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produce 'thinking minds', 'social critics' and able leaders but the human resource for the knowledge-based and technology driven economies in the 21st century (Gupta, 2007).

In fact, there are manifold implications of the evolving role of the universities as 'entrepreneurial universities'. In essence, it amount to the commodification of knowledge, generation of funds for research from non-statutory and private sources, too much emphasis on performance based evaluation, avoidance of non-tradable research, technology transfer through business-university research partnerships, consortia and specialist units leading to intellectual property rights, fragmentation of teaching and research, etc. They have come a long way from the pre-nation stage to the post-modern, inter-connected and inter-dependent world.

Earlier it was believed that supreme authority for scholarship must reside in academia as no one else was considered qualified enough to regulate the 'public affairs of scholars' (Moodle and Eustace, 1974). The universities acted as the custodians of socio-cultural and national values. In the era of market economy, its mission has been redefined from 'being an instrument for the distribution of wealth' to 'becoming a direct source of generating and supplementing wealth' (Neave, 1995). The modern universities are under pressure from political and economic hegemons to assume the roles of functional universities, results oriented universities or operational universities by maintaining close relationships with both industry and the outside world.

Such universities are governed by strategies and programmes of organizational efficacy, implying the particularity, instability of means and of objectives. They are governed by the norms laid down by 'new internationalism' where 'economic politics' dominates the political markets. They are also guided by 'new managerialism' instead of pure intellectual pursuits. To Chaui (1999), the neo-liberal credo believes that:

> . . . in contemporary society, the industrial product is the archetype of the quantitatively defined social product. Economicism consists in conceiving the product of universities as an industrial product, even if of a special kind, and consequently in conceiving a university as an entrepreneurial organization.

Instead of acting as the gatekeepers allowing only those with higher intellectual abilities to pass through, the universities today have lost the monopoly over the creation and dissemination of new knowledge. We find many stakeholders and providers in the fray - national as well international, non-profit as well as for-profit private or corporate sectors. It is no wonder that we find conflicts in the traditional and modern roles of the universities and very purposes of higher education and professional training (Altbach, 2002: 43). Today the universities are required not only to prepare their students to serve the immediate needs of the market through a 'seamless path to work' approach but also encourage them to 'create work' through innovation and ingenuity. Under academic capitalism, the prime focus of universities, research institutes and higher learning has to be on developing creative human resource capable to putting innovative ideas to some practical use and profits. For instance, Castells writes (1997:58):

> For the first time in history, the human mind has become a direct productive asset, rather than just a decisive production factor; its significance and productive value is also changed by its cultivation, through training in the broadest sense.

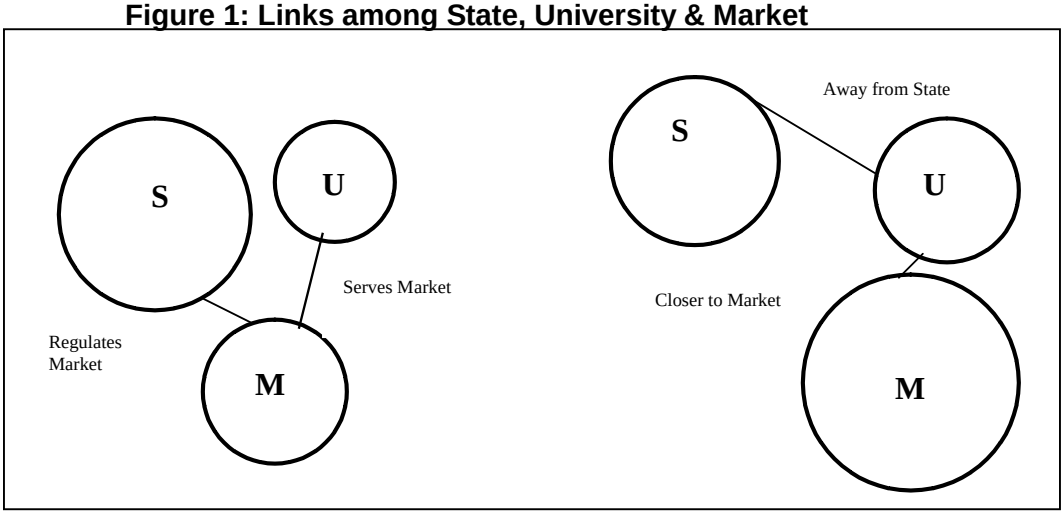
Traditionally the universities and centers of higher learning were required to build a set of skills, attitudes and values that were necessary for effective participation in a particular civil society. Today they are required to build skill sets they can bargain with internationally as a commodity. The for-profit institutions focus on knowledge and skills that have immediate pay-offs. They are forced to drift towards corporatization, marketization and academic capitalism like any other business enterprise (Leslie and Fretwell, 1996: 31). Just as markets are no longer treated as politically or culturally neutral, similarly, higher education institutions cannot be treated as politically or culturally neutral.

Instead of the epistemological and organizational forms of knowledge production and dissemination, the universities today are required to play a 'protagonist role' in the training of productive intellectual resource and generation of that type of knowledge that could produce riches convertible into technology, organizational intelligence, productivity and rational consumerism (Mendivil, 2002: 354). As such, we find rapid transformations taking place. The role of the university as a 'custodian of knowledge' is developing into a 'creator of new knowledge'. It is no longer confined to teaching about entrepreneurship but engaged in teaching for entrepreneurship. It makes it imperative for the universities to adjust, accommodate and adapt. To Peter Scott (2000: 1), globalization has posed the biggest challenge to the universities and centers of higher learning during their existence for the last thousand years.

Along with economic globalization, we also find the 'new internationalism' sweeping away the old model of the nation state. The power is shifting both downwards and upwards – downwards to various sub-national groups, local government, single-issue-based organizations, marginalized groups and ethnic minorities. It is shifting upward to supra-national, intergovernmental and international organizations. The global structures too are moving from 'state-centric' to 'multi-centric' world of diverse 'sovereignty-free actors'. They compete, conflict and cooperate with traditional 'sovereignty-bound actors' on various issues and at various levels (Rosenau and Durfee, 1995: 31-63). It has enhanced the capacity of individuals to act collectively. Since power and authority are no longer confined to the nation state alone, universities need to come out of their cocoons as the 'handmaids of nation state'. They also have to learn how to co-exist with other higher education providers-national or international, they may be.

Moreover, the contribution of higher education needs to be conceptualized within a techno-economic paradigm. The mature, hi-tech and open economies can only compete at the global level by creating new products and technologies. They need those students capable of creating current knowledge rather than knowledge that may be of some use in future. As such the universities are required to provide the learners an entrepreneurial aptitude and necessary skills in a befitting environment. The explicit and tacit knowledge produced by these universities and research institutes plays an increasingly vital role in advanced economies and that's why we find more proactive alliances and collaborations between the industries and universities now than ever before when they were treated as separate and different entities altogether. Industries and business enterprises are interested in the 'economic application' of the new knowledge and scientific innovations carried out at the universities and research institutes. The role of the state, universities and markets may vary from country to country depending upon the prevailing socio-cultural and political norms.

Figure 1: Links among State, University & Market



Source: Asha Gupta. 2008. *Education in the 21st Century: Looking Beyond University*.

It can also be seen in terms of the 'Triple Helix' of university, industry and government relations. Under this phenomenon, like physics, all the three entities occupy some space as independent social organization within a polity. Each one of them is seen as different, having their own identity and performing their own specific tasks. Under the traditional university models it was perceived that any overlapping of roles would create confusion. They could interact with one another in external fields only and not in core areas. As long as the field exists, there is energy around it and each entity can affect its surroundings or be affected by it. However, under the modern scenario, if any one of them usurps the role of other two, we call it innovation -- not confusion. For instance, in China, the University Run Enterprises (UREs) still function under government ownership, whereas, in the USA, the start offs become independent of the mother university for all practical purposes and may interact with the university only in the core area and not in the areas falling outside. In the UK, the government has taken a lead as a public sector entrepreneur and venture capitalist (Etzkowitz, 2003).

But we find a lot of overlapping these days. Since most of the universities today have to rely on outside funding, they have to address the personnel and scientific needs of business and industries. It has led to the emergence of entrepreneurial and corporate universities, resulting into closer university-business partnerships instead of university-government links. Current trends in higher education depicting gradual shifts towards diversification in lieu of homogeneity, decentralization and distance steering in lieu of centralization, marketization and competition in lieu of protection by the state, new corporatism in lieu of academic solidarity, massification in lieu of elitism, promotion of educational products, treating students as consumers and teachers as facilitators, extensive use of technology and involvement of private and foreign providers in the delivery of higher education have paved the way for academic entrepreneurship (Gupta, 2005).

Table 1: The Idea Of University: Then and Now

Nomenclature	Purposes of Higher Education	Role of University
Traditional Universities	Civic, cultural and economic goals: ▪ Socialization of students ▪ Custodian of socio-cultural and national values ▪ Supply of qualified professionals.	▪ Teaching and research under the Humboldian model.
Modern Universities	More focus on technical, vocational and professional education and training: ▪ Employability of students ▪ Promotion of vocational education ▪ Growth and diversification.	▪ Separation between teaching & research. ▪ More research taking place in collaboration with industries and non-state centers.
Entrepreneurial Universities	▪ Meeting the diverse needs of students through multiversity. ▪ Preparing students for seamless path to work. ▪ Creating science parks, incubators and associations with the industries and outside world.	▪ Promotion of academic capitalism and enterprise culture. ▪ Encouragement of the consumption of higher education on lifelong basis ▪ Putting knowledge into application.

Source: Asha Gupta. 2008. *Education in the 21st Century: Looking Beyond Uni*versity.

What is Entrepreneurship?

Entrepreneurship is a mindset that can be nurtured and facilitated but cannot be created by the universities or research institutes. Universities may even contribute negatively to holistic development of entrepreneurial competencencies of its students and staff in those countries where socio-cultural values act as barriers to acquisition of innovative and risk-taking behaviour than those where it is supported by the family and work culture. In the former case, the students may leave the universities as highly qualified but not very competent in terms of building regional blocks of economic development. The entrepreneurial universities are supposed to build the confidence in their students to be able to move from bloc culture to block culture. It aims at development of personal capacities rather than business knowledge as such. Entrepreneurship applies to all real life situations and it is not correct to equate it with just business enterprises or profit motive or utility. It simply means judicious, efficient or timely use of available resources to achieve certain distant goals. It can also imply concepts like creative destruction in some cases (Gibb, 2005: 28).

The recent focus upon entrepreneurship by most of the universities in different parts of the world can be seen as a policy response to globalization. This policy shift results in uncertainties and complexities at the individual, familial and societal levels. This approach is not necessarily purely market-driven as uncertainties and complexities can arise due to many factors. Therefore, entrepreneurship does not imply merely risk taking behaviour as being taught in most of the business schools but it also implies seeking opportunities, taking initiatives, solving problems creatively, taking responsibility for things, building networks, and using judgment before taking calculated risks. It requires certain inherent qualities, such as, a strong sense of independence, self-efficacy, strong sense of ownership, joys in making own efforts, belief in hard work, belief in freedom of action, informal arrangements, etc.

To Gibb (2005: 37), entrepreneurial education and training depends upon certain attitudes: achievement orientation, self-confidence, diligence and perseverance, desire for autonomy, learning by doing, strong sense of commitment and determination, capacity for innovation, courage to continue the pursuit of desired goals despite uncertainties, vulnerabilities and failures from time to time. Entrepreneurial attributes depend not only on the qualities of the left side of the brain but also on those of the right side. They require more emotional intelligence than rigorous academic knowledge. To be successful, the potential entrepreneurs need skills involving strategic thinking, communication, negotiation, persuasion, selling skills and intuitive decision-making. An entrepreneurial mind thrives in an environment of 'uncertainty', 'diversity of culture', 'talent and opportunity' (Luczkiw, 2005: 21). To Carland et. al (1995):

> An entrepreneur is a risk taker who has a high need of achievement, strong preference for innovation, employs analysis and logic in problem solving and establishes a distinctive competence for the enterprise.

All entrepreneurs are not similar in terms of motivation, competencies, performance and abilities to learn from failures. We may find 'routine entrepreneurs' who are good at reproducing their businesses, 'arbitrageurs' are good at making use of discrepancies in the production factors, valuation of products and assets or 'innovators' who are good at putting new ideas into practice, 'evolutionary entrepreneur' who is good at building new competencies or capabilities. To be a successful entrepreneur, one must be aware of one's strengths and weaknesses, as well as be ready to learn from one's failures. Universities can only boost the entrepreneurial spirit, like the talent to sing, dance or act. However, it is important to note that although universities cannot make anyone a singer, dancer or an actor they can certainly make a singer, dancer or actor perform better through training.

Similarly, it can make a routine entrepreneur do his or her job better, which will help him or her to move higher into the role of an 'arbitrageur' or 'innovator'. The entrepreneurial universities can provide the right kind of environment and training to make one 'learn how to equip oneself with those capabilities which enable one to operate in a new entrepreneurial context', such as, one's own business or a new start up. The entrepreneurial universities can thus play an increasingly vital role through innovation, knowledge creation and regional development in a globalized economy (Rõpke, 1998: 5).

Table 2: Transition from Traditional to Entrepreneurial University

- In the 19th century, a French Chemist, Louis Pasteur worked on the theories of molecular dissymmetry and fermentation for about 20 years at the Paris University. He succeeded in developing the process of pasteurization and techniques of vaccination against the outbreak of anthrax and rabies in farm animals, farmers, butches and tanners. It literally changed the world. In 1888, Louis Pasteur left the laboratory at Sorbonne in France and established his own Pasteur Institute, taking his innovation with him.

- In the 20th century, Robert Cade developed carbohydrate and electrolyte formula on the Florida football team at a lab at the University of Florida. The drink proved so effective at prolonging endurance that soon came to be known as Gatorade. In Contrast to Sorbonne's loss of Pasteur and his invention, the University of Florida retained its right to the product and earned hundreds of millions of dollars through licensing. Like the University of Florida, the Paris University could not take advantage of the innovations made by Pasteur.

Source: Excerpts from Mathew Guinn's 'The Entrepreneurial University: High Wire Balancing Act in *UAB Magazine*: 22(1). Winter 2002.

Entrepreneurial University

The prime object of entrepreneurial education is to inculcate entrepreneurial values among the students by providing an environment for new ways of doing, organizing, feeling, communicating, understanding, learning and thinking things to be able to deal with the pressures emanating from knowledge-based economies and networked societies. Today the universities need to integrate the concept of entrepreneurship with the broader spectrum of university activities through different approaches towards embeddedness, such as university wide application of entrepreneurial teaching, creating a cell responsible for facilitating technology transfer, serving as a link between various entrepreneurs having common stakes, training staff to develop special courses on entrepreneurship, and many other ideas (Gibb, 2005: 29).

An entrepreneurial university can convey a variety of ideas to various people. It can take two different routes – (1) the university itself can become entrepreneurial as an organization by resorting to optimum/efficient use of the available resources and personpower or (2) the students, staff and faculty may establish links with the business, industries and community by acting as the 'carriers of innovation' and promoters of knowledge, science and industry collaborations. For instance, Taiwan created the Hsinchu Science-Based Industrial Park near the universities and government's leading Science Research Institute to attract an increasing number of biotechnology and optoelectronics firms (Dolven, 1998: 15). Similarly, the US-based research universities played a central role while performing fundamental research and aiding in economic and technological innovations in post war scenarios. To Mowery and Ziedonis (1998: 113), the universities accounted for more than 61% of basic research performed in the USA in 1995.

To Schumpeter (1991), to become entrepreneurial a university must give more weightage to the profitable, value enhancing and practical use of new knowledge. It can

do so by collecting, producing and transferring knowledge to other members of the scientific community, like knowledge workers and knowledge brokers, and other members of the subsystems such as, economy, art, religion, sports, etc. They can engage their innovative and creative students, staff, faculty and researchers in wealth generation directly or indirectly by converting tacit education into explicit or academic knowledge. The explicit academic knowledge can be transformed into practical and profitable use through knowledge brokers or consultants. They can play a proactive role in building the entrprenrial competencies of both their students and more mature learners from the outside world. Previously, universities and industries were seen as separate entities; today they are working in close collaboration. Because of this, it is necessary to make innovative changes in the curricula and selection of the faculty itself.

It is difficult to say whether innovative scholars, used as input, can contribute to the growth of output. The mainstream (neoclassic) economics looks at the output growth as the chief function of input growth. However, in Schumpeterian terms, the growth of 'output' (of a university) cannot be determined by the growth of 'input' (financial resources, budget, number of students, staff, faculty, quality of infrastructure, space, etc.). According to Schumpeter, input growth can also be a result or by-product of the innovative processes. In this case, the input growth need not necessarily lead to output -- but follow the output. Usually the policymakers are influenced by the input but the university allocations may not be based upon innovation. In fact, the innovative entrepreneurship may remain outside the domain of input-output framework for all practical purposes. Knowledge created at the university can be considered as an input that it generates innovative activity and it may also be seen as an output resulting into economic wealth. It can do this by allowing for an effective use of scientific and technological inputs into businesses and commercial activities (Anderson, 1998:17).

According to a neo-Schumpeterian approach, each university may improve its output by efficient use of available resources and by putting a curb on certain inefficiencies by attempting some innovative recombination of given inputs. An entrepreneurial university can produce development endogenously by its own initiatives from within. Development is created by internal dynamics and qualitative changes and not by relying on additional inputs or outputs. The entrepreneurial universities aim at incorporating new knowledge in innovative products and technologies with a definite purpose of meeting the neo-classical goals in terms of enhanced wealth or utility. They target at providing their students with the latest knowledge along with the necessary professional competences needed to succeed in their chosen career paths. The universities cannot convert the students into successful entrepreneurs on their own but they can definitely harness inherent entrepreneurial tendencies by creating an enabling environment for innovation that could nurture every learner's distinct essence of being (Luczkiw, 2005: 16).

A university, where enterprise education is taught is differentiated from an entrepreneurial university. All those universities that are engaged in professional education, entrepreneurial activities or have some links with industry cannot be defined as entrepreneurial universities, though they may evolve into them in due course. They may teach about enterprise but they may not be able to provide business-skills. Rather they may focus on the overall growth of their students -- emotional, intellectual and spiritual. An entrepreneurial university is generally more interested in promoting learning by doing in a business context. It lays emphasis on entrepreneurial spirit by not only teaching about enterprise but harnessing one's entrepreneurial skills and aptitudes. The entrepreneurial universities concentrate on what the curriculum should be, how best

these can be learnt, who should be teaching, how to manage delivery, how to codify learning experiences or choose best methods, etc (Vyakarnam, 2005: 18).

They expect their students to be enterprising by depicting creativity, innovation and initiative, on the one hand, and showing courage, openness, flexibility, adaptability and the ability to seize the opportunities on the other. The entrepreneurial universities make conscious efforts by preparing their students to be able to think strategically, understand the prevailing socio-cultural norms, political processes, the latest business trends and technological know-how correctly (Kothari, 2005). The knowledge-based societies can enrich agriculture and manufacturing through creating and developing value. They can produce products and services through explicit and tacit-knowledge and the necessary networking. To meet the changing needs of knowledge-based economies and societies, it is desirable that the universities should play a proactive role in inculcating the right aptitudes, values and skills. Addressing the students at Mauritius University, President A. P. J. Abdul Kalam (March 13, 2006) stated:

> The aptitude for entrepreneurship should be cultivated right from the beginning and in the university environment. We must teach our students to take calculated risks for the sake of larger gain, but within the ethos of good business. They should cultivate a disposition to do things right. This capacity will enable them to take up challenging tasks later.

Table 3: The Philosophy of Entrepreneurship

- Entrepreneurship can only be facilitated, it cannot be taught. It is a mindset.
- The evolution of an entrepreneurial personality requires an individualized approach.
- An entrepreneurial mind thrives in uncertainty, chaos and a disruptive external environment.
- An entrepreneur takes creativity and innovation as the mission of his or her life.
- An entrepreneur tries to develop simplicity out of clutter, harmony out of discord and opportunity out of a brilliant idea (Einstein).
- Entrepreneurship and economic development outcomes of a university depend upon the culture of networking inside and outside the university.
- Entrepreneurial universities are most interested in spin-offs based upon codified technology that can be sold or licensed for revenue.
- An entrepreneurial university does not pursue economic prosperity but it aims at scientific-business approach towards teaching and research.

Source: Based upon presentations at the OECD Conference on Fostering Entrepreneurship: the Role of Higher Education at Trent, Italy. June 23-24, 2005.

However we should not forget that that transfer of an idea from one mind to another or transfer of knowledge from one organization to another is not an easy task. It is easier to

transfer information but not so easy to transfer tacit knowledge. It is usually the agent, knowledge worker or knowledge broker, who is able to transfer the new knowledge to the concered entrepreneurs and not the university *per se*. The research scientists and the knowledge brokers need all together different temperament and skills. To be able to convert new knowledge into commercial breakthroughs or innovations, one needs tacit knowledge combined with entrepreneurial skills. It is one thing to have a brilliant idea but it is quite another thing to convert it into opportunity, wealth or productivity. In fact, the difference between an idea and opportunity is the same as the difference between invention and innovation under Schumpeterian logic (Rõpke, 1998: 9).

Whereas the Americans, Britishers or Germans can be good at inventions, the Chinese, Japanese or Indians can be good at innovations! The USA and UK are both considered driven to inventions. However even between the USA and the UK, we find the universities more entrepreneurial in the US than in UK. Whereas in the US higher education and professional training is considered quasi-public or private gain, in the UK it is still considered a public good. Moreover, in the US we find a definite trend towards funding shifting from the state to the private. For instance, the industry in the US now contributes more than 10% of the research funding of the universities. We find a 22% in industrial funding in the case of Massachusetts Institute of Technology during 1996-98 (Nelsen, 2000).

The Bayh-Dole Act in 1980 gave a further boost to entrepreneurial universities in the US. Hence the regional dimension or local culture cannot be ignored. There are more probabilities of 'spin offs' under the Triple Helix Model based upon university-industry-government relations in the US than in China. It may be because the US culture provides more autonomy and funding for R&D. In the case of China, the UREs remain a part of the university's routine administrative structure. Moreover, the promotion of entrepreneurial universities happens to be state-led in China, whereas it is mostly promoted by the business in the US (Saxenian, 2000). In comparison to the US, the entrepreneurial education in China and India is a recent phenomenon. For instance, in India, during 2000-04, out of 5,192 PhDs awarded in social sciences, 47 were on entrepreneurship, mostly on women as entrepreneurs or Small and Medium Enterprises (Batthini and Tripathi, 2005).

India's Response

India is no exception to the shift towards entrepreneurial universities worldwide. The Indian universities are also under pressures -- domestic as well international -- to raise additional resources through efficiency measures, on the one hand, and industry-business collaborations, on the other. Some of them are also proactive in promoting entrepreneurial education to gain a competitive edge in knowledge-based and technology-driven globalized economy. For instance, the Indian Semiconductor Association (ISA) is playing a pivotal role in harnessing the talent available in India and converting them into successful entrepreneurs. It has been taking new initiatives to catalyze technological innovations amongst the industry and academia. Its scheme, Patent-Fabric, focuses on converting innovative ideas from Indian universities into patents. It provides education on intellectual property rights as well as legal assistance for the filing of patents in India and abroad. It provides scholarships, awards and fellowships to students, teachers and researchers for showing some innovative thinking during their assigned roles (http://www.isaonline.org/media-archives03.html).

India has the credit of running the third-largest higher education system in the world after the US and China. It has 348 universities, including 63 deemed to be universities, 17,973 colleges, 11 centers of Open Learning, 10.5 million students and 0.5 million teachers (2005-06). The Labour Ministry runs 5,114 industrial training institutes and the Ministry of Higher Education also runs an equal number of such training institutes. It has helped in making India one of the five telecom giants in the world and the fourth-largest economy in the world in terms of Purchasing Power Parity. It provides the third-largest pool of skilled personpower despite the fact that only about 11% of its youth in the age group of 17-23 have access to higher education. India has the potential to reach the top, provided they develop a helpful environment and opportunities. Indians own the largest number of start-ups in Silicon Valley, where the academia from the Stanford mix with the bankers and business experts to create opportunity. Earlier, the Chinese enjoyed the honor of having the largest number of startups amongst the immigrants (Saracevic, 2007).

Whereas the Chinese have always been known for their enterprise and innovative spirit, the Indians are generally seen as 'averse' to risk-taking and entrepreneurship. But now we find the trend changing. It is obvious from the shift in favour of creating markets rather than serving them. This year 11 students from IIM-A, the most prestigious business school in India, declined lucrative offers from foreign companies and banks in favour of floating their own ventures (*Hindustan Times*, New Delhi, March 14, 2007:13). To promote entrepreneurial culture, the IIM has given a slogan: *chase your dreams, not the jobs*. Since most of the budding entrepreneurs face resistance from their own families, unlike the US which tolerates failure, the IIM-A came out with a novel idea itself. It has allowed the students opting out of job placement this year to take a chance again in next two years, if their ventures don't survive.

The recent boom in information technology (growing at the rate of 30-35% and having a turnover of around Rs.40,000 crore or US $90 billion) has created a lot of entrepreneurial possibilities in India. India can create its own "Microsofts" and "Ciscos" now. In fact, a lot of new research in wireless semiconductors is now taking place at the Bangalore office of Cisco, as it is cost-effective to do so. Many 'edupreneurs' are also now returning to India as they find better opportunities here to grow. Earlier the Indian students and faculty were more interested in publishing their research findings rather than patenting them. During 1969-94, the CSIR (Council of Scientific and Industrial Research) had only 47 patents to its credit (Janodia et. al, 2007: 19). But the government, industry and universities today are taking a proactive role in promoting entrepreneurial culture and entrepreneurial education in India to be able to survive in the highly competitive global market where the startups based upon innovative, creative and entrepreneurial culture are in great demand.

For instance, the IITB has established an Entrepreneurial Cell managed by students. It has also set up an IT business incubator at Kanwal Rekhi School of Information Technology (KReSIT) to create awareness about the startup companies and their associated culture amongst the potential entrepreneurs on campus. There is a proposal to integrate KReSIT with the Society for Innovation and Entrepreneurship (SINE) to be set up in Mumbai. This society proposes to undertake the manufacturing, marketing and selling of products based upon the technologies developed by the IITB. It also proposes to build institutional arrangements for engaging the faculty through various schemes, such as, joint ventures, part ownership, sweat equity along with the prevailing consultancy model. The Asia-Pacific Student Entrepreneurship Society (ASES), on the

other hand, aims at educating and networking future leaders in business and technology in Asia-Pacific in order to foster a global entrepreneurship society. It has more than 100 members from the IIT-M itself (http://asesindia.iitm.ac.in).

Recently, the Entrepreneurship Development Cell (EDC) of IIT Roorkee organized a nationwide contest called Isis – The BPlan Competition in collaboration with Geodesic. The goal of the event was to endorse the spirit of entrepreneurship in the next generation of entrepreneurs in India on February 19, 2007. The Government of India is also promoting entrepreneurial universities by establishing educational zones, science and technology parks, technology business incubators and entrepreneurial clusters. About 50 Entrepreneurial Development Cells have already been created at premier science, engineering and management schools. Similarly, 15 Science and Technology Entrepreneur Parks (STEPs) have been established to create an atmosphere for innovation and entrepreneurship, on the one hand, and interaction between the industry and academia, on the other. Some of these parks are located at NIT Trichy, SJCE Mysore, PSG College of Technology at Coimbatore, IIT Kharagpur, etc (UGC. 2003. http://www.ugc.ac.in).

In order to bridge the gap between R&D and commercial success, the government has established 15 Technology and Business Incubators (TBIs) at the IIT B, IIM A, National Institute of Design at Ahmedabad, BITS-Pilani, ICRISAT at Hyderabad and other thrust areas. Their prime aim is to bolster economic growth by stimulating the growth of knowledge and technology based enterprises in India and abroad. They provide 'specialized guidance', 'support services', 'innovative financing', and 'networking support within a well-equipped work space'. They are more service-oriented than the STEPs in tapping the hitherto untapped opportunities towards employment generation and creation of academia-industry portals (UGC, 2003). The IIT-M is also planning to convert its 620 acre of academic land into a science park. Even MAHE (Manipal Academic of Higher Education), a pioneer in private education in India, has many patents to its credit. Similarly, the Indian Institute of Science founded by Jameshed Tata, an industrialist and philanthropist, at Bangalore in 1909, created an autonomous agency within itself, known as the Society for Innovation and Development. It has several patents jointly with companies, such as Texas Instruments from the US (Tobias, et. al, 2006: 216).

The liberalization of the Indian economy since 1991 has played an important role in the transformation of the Indian economy from inward looking and protected to it's current image of being outward looking, globally connected and innovation-driven. It has helped in creating the need for entrepreneurs and their proper training. The University Grants Commission has already entered into partnership with the National Science and Technology Entrepreneurship Development Board under the Science and Technology Department of the Government of India with the sole aim of promoting knowledge based enterprises through higher education institutions. It is also exploring collaborations with the National Association for Commerce. In a recent survey by the NASSCOM, it was found that only 15% of the engineers produced by the public and private HEIs in India are employable in global BPO and IT sectors! Now the NASSCOM has been empowered to conduct separate tests for the graduating students in some of the states to judge their employability in terms of analytical, communication and problem-solving skills (*Hindustan Times*. New Delhi, December 30, 2006: 9).

India has a lot of potential for entrepreneurship. Unfortunately it has yet to develop an internationally acclaimed educational system. Setting up entrepreneurial programmes in

various professional schools is a step in the right direction. It is time for preparing the next generation for an internationalized world of work. Universities today are no longer isolated and confined to the ivory towers They have scope for international networks for innovation and research, transcending their traditional disciplinary and national boundaries. There are more opportunities for cross border interactions than ever before. For instance, the N S Raghavan Center for Entrepreneurial Learning (NSRCEL) at the IIM Banglore has launched an online programme for Entrepreneurs and Family Businesses in Collaboration with the U21 Global since 2006. In fact, globalization, liberalization of Indian Economy, boost in ICT, rise in e-commerce, outsourcing and other entrepreneurial activities during the last 10-15 years have created the demand for entrepreneurial universities in India.

There is a lot of potential for business-academia collaboration in the fields of agriculture, chemicals, pharmaceuticals, food processing, textiles, information and biotechnology. The United Nations Industrial Development Organization has identified 11 clusters in basic drug manufacturing itself. A cluster can be defined as 'a geographically proximate group of interconnected companies and associations in a particular field (such as universities, agencies, trade associations) to be located near the sources of supply to allow mutual interaction and cost-savings. It also helps in generating excellent job opportunities. Such clusters can help in converting some of the latent opportunities into global market. For instance, India has the potential to become a major player in the global market for herbal products and medicines. It is possible by creating a new generation of entrepreneurs on a large scale by motivating the students to take entrepreneurship as a career (Kulkarni, 2005).

Seeking entrepreneurial education does not necessarily imply seeking profits or economic wealth. It can be a mean but not an end for the entrepreneurial universities. Most teaching programmes on entrepreneurship aim at polishing an entrepreneurial by encouraging cross-disciplinary studies, eventually translating to cross-functional habits of thought. The main objective of the entrepreneurial universities is to equip their students with 'dichotomous learning modes'; implying knowledge based but skill-oriented learning (Gibb, 1993; Tobias et al, 1995). The entrepreneurial universities engage special faculty/consultants to design new programmes to impart specific skill sets and competencies to potential entrepreneurs. They teach how to deal with likely impediments in a given socio-cultural, political and ecosystem by being innovative. For instance, C K Prahalad, a distinguished professor and management *guru* from the Ross School of Business at MIT, gave us the idea of focusing at the bottom of production (BoP) to reap economic benefits even from poverty. He showed how more profits could be earned by selling small amounts of shampoo at very nominal prices to a larger number of the poor rather than selling big bottles in attractive package to fewer elite.

Social Entrepreneurship

In the context of India it is important to acknowledge the novel concept of social entrepreneurship. Social entrepreneurs make it their business is to make India and this world a better place to live. The Tata Institute of Social Science has the credit of organizing the first international conference on social entrepreneurship at Mumbai in 2006 to celebrate social entrepreneurship as a tool for social change, encouragement of social entrepreneurship and creation of mutually beneficial links between social entrepreneurs, public and private institutions. Social entrepreneurs believe that circumstances affect people, but they also have the power to change them. Institutions, such as, *Honey Bee Network*, *Ashoka UnLtd*, *NMIMS* (Narsee Morjee Institute of

Management) and *Skill Center of the University of Oxford* have been supporting such endeavors (Noronha, 2007).

A social entrepreneur is who recognizes a social problem and uses entrepreneurial principles to organize, create and manage a venture to make social change. Unlike business entrepreneurs, they don't measure performances in profit and returns, but assess success by the impact they have on society and often work through non-profits and citizen groups' (Noronha, 2007). Pioneer Indians are now drawing ideas from social entrepreneurs on how to re-engineer society. For instance, Stan and his wife Mari chose to work amongst the *adivasis* (a tribe) to help them reclaim the land usurped by non-tribal elements. They formed an organization known as *Just Change* to make the *adivasis* aware of their socio-political rights. Similarly, Vishal Taneja gave up his job as a successful investment banker to help develop the life-skills of 500 destitute children in Bangalore by launching *Dream a Dream* society. Unlike the western concept of entrepreneurship which is more market friendly, the Indian concept of social entrepreneurship is broader in scope.

It is interesting to note that Dr. Anil Gupta, a professor at the Indian Institute of Management at Ahmedabad launched SRISTI (Society for Research and Initiatives for Sustainable Technologies in India) in 1993 to support the activities of Honey Bee Network, now spread over to about 75 countries. Just as a honeybee collects pollen from flowers, it also connects flowers together for pollination. In the same way, the object of Honey Bee Network is to help indigenous people disseminate their age old knowledge and local problem solving devices to others worldwide by providing necessary incentives, procuring venture capital for experimentation, rewarding creativity and disseminating new knowledge, invention or discovery through networking. It provides a unique opportunity for the cross-cultural and cross regional fertilization of ideas and initiatives developed by peoples at the grassroot themselves (Anil Gupta, 1995).

For instance, a Scottish professor documented the Mongolian practice of serving homemade lick for animal use. This lick, prepared with the help of onion leaves, wheat germ, sodium bicarbonate and dried milk was found to be 'rich in selenium'. It was later picked up by the Akwasssasne people in Canada who were also looking for some device to save their livestock from the deficiency of selenium. Similarly the innovations made by grassroot Indians, such as a washing machine that can be operated by pedaling, a scooter that can be used for climbing coconut trees, a cycle that can be used on road as well as water, can be easily promoted to many lower income and emerging economies in the South. Similarly many *ayurvedic* and herbal medicines can be easily promoted not only in the South but also in the North, bridging the traditional North-South divide. There is no guarantee that the economically advanced countries will prove rich in terms of innovations and ideas either. A poor man or woman can also be rich in terms of ideas. They can also convert them into practical gains or utilities with the help of latest technology or Knowledge Brokers (Gupta, 2006).

Some organizations and social entrepreneurs have emerged in India and elsewhere to protect the Intellectual Property Rights of the local people and save them from exploitation by national and multinational companies. With the rise in the number of democracies worldwide, we find more people interested in seeking higher education and technological skills. Equipped with the latest information and skills, the people are likely to emerge more powerful and able to negotiate for their demands in the future. They can

ask for an organization that can register each innovation in a cheap and quick way just as a new book is registered by providing an ISBN number. It can help in improving the income and livelihood of the entrepreneurial and innovative but 'economically not so affluent' people or communities. The economic liberalization in India has already provided scope for the SMEs to flourish. They form an integral part to the knowledge and service sector in India and contribute 39% of the Indian manufacturing output and 34% of its export beside providing employment to 30 million people (*The Times of India*, New Delhi, March 22, 2007: 20).

Issues at Stake

However, this entrepreneurial era has placed many issues before the universities and research institutes. Many scholars in different countries have resisted all attempts towards 'trade in high education', 'diploma mills' or 'promotion of consumption of higher education to reap economic benefits'. The emergence of 'entrepreneurial universities' has created further complexities with regard to the ownership of the intellectual property rights. It is difficult to draw a line between the intellectual rights researchers and the rights of the university underwriting development. For instance, the Third World Congress of Education International which was held at Jomtien, Thailand in July 2001 marked an attempt to resist the WTO from converting higher education into a service to be traded in. It was observed:

> American universities, for example, claim property of the inventions and patents developed by their teaching staff by using a provision in the law on author's rights that sees the recruitment of a person as the *quid pro quo* for the work carried out. In simple terms, this means that if a worker invents or creates something in the course of his/her employment, the employer owes it simply because the employer has hired the services of that worker.

It has further raised the issue of academic freedom versus public accountability. The outside funding has made the universities more accountable to their fund givers than the academic community, jeopardizing academic freedom in the wake. Earlier the faculty enjoyed academic freedom as they were supposed to be fulfilling social missions through their teaching and research. Today, as entrepreneurial universities, they have to give priority to the economic purposes of higher education. They are no longer seen as role models for leading virtuous lives. In most universities, the academia maintained a separation between personal beliefs and public life. With economic development and political modernization, apolarization of viewpoints has emerged as far as the relationship between academic freedom and accountability is concerned. Now the notion of academic freedom has become hybridized and contextual. The intrusion of the corporate sector into the professional management of university teaching and research has also affected academic freedom adversely.

To some of the scholars, academic pursuits and entrepreneurial ventures are contradictory in terms. They require altogether different skills and capabilities. If academic pursuits require the qualities of the left side of the brain, the entrepreneurial pursuits require the qualities of the right side of the brain. The first requires higher Intelligence Quotient (IQ), the latter feeds on higher Emotional Intelligence (measured as EQ). Whereas the traditional universities preserve and transmit hitherto available knowledge to their students and aim at providing life skills to them, the entrepreneurial universities play a proactive role in creating new knowledge by engaging their students

and faculty and providing more opportunities for creating work rather than working for others. The latter are more interested in understanding the impact of various ways of doing and seeing things while the former are becoming confined to the limited assumptions available in conventional academic work (Gill, 2005: 20). Though some of the entrepreneurial instincts can be managed, most of them cannot be created.

Hence, there is a dire need to stop the universities from becoming business enterprises themselves. They need to create a balance between traditional models of teaching and research and the new requirements of the creative economy (Florida, 2006: 8). Research and licensing should not be carried out at the cost of teaching and other co-curricular activities. The lure of economic incentives involved in undertaking collaborative research in collaboration with the industries of foreign agencies should not make the faculty detest their prime duty towards teaching or other non-profit activities. Or some criteria should be developed for providing incentives to those who engage in non-profitable research or teaching activities, while sparing those who are found to be good at entrepreneurial and research activities from their regular teaching load.

We should not forget that the universities are still required to play a more proactive role in putting knowledge into practice by establishing academia-industry and academia-policy making interfaces. But they can also nullify the ill-effects of globalization by propagating "globalism' and "being model of development" in lieu of "globalization" or "having model of development". The latter model lays emphasis on "what you are" rather than "what you have". It amounts to a paradigm shift from 'the consumerist model of market economy' to 'human centric model of creative economy'. Technologies can create iPods but they cannot create a 13th note or spiritual music (*The Times of India*, New Delhi, February 19, 2006). By being the nurturing grounds of creativity, the universities can protect not only their own interests, but also the general interests of the 'university as an institution'.

For this, it is necessary to look beyond the university. The academia needs to understand the game plans of the political and economic hegemons spread all over the world. They need to learn the rules of the game the hegemons like to play to be able to save themselves and also checkmate them, if possible. Instead of pursuing intellectual growth through pure research, the universities today are pushed into an entrepreneurial role by promoting the constant consumption of higher education and technological skills on a lifelong basis. Just as the neo-liberal left has converted democracy from a political to an economic concept, the universities are pushed to educate and train their students for stable production and constant consumption rather than social justice and leadership. The right too has succeeded in promoting the rhetoric of lifelong learning and world class universities without any notion of publicness or common interest. They have succeeded in their endeavor by de-contextualization and de-territorialization. Whereas de-contextualization has helped in presenting the content in a form outside the original context, de-territorialization has helped in reconfiguring the whole idea of education into a system more concerned with form than the content (Gupta, 2007).

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