

INFORMATION LITERACY AND EMERGING KNOWLEDGE ECONOMY IN INDIA

S.B. GHOSH¹

ANUP KUMAR DAS²

Abstract: *The process of liberalization and globalization of Indian economy started in 1990s that catalyzed the emergence of knowledge economy in India. Since then many Indian corporate organizations established their presence outside the country, forming an informal India Inc. in competing globally. The information infrastructure situation in India has also improved a lot since 1990s, not only in the corporate organizations that exploit knowledge resources for the profit making, but also in the public institutions that generate knowledge for the development of all aspects of society and humanity. Judicious use of information resources, available now mainly in the public institutions, especially in the higher educational and research institutions, should be measured in terms of information literacy of the stakeholders. Information literacy is required for effective use, consumption and assessment of information resources available in the institutions. Information literacy can also bridge the gap between digital divide that we observe in many grass-root level initiatives in India in the forms of 'common services centres', 'village knowledge centres', 'community information centres', 'e-choupals', 'gyandoot', etc. ushered in with the participation of NGOs, developmental agencies and corporate organizations. Present study explores various initiatives in India that address information literacy in maximizing utilization of knowledge resources. This study also focuses on the various initiatives undertaken by different institutions, starting from the elementary level to the higher educational level, professional societies and other organizations.*

1. Introduction

Information literacy is an essential part in the lifelong learning process, which empowers individual lifelong learners to acquire their life skills, soft skills and vocational skills throughout their lifespan to take part in their social, cultural, vocational and professional life. Information literacy is considered as an intervention tool for socio-economic empowerment in a globalizing world to stay ahead in a competitive world with knowledge superiority. Information literacy is especially important in the context of changing global economy where knowledge-based economy supersedes other forms of economy such as agrarian economy and industrial economy, in terms of economic power of the nation and socio-economic empowerment of citizens. In his books, Amartya Sen [9, 10] justifies the notion of economic empowerment of people through the participation in continuing education until workforce attains certain levels of accuracy, understands job specifications and follows instructions.

In *The Third Wave* book, Alvin Toffler [12] divided history of the evolution of human society into three major eras, or waves. The first wave, from 8000 BC to 1750 AD was termed the agricultural revolution, and was based on farming as the world's primary occupation. In the second wave, from 1750 to 1955, the rise of industrial civilization and the industrial revolution marked the main occupation. The developed world was engaged in or moving toward mass production of industrial goods. The third wave, which began in the mid-1950s, is sometimes referred to as the information age and is based on the delivery of services. Important point to note from Toffler's viewpoint is that all the societies were profoundly transformed with each wave, and that the transition from one to the next was never easy.

¹ Former Professor, Indira Gandhi National Open University, XY-72, Sarojini Nagar, New Delhi – 110023, India.
Email: sbghosh@hotmail.com

² Centre for Studies in Science Policy, School of Social Sciences, Jawaharlal Nehru University, New Delhi - 110067, India. Email: anupdas2072@hotmail.com

What Toffler envisaged three decades ago, we can see it today in the proliferation of knowledge-based industries as well as service industries not only in developed countries but also in developing countries such as India, China and Brazil. Advanced countries such as USA, UK, Japan and Germany were ahead in third wave, which started after the World War II. Many knowledge-based industries emerged in these developed countries due to concerted efforts of advanced research, development and entrepreneurship. These nations nurtured talents and attracted creative and visionary people to establish knowledge-based economy. That is, the enterprises, which have superior knowledge resources, have tremendous growth opportunities in global markets and certainly have edge over others. They became the trend setters and are followed by many others. In the transition to the information/knowledge based society, two aspects are important - development of ICT infrastructure for information accessibility and information literate citizen. If the large number of citizens becomes information literate, they will be able to utilize a considerable amount of information resources for the generation of wealth for the welfare of the society. They can be a driving force in demanding adequate information infrastructure. The information literacy can also play a major role in e-readiness of a country.

In a knowledge society, knowledge itself becomes the factor of productions, and plays a central role in driving economic and social development. In a knowledge economy, the knowledge-driven industries have much higher economic growth, both in terms of volume and revenue, than manufacturing industries and agriculture. This segment also requires intellectually motivated, creative, competitive decision makers who will enable the knowledge organizations to endeavor their goals. This workforce would use information resources, information services and information systems judiciously, rationally and adequately to pursue their professional goals, organizational goals and social goals. The utilization of information resources can be habituated and sensitized through the information literacy competency development programmes. The information literacy is required at every stage and sphere of a person's life, starting from the school education to higher education, from social life to professional life.

2. Situating Knowledge-based Economy in India

In India large-scale industrial growth started few decades ago mostly after independence. India's first Prime Minister Jawaharlal Nehru had futuristic vision to build-up a self-sufficient nation. He also initiated many public institutions and research centres for making the nation superior in scientific and technological knowledge. Green revolution was a milestone in Indian R&D activities in 1980s, which made India self-reliant in food grains. In early 1990s, India had reformed her economy to the tune of globalisation and liberalization to attract foreign direct investments in India and to explore world markets of Indian products and services. Although first two waves came in India very lately, the third wave has already knocked the doors. But it is very limited to a few privileged states in India, particularly centered on metropolitan cities, which have basic infrastructure to host the knowledge-based industries. Now, the transitional Indian society produces success stories of knowledge-based industries in every corner of the country.

The knowledge-based economy is in existence in developed countries for a long time, whereas the emerging economies, some of them belong to popularly known BRICS (Brazil, Russia, India, China and South Africa) countries [14], are also very keen to establish knowledge-based economy utilizing their huge talent pools, entrepreneurial capabilities and improved infrastructure. Thus, knowledge-based economy is not a distance dream for India, like many other emerging economies. The impact of third wave in the emerging economies is expected much greater than the other two.

The Gross Domestic Product (GDP) is a measure of the value of goods and services produced in a year, contributed by all sectors of national economy viz., agriculture, industry (also known as manufacturing) and services (also known as tertiary) sectors. GDP is a strong economic indicator accepted worldwide. Table 1 shows the GDP contributions vis-à-vis labour force in different sectors in BRICS countries [2]. This Table also indicates that in most emerging nations, agriculture sector contributes least in national economy. On the other hand, amongst three sectors, services sector in India deploys least manpower (28% of total labour force) but responsible for the highest GDP contribution for the country (54.6% of total GDP). Table 1 also indicates that amongst the BRICS nations, China has largest economic growth rate (11.1%) followed by India (9.4%). This is because of China's excellence in manufacturing industries and India's excellence in services sector that is appreciated world over. Table 2 shows India's position in

SAARC (South Asian Association for Regional Cooperation) countries based on GDP contributions by different sectors. This Table indicates that services sector becomes strong in major SAARC countries, viz. India, Pakistan, Maldives and Sri Lanka [2].

Table 1: GDP Contributions vis-à-vis Labour Force in Different Sectors of BRICK Countries

	GDP Contribution	Labour Force	GDP Growth Rate
Brazil	Agriculture: 5.1% Industry: 30.9% Services: 64%	Agriculture: 20% Industry: 14% Services: 66%	3.7%
Russia	Agriculture: 4.9% Industry: 39.3% Services: 55.8%	Agriculture: 10.8% Industry: 29.1% Services: 60.1%	6.7%
India	Agriculture: 17.5% Industry: 27.9% Services: 54.6%	Agriculture: 60% Industry: 12% Services: 28%	9.4%
China	Agriculture: 11.7% Industry: 48.9% Services: 39.3%	Agriculture: 45% Industry: 24% Services: 31%	11.1%
South Africa	Agriculture: 2.7% Industry: 30.9% Services: 66.4%	Agriculture: 30% Industry: 25% Services: 45%	5%
<i>Source: The World Factbook 2007</i>			

Table 2: GDP Contributions vis-à-vis Labour Force in Different Sectors of SAARC Countries

	GDP Contribution	Labour Force	GDP Growth Rate
Afghanistan	Agriculture: 38% Industry: 24% Services: 38%	Agriculture: 80% Industry: 10% Services: 10%	8%
Bangladesh	Agriculture: 19.7% Industry: 28% Services: 52.3%	Agriculture: 63% Industry: 11% Services: 26%	6.4%
Bhutan	Agriculture: 24.7% Industry: 37.2% Services: 38.1%	Agriculture: 63% Industry: 6% Services: 31%	8.8%
India	Agriculture: 17.5% Industry: 27.9% Services: 54.6%	Agriculture: 60% Industry: 12% Services: 28%	9.4%
Maldives	Agriculture: 16% Industry: 7% Services: 77%	Agriculture: 22% Industry: 18% Services: 60%	18%
Nepal	Agriculture: 38% Industry: 20% Services: 42%	Agriculture: 76% Industry: 6% Services: 18%	1.9%
Pakistan	Agriculture: 19.4% Industry: 27.2% Services: 53.4%	Agriculture: 42% Industry: 20% Services: 38%	6.6%
Sri Lanka	Agriculture: 16.5% Industry: 27.1% Services: 56.5%	Agriculture: 34.3% Industry: 25.3% Services: 40.4%	7.4%
<i>Source: The World Factbook 2007</i>			

Table 3: Growth of GDP by Economic Activity in India

	Sector	GDP Growth Rate				GDP Contribution (percent)			
		2003-04	2004-05 (P)	2005-06 (Q)	2006-07 (R)	2003-04	2004-05 (P)	2005-06 (Q)	2006-07 (R)
1	Agriculture (Agriculture, Forestry & Fishing)	10.0	0.0	6.0	2.7	21.7	20.2	19.7	18.5
2	Industry (Manufacturing, Mining & Quarrying, Electricity, Gas & Water Supply, Construction)	7.4	9.8	9.6	10.9	25.6	26.1	26.2	26.6
3	Services (Trade, Hotels, Transport & Communication; Financing, Insurance, Real Estate & Business Services; Community, Social & Personal Services)	8.5	9.6	9.8	11.0	52.7	53.7	54.1	54.9
	Overall GDP Growth Rate	8.5	7.5	9.0	9.4	100	100	100	100

(P) Provisional, (Q) Quick Estimates (R) Revised Estimates
Source: *Monthly Economic Report, November 2007*

Table 3 shows that the percentage share of GDP from service sector in India has already been doubled than industry sector, whereas agriculture sector is continuously reducing its GDP contribution in contrary to its largest manpower engagement. The knowledge processing industries, IT and IT-enabled services industries are the jewels in the services sector where India's best talents get absorbed or reverse brain-drained occurred. Government of India provides appropriate supports to each state government for establishing knowledge-based industries by promoting software technology parks, biotechnology parks, export-processing zones, special economic zones and so on, beyond the metro cities. Thus, the largest contributor in the Indian economy is the service sector, which is growing very rapidly compared to other sectors.

The e-Readiness is another indicator that shows the ability to use Information and Communication Technologies (ICT) to develop one's economy and to foster one's welfare. Table 4 shows e-Readiness ranking of the countries in Asia and Pacific region, where India stands 10 out of 16 countries in this region and 54 out of 69 countries of the world. This ranking is based on the annual study of the *Economist Intelligence Unit* on the parameters such as connectivity and technology infrastructure, business environment, social and cultural environment, legal environment, government policy and vision, consumer and business adoption [3]. India's scores in these parameters are: connectivity and technology infrastructure 2.9 (out of 10), business environment 6.25, social and cultural environment 5.2, legal environment 5.5, government policy and vision 4.6, consumer and business adoption 4.5 and overall score 4.66 (out of 10), contrary to the region's toper Hong Kong's scores in these parameters which are: connectivity and technology infrastructure 8.5, business environment 8.62, social and cultural environment 6.8, legal environment 9.7, government policy and vision 9.1, consumer and business adoption 9.5 and overall score 8.72. Although the facts that India stands better than her neighboring countries China, Sri Lanka and Pakistan in e-readiness ranking, and India has superior standing in IT-based industries, common citizens in India do not have sufficient access to ICT infrastructure and knowledge resources. Social equity through information literacy and lifelong learning can only be ensured when Indian society bridges the digital and knowledge divides across the lengths and breadths of the country. The *Human Development Report 2007-2008 (HDR)* [13] also indicates India's poor standing in all aspects of human development. The HDR ranks India 128 out of 177 countries, based on different sets of indicators, whereas India's neighboring countries China stands 81, Sri Lanka stands 99 and Pakistan stands 136.

Table 4: e-Readiness Ranking in Asia and Pacific Region

2007 e-Readiness Rank in Region	2005 e-Readiness Rank in Region	Country	2007 Overall e-Readiness Rank (out of 69 countries)	2007 e-Readiness score (of 10)	Human Development Index Ranking (out of 177 countries) ^{##}
1	1	Hong Kong	4	8.72	21
2	3	Singapore	6	8.60	25
3	2	Australia	9	8.46	3
4	4	New Zealand	14	8.19	19
5	5	South Korea	16	8.08	26
6	7	Taiwan	17	8.05	81
7	6	Japan	18	8.01	8
8	8	Malaysia	36	5.97	63
9	9	Thailand	49	4.91	78
10	10	India	54	4.66	128
11	11	Philippines	54	4.66	90
12	12	China	56	4.43	81
13	13	Sri Lanka	61	3.93	99
14	16	Pakistan	63	3.73	136
15	15	Vietnam	65	3.73	105
16	14	Indonesia	67	3.39	107

Sources: The 2007 e-Readiness Rankings; ^{##}Human Development Report 2007/2008

With the emergence of knowledge-based industries, digital and knowledge divides in India seems to be bottleneck in provisioning adequate information infrastructure and manpower supply, necessary for these industries and supporting services, although the country has made substantive progress in this area. Thus, the policy makers and social scientists are adopting various frameworks to address the digital and knowledge divides in India for achieving overall economic growth. Information and Communication Technologies (ICT) is being used worldwide as an intervention tool for socio-economic empowerment, better governance, illiteracy eradication and poverty removal. The ICT is also being used as a tool for empowering marginalized groups such as women, artisans, physically challenged and dalits (scheduled tribes). In India, ICT is also adopted at the grassroots level through various initiatives and pilot projects on experimental basis. The public-private partnerships (PPP) have been established across India, where many corporate organizations are collaborating with non-governmental organizations (NGOs) local self-help groups and local governments for various social development and social welfare programmes out of their 'social outreach' and 'corporate social responsibility' mandates. Many national and international developmental and funding agencies are also collaborating with grassroots level NGOs, volunteering societies to address digital divide in India. Government of India and state governments are also taking appropriate steps in sustaining economic growth, employment generation and strengthening information infrastructure. Recently Government of India established National Knowledge Commission (NKC) to formulate national plans and policy frameworks for nurturing knowledge-based economy in India and addressing challenges of globalization.

3. National Knowledge Commission Promoting Knowledge-based Economy in India

The National Knowledge Commission (NKC), a recent initiative of the Government of India, is a concerted approach in making India as a major economic power in the global scenario [6]. The NKC also provides adequate inputs for action to achieve the goal of knowledge society. NKC aims at establishing a knowledge-oriented paradigm of development and to address the digital divide in India. NKC was established in June 2005 with following objectives:

- To build excellence in the lifelong, non-formal, informal and formal educational systems to meet the knowledge challenges of the 21st century and increase India's competitive advantage in fields of knowledge.
- To promote creation of knowledge in S&T laboratories.
- To improve the management of institutions engaged in intellectual property rights.
- To promote knowledge applications in agriculture and industry.
- To promote the use of knowledge capabilities in making government an effective, transparent and accountable service provider to the citizen and promote widespread sharing of knowledge to maximize public benefit.

NKC has five distinct focus areas:

(i) **Access to Knowledge:** Providing access to knowledge resources through strengthening information infrastructure and networks; promoting and adopting open access literature, open learning resources, open courseware and open source software. Focal points in this focus area are literacy, language, translation, libraries, knowledge networks and knowledge portals.

(ii) **Knowledge Concepts:** Nurturing intellectual capabilities and enhancing professional and vocational skills of youths through a systematic approach to lifelong learning. Focal points in this focus area are school education, vocational education, higher education, medical education, legal education, management education, engineering education, open and distance education.

(iii) **Knowledge Creation:** Making self-sufficiency in knowledge creation; strengthening indigenous research capabilities in science, technology and medicine (STM) areas; generating knowledge for social development. Focal points in this focus area are science and technology, intellectual property rights (IPRs), innovation and entrepreneurship.

(iv) **Knowledge Application:** Deriving maximum benefits from intellectual assets, applying knowledge in fields such as agriculture, industry, health and education where productivity can be enhanced. Focal points in this focus area are traditional knowledge and agriculture.

(v) **Knowledge Services:** Making governance and government functionaries more accountable, transparent, efficient and sensitive to the causes of common men. Focal point in this focus area is e-governance.

NKC has recently come up with some bold recommendations for harnessing the potential of information literacy to promote a people-centred, plural and inclusive knowledge society in India [6]. It has recommended certain frameworks for achieving quality education for all, inculcating information literacy, through a wide-spread lifelong learning system in the country.

NKC is also advocating open courseware and open learning resources for sharing intellectual capitals of elite institutions in India to supplement lifelong learning systems in India [6]. For example, Government of India has initiated a programme called 'National Programme on Technology Enhanced Learning' (NPTEL). This is an open courseware initiative by seven Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc). The main objective of this programme is to enhance the quality of engineering education in the country by developing more than 200 curricula-based video and web courses. Premier institutions of India are participating in this innovative programme for the production and dissemination of quality courseware in the areas of engineering and technology. Already a number of open

courseware is now available through its website. The video courses are at first broadcasted through the Eklavya Technology Channel – a technical education channel for television. This programme addresses harmonization of engineering curricula across the country, refreshing knowledge of technical teachers/students as well as the shortage of quality teaching faculty at the second and third tier (i.e., government-supported and self-supported) institutions. This open educational resource supplements the lifelong learning process of individuals who want to catching up and brushing up their knowledge.

NKC reports and recommendations have covered all aspects of socio-economic development that will trigger an equity-based, responsible, responsive, competent and competitive socio-economic platform to meet the challenges of globalization and to develop an inclusive, plural and people-centred knowledge-based society across the country.

4. Information Literacy and Lifelong Learning

Information literacy is a set of learning skills which enable a lifelong learner to effectively cope with massive amounts of information, from a variety of media formats, such as, books, journals, magazines, newspapers, audiovisual sources, scholarly databases, and Internet. These skills include the ability to understand how to find the information he wants and how to determine the 'best' information for his needs. Information literacy is a tool for promoting lifelong learning. It is common to all learning environments, especially lifelong learning environment where learners become more self-directed, and assume greater control over their own learning. The Information Literacy Standards, as adopted by the national and international library associations, assume that an information literate individual is able to:

- Determine the extent of information needed;
- Access the needed information effectively and efficiently;
- Evaluate information and its sources critically;
- Incorporate selected information into one's knowledge base;
- Use information effectively to accomplish a specific purpose; and
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.

Information literacy of lifelong learners can enhance the capabilities of a nation for optimum utilization of knowledge resources. It can also make creation and generation of new knowledge a reality. To derive maximum benefits from intellectual assets, to enhance the productivity in different social sectors, and to make public functionaries more accountable and transparent, coherent knowledge dissemination to the society are the needs of the hours where lifelong learners have much more to contribute. Thus, information literacy component in lifelong learning system is needed to achieve these societal goals.

5. Role of Information Literacy in Knowledge Life Cycle

NKC has identified different phases of life cycle based on a person's entire life span, from the birth to post work age. He/She needs different kinds of information in different phases of life. The young persons are acquiring knowledge through secondary and higher education. Here, the teachers and library professionals impart the information literacy competency to the learners through information literacy programmes. Information literacy is a lifelong process that starts at the youth age and may go until post work age. Information literacy also has a component of lifelong learning. The formal and informal ways of learning are circled around a person's life, where the person acquires new sets of knowledge of his/her interests, updates his/her existing knowledge on his/her profession or vocation. Information literate persons acquire knowledge; then use knowledge resources to generate wealth and welfare. In post work life, persons share wisdom and experiences with the younger generations. Here also information literacy plays its role to absorb the knowledge from experienced persons to and use the same knowledge in generating wealth and welfare of the society. This is also another cycle of knowledge creation, dissemination and utilization. Figure 2 depicts the knowledge life cycle, based on a person's entire lifespan, where information literacy is integrated in every phase of one's lifespan.

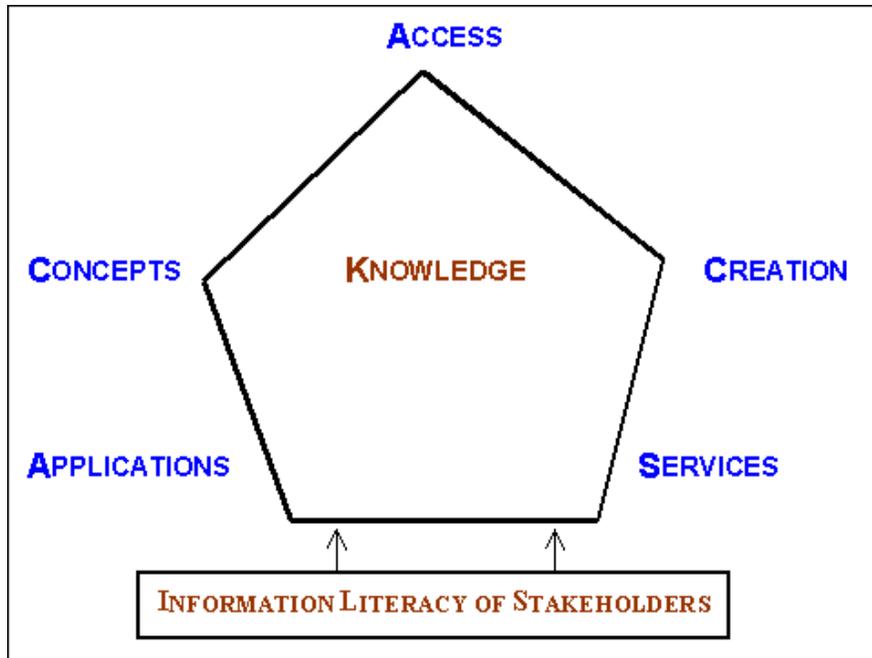


Fig. 1: Knowledge Pentagon and Information Literacy

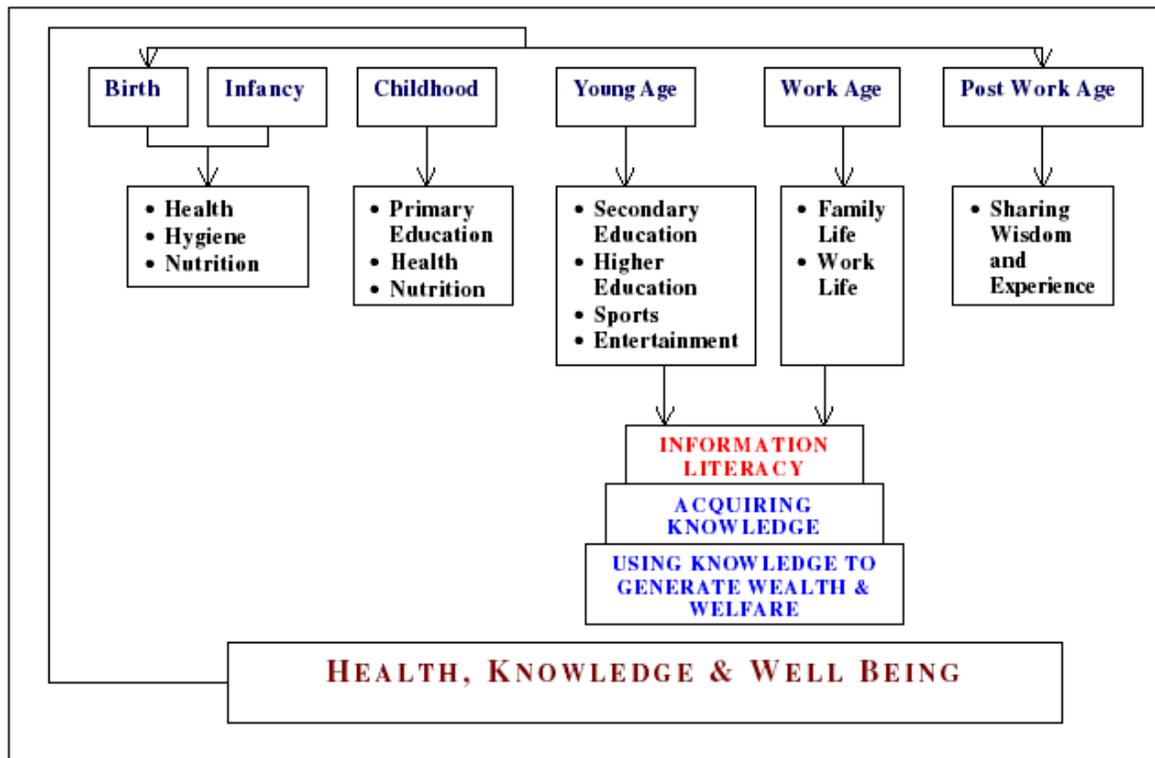


Fig. 2: Knowledge Life Cycle: Integration of Information Literacy

6. Community Information Initiatives in India

Former President of India Dr. A.P.J. Abdul Kalam has coined a new term PURA (Providing Urban amenities in Rural Areas) that describes coherent knowledge and resources distribution across the country [1]. The PURA delivers three types of connectivity across the country: physical connectivity by providing roads in rural areas, electronic connectivity by providing reliable communication network and knowledge connectivity by establishing more professional institutions and vocational training centres. Schools with best infrastructure and teachers who love teaching, primary health centres, silos for storage of products and markets for promoting cottage industries and business, employment opportunities for artisans are some of the elements of PURA. PURA also helps in poverty removal. He has also envisaged establishing Village Knowledge Centres across India. To implement visions of President of India and other contemporary social reformists, Government of India and other agencies have taken up a number of programmes and initiatives across the country. Some initiatives are based on successful partnership between private bodies (such as corporate and NGOs) and public bodies (such as village Panchayats and municipalities), this may known as private public partnership (PPP), e.g., eChoupal, TARAHaat. Some initiatives provide Government to Citizens (G2C) interface to ensure better transparency in governance, e.g., Bhoomi, Gyandoot, Community Information Centres, etc. These information centres provide various kinds of community information as required by common citizens, e.g. education, health, nutrition, sanitation, agriculture, wholesale prices of agricultural products, village industries, weather, land records, utilities (such as, ration cards, driving licenses, birth certificates, death certificates, caste certificates, income certificates, etc.), and so on. Some projects have coverage in particular areas, e.g. Bhoomi (covering land records), whereas some other initiatives have coverage in an array of areas, e.g. Community Information Centres (covering education, health, utilities, etc.). Most of these initiatives are establishing information kiosks or cyber cafes at the village and the semi-urban areas, with the hardware, software, network, telephone and power supports from the respective institutions involved, and with the participations of the self-help groups or volunteers who will run the information kiosks at the doorsteps of the villagers and common citizens. VSAT terminals are also provided in few initiatives, like, Community Information Centres and eChoupal, where telephone connectivity is not adequately available. These community information initiatives deliver e-literacy programmes to the common citizens where basic skills of using computers and Internet are imparted. These initiatives also deliver information literacy training to the users of information kiosks, where learners know how to use information resources available within the respective initiative's portal, intranet and Internet, and how these information can be used in solving the problems of individuals in their vocational (e.g. agricultural know-how), personal (e.g. getting a certificate) and social (e.g. sanitation) life.

Table 5: Community Information Initiatives in India

Name of the Project (with Web Address)	Coverage	Institutions Involved	Type of Participation
Common Services Centre (CSC) (www.mit.gov.in/default.aspx?id=825)	establishing 100,000 Common Services Centers in 600,000 villages of India	Department of Information Technology; Infrastructure Leasing & Financial Services Limited	G2C
Akhaya (www.akshaya.net)	1 State (Kerala)	Kerala State Information Technology Mission	G2C
Bhoomi (www.revdept-01.kar.nic.in)	1 State (Karnataka)	Revenue Department; National Informatics Centres	G2C
Community Information Centres (CIC) (www.cic.nic.in)	10 States (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Jammu & Kashmir)	Ministry of Development of North Eastern Region (DONER); National Informatics Centres	G2C
Digital Gangetic Plain (www.iitk.ac.in/mladgp)	1 State (Uttar Pradesh)	Media Lab Asia; IIT Kanpur	G2C
Drishtee (www.drishtee.com)	5+ States (Haryana, Punjab, Madhya Pradesh, Rajasthan and Bihar)	Drishtee Ltd.	PPP
eChoupal (www.echoupal.com)	6 States (Madhya Pradesh, Karnataka, Andhra Pradesh, Uttar Pradesh, Maharashtra and Rajasthan); 31,000 villages.	International Business Division of ITC Limited	PPP
Gyandoot (www.gyandoot.nic.in)	1 District (Dhar district of Madhya Pradesh state)	Gyandoot Samiti & National Informatics Centres	G2C
Rural e-Seva (www.westgodavari.org)	1 District (West Godavari district of Andhra Pradesh state)	West Godavari District Administration	G2C
TARahaat (www.tarahaat.com)	4 States (Punjab, Haryana, Madhya Pradesh, Uttar Pradesh)	Development Alternatives	PPP
Village Knowledge Centres (VKC) (www.mission2007.org)	600,000 villages across India by the year 2007	National Alliance for Mission 2007, NGOs, Department of Information Technology, Ministry of Panchayati Raj, Ministry of Agriculture, National Bank for Agriculture and Rural Development, etc.	G2C, PPP

According to a study [4], only 29,820 rural libraries exist in India (supported by a government agency such as Raja Rammohan Roy Library Foundation, central government, state library authority, or local administration), in contrast to proposed 600,000 village knowledge centres. If the village knowledge centres are established, the villagers would get exposure to the information resources for decision making in their respective areas of interest such as health, land records, agriculture, village industries, etc. The community information centres in 10 states are also disseminating various kind of information, related to community development and utilities. In wake of emerging knowledge society, a range of decisive information, which is still a distant dream to the common citizens, would be accessible if the proposed initiatives are properly implemented. But another aspect needs to be discussed, that is, other than documents on ones vocational and social interests, rural libraries also enhance reading habits of villagers, particularly, the literates and neo-literates. The reading habit helps in personality development, creativity and imagination. The reading habit can also broaden the person's liberal viewpoints. But village knowledge centres or community information centres may or may not provide similar kinds of traits with the citizens. That is why, village knowledge centres can be integrated with the existing rural libraries and where rural libraries do not exist, village knowledge centres can be set up along with rural libraries.

Ghosh, SB; Das, Anup Kumar (2009). **Information Literacy and Emerging Knowledge Economy in India**. In Raghavan, KS; Prasad, KN (eds.): *Library and Information Systems: From Alexandrian Heritage to Social Networking – Essays in Honour of Prof. S. Parthasarathy*. Bangalore: SRELS, pp. 16-44.

7. Information Literacy Programmes in India

Information literacy programmes are already in existence in narrower forms in various libraries and information centres in India, in the forms of user education, bibliographic instruction, library instruction, library research, and so on.

Many advocates of information literacy in India have proposed to integrate information literacy programme with the academic curricula of educational systems of India, starting from the school level to the higher education, vocational education, professional education, lifelong education and research degree level. NKC recommendations in the focal areas of libraries, literacy, secondary education, professional education, vocational education, and lifelong education also have enough space for inclusion of information literacy, computer literacy and media literacy components for development of competent knowledge workers as required in the knowledge-based economy.

7.1 Information Literacy Programme at School Level

A study on information literacy programme in India reveals that major initiatives have been taken at the school level. For example, the Jawahar Navodaya Vidyalayas, a network of rural residential schools supported by the Government of India for the rural children covering 6th to 12th classes, are a unique experiment wherein each of the students is to prepare project report using the information resources of the respective libraries. The curriculum is designed to provide opportunities to use information and ICT to facilitate learning process. At present, there are 565 such schools spread over 34 States and Union Territories with a strength of 0.18 million of students [7].

In other cases, most of the schools at junior and senior level have library facilities with ICT components. In many classes, how to use library resources such as atlases, encyclopaedias, dictionaries, periodicals, etc. are usually taught and demonstrated. These resources are now available both in print format as well as electronic format. Erstwhile Indian National Scientific Documentation Centre (INSDOC) (Now, National Institute of Science Communication and Information Resources) developed an audio-visual programme for junior school children about how to find information from such sources. Many Schools have library hour as a part of the curricula, mostly to educate pupil for use of library for the class work and projects. Similarly, many public schools, convent schools and government schools have good library facilities and information infrastructure. In these schools, library classes are allotted for the every class of primary, secondary and senior secondary level, where information literacy competency is provided.

7.2 Information Literacy in Higher Learning Institutions

In the institutions of higher learning in India, user education, library instruction and bibliographic instruction programmes are provided. In universities for research degree programmes, a course on research methodology is included where library research techniques are also taught. Some universities and research institutions subscribe to the electronic resources, on consortium basis or individual basis. The producers or vendors of these electronic information resources regularly conduct user training programmes for use of those resources. The Indian Medlars Centre of National Informatics Centre conducts a user-training programme in every four month on their information products and services, such as IndMed databases, medIND open access journal literature, OpenMED open access archive, UNCat union catalogue databases, etc., which are designed mainly for health professionals and health librarians. Some orientation programmes and refresher courses also impart information literacy competency to the learners. The universities also conduct orientation programmes from time to time for their academics on use of electronic resources.

In the corporate organizations and corporate R&D centres, information literacy competency is an essential trait of the researchers and knowledge workers. The researchers and knowledge workers are being taught the about latest discipline oriented information resources available within the organizations and outside the organizations.

7.3 Information Literacy Programmes for LIS Professionals

The academic staff colleges established in the universities regularly organize orientation/refresher courses for teachers and librarians to imbibe the skills for locating and accessing information in the changing environment.

Many of the government libraries and information centres in India organize orientation programmes for their staff to impart information access skills.

The national documentation centres such as National Institution of Science Communication and Information Resources (NISCAIR) (erstwhile INSDOC), Small Enterprises National Documentation Centre (SENDOC), National Institute of Rural Development (NIRD) and National Social Science Documentation Centre (NASSDOC) play a significant role in orienting library and information science professionals of the country to acquire the skills of access to information.

At the school level, the organizations such as National Council of Education Research and Training (NCERT) and State Council of Education Research Council (SCERT) conduct regular orientation programmes/refresher courses for the school librarians.

7.4 Role of Library Associations in India

Library associations exist in most of the states and union territories of India apart from those at the national level. State level library associations are very active in public libraries development in their respective states. Some library associations, e.g. Bengal Library Association conduct refresher courses for the in-service public librarians, mostly in the areas of managing and accessing information in ICT environment.

Some library associations at national level are now proactive in spreading the information literacy competency for the librarians and library users. In December 2005, Indian Library Association (ILA) organized 51st All India Conference with the focus on “libraries, information literacy and lifelong learning”, where many librarians felt the importance of information literacy in lifelong learning and optimizing the usage of information in the libraries. In this conference, ILA also recommended to form a National Information Literacy Mission and the National Information Literacy Task Force to implement information literacy competency development programmes throughout the country without further delay [5].

In October 2005, an international information literacy workshop was held at the Punjabi University, Patiala, India to promote information literacy in South and South East Asia, with the support of UNESCO and other partners. In September 2003 at Prague, the International Alliance for Information Literacy was formed where India’s Networking Alliance for Voluntary Actions (www.navaindia.org), a network of NGOs, became a member.

The Indian Association of Special Libraries and Information Centres (IASLIC), Society for the Advancement of Library and Information Science (SALIS) and Kerala Library Association (KLA), in collaboration with UNESCO, have organized information literacy competency development and sensitization workshops in different parts of India in the consequent years since 2006.

In January 2008, SALIS in collaboration with UNESCO has launched the *e-Learning Portal for Awareness Raising on Information Literacy* (<http://salisonline.org/>) [11]. This Portal aims to raise awareness, sensitize and enhance information literacy competency skills of common information users as well as information professionals and educators in the South Asian sub-region. Its objectives are fully in line with UNESCO's mandate to bridge the digital divide and UNESCO's vision of knowledge societies. The Portal covers a number of self-learning modules such as Information Communication Technology (ICT), Information Literacy Models and Standards, Lifelong Learning and Development of Life Skills, Information Literacy Assessment, Information Services for the Disabled People, Freedom of Information, and Right to Information. This portal also provides some sample information literacy programmes for academic libraries, special library, public library and community information centres.

8. Conclusion

In the wake of knowledge-driven development of societies in India, a number of initiatives have been planned and implemented to bridge the knowledge and digital divides between information rich and information poor citizens. The urban and rural societies are integrated through another range of initiatives that empower the common citizens with the decision making knowledge resources for their professional, vocational, social and personal life. The knowledge resources, available in the academic, special and public libraries, can be optimally and rationally used with the information literacy competency development programmes of the stakeholders. But in India, training of the trainers, who will deliver information literacy programmes need to be strengthened, as a chunk of library and information professionals are not in a position to handle modern ICT tools and techniques in information handling due lack of personal interests or other reasons. There was a few national level capacity building programmes on the information literacy in the recent past, although the international communities such as UNESCO, IFLA, American Library Association, have already prepared information literacy standards for the various levels of information users. These information literacy standards can be adapted in an emerging nation like India that aims at becoming a knowledge society, where knowledge utilization and knowledge creation capabilities are the driving force in economic and social development. National Knowledge Commission in India has rightly identified different areas of intervention for bringing the whole nation in knowledge and development paradigms. Then information literacy and lifelong learning will bring equal opportunities to the all segments of the society.

9. References

1. Abdul Kalam, A.P.J. (2005). *Address to the Nation on the eve of 56th Republic Day*. Retrieved on 21 January 2008 from www.presidentofindia.nic.in
2. Central Intelligence Agency (2007). *The World Factbook 2007*. Washington, D.C.: Central Intelligence Agency. Retrieved on 21 January 2008 from <https://www.cia.gov/library/publications/the-world-factbook/>
3. Economist Intelligence Unit and IBM Institute for Business Value. (2007). *The 2007 e-readiness rankings: Raising the bar*. London: Economist Intelligence Unit. Retrieved on 21 January 2008 from http://graphics.eiu.com/files/ad_pdfs/2007Ereadiness_Ranking_WP.pdf
4. Ghosh, Maitreyee. (2005). The public library system in India: challenges and opportunities. *Library Review*, 54(3), 180-191.
5. Indian Library Association. (2005). *Resolutions at the 51th All India Conference*. New Delhi: Indian Library Association. Retrieved on 21 January 2008 from <http://eprints.rclis.org/archive/00005896/>
6. National Knowledge Commission (2008). *Report to the Nation 2007*. Retrieved on 21 January 2008 from <http://knowledgecommission.gov.in/reports/report07.asp>

7. Navodaya Vidyalaya Samiti. *Objectives & Salient Features of Navodaya Vidyalayas*. Retrieved on 1 21 January 2008 from <http://navodaya.nic.in>
8. Press Information Bureau (2007). *Monthly Economic Report, November 2007*. Retrieved on 21 January 2008 from http://pib.nic.in/archieve/others/2007/mernov_07.pdf
9. Sen, Amartya (1999). *Development as Freedom*. New York: Oxford University Press.
10. Sen, Amartya (2001). Reflections on Literacy. In: *Literacy as Freedom: A UNESCO Round-Table*. Paris: UNESCO Publishing.
11. Society for the Advancement of Library and Information Science (SALIS) (2008). *e-Learning Portal for Awareness Raising on Information Literacy*. Retrieved on 21 January 2008 <http://salisonline.org/>
12. Toffler, Alvin. (1980). *The Third Wave*. New York: Bantam Books.
13. United Nations Development Programme. (2007). *Human Development Report 2007/2008*. New York: United Nations Development Programme. Retrieved on 21 January 2008 from http://hdr.undp.org/en/media/hdr_20072008_en_complete.pdf
14. Wikipedia, the free encyclopedia (2008). BRIC. Retrieved on 21 January 2008 from <http://en.wikipedia.org/wiki/BRIC>