

## INTEGRATING KNOWLEDGE AND SKILLS IN INDIAN HIGHER EDUCATION

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*Countries that get addicted to selling their natural resources rarely develop their human resource and the educational and innovative companies that go with that. So, after the ore has been mined, the trees cut, and the oil pumped, their people are actually even more behind.*

- Thomas Friedman

Educational institutions are the treasures of knowledge. They are the agents of social change and transformation. The mission of any institution of higher education must be the pursuit of “Skill and Knowledge” in its best form and spirit. The expectations from the higher education are those of society and not only the students or teachers or educationists.

The world is changing rapidly as technological advances enable faster, dynamic interaction between individuals, groups and nations. Rapid advances in technology, growing importance of international business and increased recognition of individual needs and expectations have been the major forces of Knowledge Economy.

The educational needs of the people have changed tremendously. Indian universities and colleges are marching towards excellence. Daily chores of educators have been transformed by the increasing capacity to learn, update and communicate and perform a wide variety of tasks through technology.

The world is experiencing service revolution where “Service and Expertise” are the main business outcomes. The concept of Knowledge Management has become the kingpin and life nerve of organizations. The organizations are responding to the external challenges by modifying their management practices. One of the more prominent features of the organizational landscape in the New Millennium is a focus on a cluster of related ideas such as information, knowledge, and learning. At the centre of this cluster is the notion of knowledge Management.

### Higher Education in India

The growth of higher education in India has been phenomenal. Over the last 50 years, the Government of India has provided full policy support and substantial public funds to create one of the world's largest systems of higher education. These institutions, with the exception of some notable ones, have however, not been able to maintain the high standards of education or keep pace with developments in the fields especially in knowledge and technology.

Starting with 1950- 51, there were only 263,000 students in all disciplines in 750 colleges affiliated to 30 universities. By 2005 11 million students in 17,000 Degree colleges affiliated to 230 universities and non-affiliated university-level institutions. In addition, there are about 10 million students in over 6500 in vocational institutions. The enrolment is growing at the rate of 5.1 per cent per year. However, of the Degree students only 5 per cent are enrolled into engineering courses, while an overall 20 per cent in sciences.

As of 2010, India has 504 universities and university – level institutions which include 243 state universities, 53 state private universities, 130 deemed universities, 33 institutions of national importance established under Act of Parliament and five institutions established under various State legislations. In addition, there are 25,951 colleges including around 2,565 women colleges.

In India both public and private institutions operate simultaneously. In 2000-2001, of the 13,072 higher education institutions, 42 per cent were privately owned and run catering to 37 per cent of students enrolled into Higher education, that is, approximately 3.1 million out of total 8.4 million. It is also likely that most of the growth in the rapidly expanding higher education sector took place in private unaided colleges or in self-financing institutions. Since grant-in-aid to private colleges is becoming difficult, many governments/universities have granted recognition/affiliation to unaided colleges and many universities have authorized new 'self-financing' courses even in government and aided colleges. It is felt that as of now more than 50 per cent of the higher education in India is imparted through private institutions, mostly unaided.

Existing structure and process on regulatory arrangements on the higher education in India are as follows;

- G o I + UGC + 13 Professional Councils
- State Governments
- Universities and Affiliating Colleges
- Regulatory Bodies under direct control of the Government
- Regulations on minimum standards for various degrees Academic titles approved by the Central Government

India has one of the largest 'Higher education Systems' in the world. The Higher Education Institutions in India are regulated by different statutory professional councils such as;

**Indian Council for Agriculture Research (ICAR) – 1929**

**Medical Council of India (MCI) – 1933**

**Indian Nursing Council (INC) – 1947**

**Dental Council of India (DCI) – 1948**

**Pharmacy Council of India (MCI) – 1948**

**University Grants Commission (UGC) - 1956**

**Bar Council of India (BCI) – 1961**

**Central Council for Indian Medicine (CCIM) – 1971**  
**Council of Architecture (COA) – 1972**  
**All India Council for Technical Education (AICTE) – 1987**  
**All Indian Council for Technical Education (AICTE) – 1987**  
**National Council for Teacher Education (NCTE) – 1993**  
**Rehabilitation Council of India (RCI) – 1993**  
**National Assessment and Accreditation Council (NAAC) – 1994**  
**Distance Education Council (DEC) – 1995**

Government of India is responsible for major policy relating to higher education in the country. It provides grants to the U G C and establishes Central Universities in the country. The Central Government is also responsible for declaration of Educational Institutions as “Deemed to be University” on the recommendations of the U G C and M H R D.

State Governments are responsible for the establishment of State Universities and colleges and provide planned grants for their development and non-planned grant for their maintenance.

The co-ordination and co-operation between the Central and State Governments is brought about in the field of education through the Central Advisory Board of Education (CABE).

### **RUSA the way forward in Higher Education**

Union Ministry of Human Recourse Development has launched its ambitious programme to revamp the higher education sector in the country, Rashtriya Uchchar Shiksha Abhiyan (RUSA). Through RUSA it aims to cover 316 states public universities and 13,024 colleges across the country.

The government is looking at brining various reforms to improve the quality of higher education sector by creation of a State Higher Education Council, creation of accreditation agencies, preparation of the state perspective plans, commitment of certain stipulated share of funds towards RUSA, academic, sectoral and institutional governance reforms, filling faculty position etc.

India achieved a Gross Enrolment Ratio of 18.8% in higher Educational by 2012 through expansion schemes under the XIth Five Year Plan (FYP). Recent higher education surveys have documented three aspects. One, quantitative expansion has not always led to quality enhancement. Two, employability of engineering graduates ranges between 20% and 40%, but that of arts and science graduates is only around 10%

As 94% of students’ pool is through 33,023 colleges affiliated to 316 universities, which are seats of expansion, innovative reforms in colleges and in the process of affiliation to universities have been formulated in XIIth FYP. These have been further necessitated by the compounded load of affiliated colleges. For instance, Osmania University has 901 affiliated colleges and Puna University has 811. The system is, thus, stifling quality enhancement of state universities.

After assessment of the requirements for these reforms and the limitations of UGC, the government has evolved the Rashtriya Uchchar Shiksha Abhiyan (RUSA), a Centrally sponsored scheme for higher education, in a mission-mode to focus on state higher Educational Institutions.

### What Is Knowledge?

Today we are living in a knowledge era. This is evident from the common usage of the phrases such as knowledge wealth, knowledge society, knowledge bank, knowledge city, knowledge economy and knowledge based industry. Media are replete with advertisements of centers that claim to offer knowledge and skills that can lead to better professional development. Knowledge has come to be regarded today as a power that is wealthier than pelf and stronger than might. This scenario brings into close focus the discussion of what is knowledge, what is learning and what is education.

Human capital is the engine of development. We are undergoing a social and economic revolution which matches the impact of the agricultural and industrial revolutions., Both the agricultural revolution and the industrial revolution had one thing in common: the adoption of new fuels and new knowledge about how to use them. The current revolution is also driven by knowledge, We can call it the **knowledge revolution**. This "knowledge revolution" is driven by knowledge and by the technologies for processing and communicating it.

A.P.J.Abdul Kalam rightly pointed out

*Knowledge has always been prime mover of prosperity and power. The acquisition of knowledge has been the thrust area throughout the world.... Whether a nation qualifies as knowledge society is judged by how effectively it deals with knowledge creation and knowledge deployment.*

Alvin Toffler argues that knowledge is the central resource in the economy of the information society:

*In a Third Wave economy, the central resource –a single word broadly encompassing data, information, images, symbols, culture, ideology, and values – is actionable knowledge*

Where as the three waves are

**First Wave** – Agrarian Revolution

**Second Wave** – Industrial Revolution

**Third Wave** – Service Revolution\*

According to an eminent Economist Gurnal Myrdal:

*Education has an independent as well as instrumental value, i.e., the purpose of education must be to rationalize attitudes as well as to impart knowledge and skills. Education for national development should aim at training the young generation the life skills, self reliance, personality development, community service social integration and political understanding.*

Quality higher education develops leadership qualities in people of different professions which leads to knowledge society and develops awareness in the learners to protect the independent sovereignty and integrity of the country.

The Kothari Commission has rightly pointed out:

*The destiny of India is now being shaped in her classrooms. This we believe is no mere rhetoric. In a world based on science and technology it is education that determines the level of prosperity, welfare and security of people. The quality and number of persons coming out of our schools and colleges will decide our success in the great enterprise of national construction whose principal objective is to raise the standard of living of our people.*

The reputation, quality and overall contributions of the colleges and universities in a state have an enormous impact on the competitiveness of the state/country and its economic well-being and helps to move towards knowledge era..

Biswas kanti opines:

*Higher Education is the process by which people not only acquire knowledge and information skill, but also values and ability to live and interact within and with*

- **First Wave** is the society after agrarian revolution and replaced the first hunter-gatherer cultures.
- **Second Wave** is the society during the Industrial Revolution (ca. late 17th century through the mid-20th century). The main components of the Second Wave society are nuclear family, factory-type education system and the corporation. Toffler writes: "The Second Wave Society is industrial and based on mass production, mass distribution, mass consumption, mass education, mass media, mass recreation, mass entertainment, and weapons of mass destruction. You combine those things with standardization, centralization, concentration, and synchronization, and you wind up with a style of organization we call bureaucracy."
- **Third Wave** is the post-industrial society. Toffler would also add that since the late 1950s most countries are moving away from a Second Wave Society into what he would call a Third Wave Society. He coined lots of words to describe it and mentions names invented by him (super-industrial society) and other people (like the Information Age, Space Age, Electronic Era, Global Village, technetronic age, scientific-technological revolution), which to various degrees predicted demassification, diversity, knowledge-based production, and the acceleration of change (one of Toffler's key maxims is "change is non-linear and can go backwards, forwards and sideways").

*social groups, as well as participate in cultural life and productive activities which may not always be economic. Though not a fundamental right in India, higher education is considered essential for any nation's cultural, social and economic development.*

The purpose of education is to make human beings capable, competent and wise to meet the challenges of life.

### **Knowledge Sharing and Communication process**

Knowledge management process is about sharing, collaborating and making the best possible use of a strategic resource . Knowledge sharing is the process where individuals mutually exchange their implicit and explicit knowledge and jointly create new knowledge. Knowledge sharing is also the most important ingredient of innovation knowledge sharing process consists of two parts- donating and collecting. Knowledge donating can be defined as “communicating to others what one’s personal intellectual capital”, whereas knowledge collecting is defined as “consulting colleagues in order to get them share their intellectual capital”.

### **The Concept of Skill Development**

India has a demographic advantage of the largest youth population in the world. Integrating skills within the higher education holds the key to reaping the demographic dividend. At a juncture when the percentage of employers facing difficulty in finding skilled workforce is as high as 81per cent in Japan, 71per cent in Brazil, 49per cent in US, 48per cent in India and 42per cent in



Germany, one wonders what is it that we are turning out from our universities and colleges. Even for India- the youngest country in the world, if the percentage is 48per cent, it is an alarming situation, to put it mildly, because it means that half of our companies and businesses are finding it difficult to run their daily operations due to the lack of skilled workforce

**Skill Development and Training Programmes of Human Resource Development**

Sl.no.	Schemes/ programmes	No.
1	Vocationalisation of Secondary Education	6800
2	Polytechnics	1244
3	Institutions for diploma in pharmacy	415
4	Hotel management	63
5	Architecture	25
6	Community Polytechnic Scheme	675
7	Jan Shikshan Sansthan - Vocational Training Centres	157
8	Support For Distance Education & Web Based Learning (NPTEL)	-
9	National Institute of Open Schooling - Distance Vocational Education Programmes [Practical training through Accredited Vocational Institutes (AVIs)]	-
10	Apprenticeship Training for student of +2 Vocational stream	-
11	National Programme on Earthquake Engineering Education (NPEE)	-

Source:www.nstda.gov.in

By limiting to this to the technically and vocationally qualified and skilled workforce, primarily comprising of ITI/ITC (1 million), BE (1.7 million), Polytechnics (0.7 million), we can observe that the current pool of skilled talent is around 3.4 million .

India has the largest number of young people (age group of 14-25) and the highest global unemployment rate- these are pointers to the nature and efficiency of our education system. Against this, the job market is increasingly being redefined by specific skills. Nobody runs businesses and companies the way people did, let’s say, 20 years back. The entire skills set required to work in a company that competes at the global level has undergone change, and education, particularly Higher Education, cannot afford to overlook the new realities of the 2<sup>nd</sup> decade of the 21<sup>st</sup> century.

Across the world, skills development has been addressed with considerable seriousness. Sample this, according to figures of 2008, the percentage of workforce receiving skills training is 96per cent in Korea, 80per cent in Japan, 75per cent in Germany, 68per cent in UK and 10per cent in India. Moreover, it is estimated that 75per cent of the new job opportunities to be created in India will be skill-based. While the skills set has changed and employers look more and more for 21st century skills in the job seekers, it is required to take a close look at the academic nature of our curricula and their mode of transaction. It is not that we do not have enough degree holders in the country; we have a number of them but the world of business and industry thinks

that they are not employable. Surveys and studies are conducted at regular intervals and it is reiterated in the surveys and studies that 80 per cent workforce in rural and urban India does not possess any identifiable marketable skills.

### What is Service Revolution ?

The growth experience of India suggests that a Service Revolution—rapid income growth, job creation, gender equality, and poverty reduction led by services—is now possible.

The story of Hyderabad—the capital of the Indian state of Andhra Pradesh—is truly inspiring for latecomers to development. Within two decades, Andhra Pradesh has been catapulted straight from a poor and largely agricultural economy into a major service centre. It has transformed itself from a lagging into a leading region. Fuelled by an increase in service exports of forty-five times between 1998 and 2008, the number of information technology (IT) companies in Hyderabad increased eight times, and employment increased twenty times.

The move from an industrially-based economy to a knowledge or information-based one in the 21st Century demands a top-notch knowledge management system to secure a competitive edge and a capacity for learning. The new source of wealth is knowledge, and not labor, land, or financial capital. It is the intangible, intellectual assets that must be managed.

The key challenge of the knowledge-based economy is to foster innovation.

*For several decades the world's best-known forecasters of societal change have predicted the emergence of a new economy in which brainpower, not machine power, is the critical resource. But the future has already turned into the present, and the era of knowledge has arrived.*

--"The Learning Organization," Economist Intelligence Unit

The knowledge economy rests on three pillars:

- The role that knowledge plays in transactions: it is what is being bought and sold; both the raw materials and the finished goods
- The concurrent rise in importance of knowledge assets, which transform and add value to knowledge products
- The emergence of ways to manage these materials and assets, or KM

### Information revolution and Service Revolution

The term **information revolution** describes current economic, social and technological trends beyond the Industrial Revolution. Many competing terms have been proposed that focus on different aspects of this societal development. The British polymath crystallographer J. D. Bernal (1939) introduced the term "*scientific and technical revolution*" in his book *The Social Function of Science* in order to describe the new role that science and technology are coming to play within society. He asserted that science is becoming a "productive force", using the Marxist Theory of Productive Forces. After some controversy, the term was taken up by authors and institutions of the then-Soviet Bloc. Their aim was to show that socialism was a safe home for the scientific and technical ("technological" for some authors) revolution, referred to by the acronym **STR**. The book *Civilization at the Crossroads*, edited by the Czech philosopher Radvan Richta (1969), became a standard reference for this topic.

Daniel Bell (1980) challenged this theory and advocated *Post Industrial Society*, which would lead to a service economy rather than socialism. Many other authors presented their views, including Zbigniew Brzezinski (1976) with his "Technetronic Society".

The main feature of the information revolution is the growing economic, social and technological role of information. Information-related activities did not come up with the Information Revolution. They existed, in one form or the other, in all human societies, and eventually developed into institutions, such as the Platonic Academy, Aristotle's Peripatetic school in the Lyceum, the Musaeum and the Library of Alexandria, or the schools of Babylonian astronomy. The Agricultural Revolution and the Industrial Revolution came up when new informational inputs were produced by individual innovators, or by scientific and technical institutions. During the Information Revolution all these activities are experiencing continuous growth, while other information-oriented activities are emerging they are the part of service revolution.

The Economy of India is the eleventh largest in the world by nominal GDP and the fourth largest by purchasing power parity (PPP). The country's per capita GDP (PPP) is \$3,290 (IMF, 127th) in 2010. Following strong economic reforms from the socialist inspired economy of a post-independence Indian nation, the country began to develop a fast-paced economic growth, as free market principles were initiated in 1990 for international competition and foreign investment. Economists predict that by 2020, India will be among the leading economies of the world. India's top five trade partners are UAE, China, USA, Saudi Arabia and Germany.

**Share of Service Sector in GDP**

Year	Primary Sector	Secondary Sector	Service Sector
1950-51	59.1	13.3	27.6
1970-71	48.1	19.9	32.0
1990-91	34.9	24.5	40.6
2000-01	26.2	24.9	48.9
2010-12	17.4	25.9	56.9
*2015-16	16.5	29.8	45.4

**Source: Economic Survey of India. 1950 - 2016) \* Estimates**

India's large service industry accounts for 57.2% of the country's GDP while the industrial and agricultural sector contribute 28% and 14.8% respectively. It is clear that service sector is steadily expanding since 1950.

Agriculture is the predominant occupation in India, accounting for about 52% of employment. The service sector makes up a further 34%, and industrial sector around 14%. The labour force totals half a billion workers. Major agricultural products include rice, wheat, oilseed, cotton, jute, tea, sugarcane, potatoes, cattle, water buffalo, sheep, goats, poultry and fish. Major industries include telecommunications, textiles, chemicals, food processing, steel, transportation equipment, cement, mining, petroleum, machinery, information technology-enabled services and pharmaceuticals. However,



**Share of Service Sector in Employment**

Year	Primary Sector	Secondary Sector	Service Sector
1950-51	72.1	10.7	17.2
1970-71	72.1	11.2	16.7
1990-91	66.8	12.7	20.5
2000-01	56.7	17.5	25.8
2010-12	51.1	22.4	26.6
2014-15*	47	22	31

Source: Economic Survey of India. 1950 - 20115) \* Estimates

statistics from a 2009-10 government survey, which used a smaller sample size than earlier surveys, suggested that the share of agriculture in employment had dropped to 45.5%.

India is 13<sup>th</sup> in services output. The services sector provides employment to 23% of the work force and is growing quickly, with a growth rate of 7.5% in 1991–2000, up from 4.5% in 1951–80. It has the largest share in the GDP, accounting for 55% in 2007, up from 15% in 1950.

**Shift of Economic Activity in India**

Year	Primary Sector	Secondary Sector	Service Sector
1950-70	I	II	III
1970-90	I	II	III
1990-00	III	I	II
After 2000*	III	II	I

Source: Economic Survey of India. 1950 - 2010)

\* Age of Super Industrialization and Service Revolution

Information technology and business process outsourcing are among the fastest growing sectors, having a cumulative growth rate of revenue 33.6% between 1997–98 and 2002–03 and contributing to 25% of the country's total exports in 2007–08.<sup>[70]</sup> The growth in the IT sector is attributed to increased specialisation, and an availability of a large pool of low cost, but highly skilled, educated and fluent English-speaking workers, on the supply side. This is matched on the demand side by an increased demand from foreign consumers interested in India's service exports, or those looking to outsource their operations. The share of the Indian IT industry in the country's GDP increased from 4.8 % in 2005–06 to 7% in 2008. In 2009, seven Indian firms were listed among the top 15 technology outsourcing companies in the world. Tourism in India is relatively undeveloped, but growing at double digits. Some hospitals woo medical tourism.

Since liberalisation, the value of India's international trade has increased sharply, with the contribution of total trade in goods and services to the GDP rising from 16% in 1990–91 to 43% in 2005–06. India's major trading partners are the European Union, China, the United States and the United Arab Emirates.

Today, knowledge has become a major characteristic that differentiates a developed nation from a developing one. Developed nations are the ones that have strengthened their economy by harnessing their scientific knowledge for technological growth and development.

The Indian knowledge scenario is not very heartening in the global perspective, more so, considering our aspiration to reach the status of a developed nation by 2020. Our total investment

in R and D is only 1/250<sup>th</sup> of that of the USA and 1/340<sup>th</sup> of that of Japan and our share of global scientific output in 1998 was only 1.58 % of the world's total. Knowledge generation directly impacts national development when it results in new and improved, patentable industrial processes.

However, we should draw inspiration from the fact that knowledge is not new to India. Our glorious cultural heritage brings home to us that Indian civilization had flourished as a knowledge society in the ancient times. Mahatma Gandhi who fought the mighty British Empire through his weapons of Truth and Nonviolence was modest in mentioning that he did not tell the world anything new. He said, "The principles of truth and nonviolence are as old as these hillocks". Just as Gandhi demonstrated the powers of these ancient tenets of Indian philosophy to the world through his convictions in their fundamental strength a knowledge revolution aimed at development also demands such a deep faith in our glorious legacy. In a sense our march towards vision 2020 has also to be a march towards our own rediscovery.

Another important factor in favour of India is that she will be enjoying a unique demographic advantage of having the largest young population in the coming decades. We can capitalize on this advantage by reforming our education structures in order to bring majority of this youth under their fold so as to trigger a knowledge revolution. Former Prime Minister Dr. Manmohan Singh, in his speech at the launch of National Knowledge Commission, observed in this context, "it might be our opportunity to leapfrog in the race for social and economic development."

Growth in the service economy also facilitates growth in the rest of the economy. Services such as energy, telecommunications and transportation are important to all sectors of the economy; financial services facilitate transactions and investment; health and education services that contribute to a fit, well-trained workforce; and legal and accountancy services allow an institutional framework required to run a successful market economy

### Summing Up

- India is expected to be home to a skilled workforce of 500 million by 2022. About 12 million persons are expected to join the workforce every year. This talent pool needs to be adequately skilled. Skills and knowledge are the driving forces of economic growth and social development for any country.
- Skills and knowledge are the driving forces of economic growth and social development for any country. The skill sets that are required in the manufacturing and service sectors are quite different from those in the agriculture sector. This implies that there will be a large skill gap when such a migration occurs, as evidenced by a shrinking employment in the agriculture sector. This scenario necessitates skill development in the workforce.
- The knowledge revolution and skill development is changing society.
- Knowledge and skill is an intangible privately produced public good, and is today the key determinant of economic and social progress.
- In a knowledge-based society markets behave differently and require more egalitarian patterns of distribution of resources in order to achieve efficiency ie., skill development..
- The primacy of human capital can lead to changes in the distribution of income and wealth, in corporate structure and financial markets, and in the environmental impact of economic activity

- The knowledge society is more innovative, the cross-fertilization of different ideas and ways of thinking may prove valuable.
- Knowledge-intensive development is the key to economic progress. It replaces resource-intensive growth.
- The knowledge society is innovative and diverse, but deeply conservative in the use of the earth's resources. Humans and human capital are at the center of economic progress, replacing capital and material property.

Biswas kanti rightly pointed out:

*Higher Education is the process by which people not only acquire knowledge and information skill, but also values and ability to live and interact within and with social groups, as well as participate in cultural life and productive activities which may not always be economic. Though not a fundamental right in India, higher education is considered essential for any nation's cultural, social and economic development.*

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