INDIA ON THE WAY TO BRIDGE THE DIGITAL DIVIDE: ROLE OF INFLIBNET

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Abstract

Information is a driving force in the world and intensely making impact on economy, development and social growth of any nation. Emergence and innovations in Information and Communication Technology (ICT) is dividing the Universe in different dissection. This division is broadly known as 'Digital Divide' on the world map. Today, no one is going to deny the existence of digital divide. The Digital Divide is a well-known concept and is being defined by the specialists in different ways. In this paper an attempt has been made to identify the factors that are responsible for digital divide with some solutions are explained. All around the world various programmes have been launched to bridge the digital gap but despite many efforts to improve this gap seems to grow wider and wider due to the inability of those who lack the knowledge and skills needed to use the electronic contents, Internet or other communication technology. In India various programmes have been launched to bridge this digital gap and this paper explains the Role of INFLIBNET through its programme "UGC-Infonet: E-Journals Consortium which is one of the step towards bridging the digital divide in the country.

Keyword: Digital Divide, UGC-Infonet, Information Literacy,

1.   Introduction

Information is a driving force in the world and intensely making impact on economy, development and social growth of any nation. Emergence and innovations in Information and Communication Technology (ICT) is dividing the Universe in different dissection. This division is broadly known as 'Digital Divide' on the world map. Today, no one is going to deny the existence of digital divide. Even though, what is digital divide, most of the people cannot explain duly, the Digital Divide is a well-known concept and is being defined by the specialists in different ways. The root of this term belongs to socio-economic divisions of the world in the form of developed and developing countries. Digital Divide can be considered at International, national, regional, local levels, within the communities and individual level as well. Which leads the countries or people of the country in divisions of rich and poor, which is unending division and will be debated continuously forever as it is being debated today. Today's world is being ruled by the 'Information'. The people are not able to use this accessible technology. Information is the key for strengthening the existing technologies and products in today's world. Therefore, the issue of digital divide becomes a burning topic.

The quality of education must meet the demand and supply situation to reduce the gap between technology haves and have nots and help bridging the digital divide. Now in most of the H igher Education institutions increasingly use Internet to improve administrative processes, on-campus instruction and distance learning. It has become a preferred medium to reach off-campus students. It is expected that in future distributed, student-oriented learning with an increasing use of Internet-based courseware, discussion groups and links to other online educational resources would occur in continuing education, job-related training etc., In the changing environment learning through Internet is a active learning, which implies that students don't limit themselves to resources supplied by their instructors, but also that the students search for new materials themselves in order to solve problems at hand and to develop their competencies continuously.

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The Inter university centers (IUC's) of UGC viz. Information and Library Network Centre (INFLIBNET) and Consortium for Educational Communications (CEC) will have greater role to play in bridging the digital divide in the present day context.

2.   Role of Internet in the Higher Education: bridging the digital divide.

Internet Technology has provided the global access to information resources in a reasonably negligible cost. Despite the shortcomings like quality, integrity, authenticity, volatility and non-refereed nature of information, Internet is still a dominant medium for information transmission. Everything that is needed for teaching and learning, viz, textbooks, catalogues, encyclopedias, magazines, newspapers, scholarly journals, databases, photos, and all made available on Internet.

Internet has been viewed as a valuable source of information that can assist students in the pursuance of knowledge, learning, research, and increasing their capacity for social interaction. Internet is seen to promote inquiry and creativity through interaction of various forms of knowledge such as text, multimedia, graphics, photos, music, video, sound, animation etc

The delivery of educational materials over the Internet is now almost a common phenomenon in some of the affluent, developed countries. The mechanism range from the sophisticated Virtual Classroom (VC) in which students in cyberspace interact in near real-time with instructors of remote sites, to the more basic non-real-time delivery of lecture contents to the remote students. Virtual classroom essentially consists of educational materials on the internet via the world wide web that are accessible by students who have access to the Internet; and Mechanisms that support interactions between instructors and remote students.

In recent years there has been a phenomenal interest in the growth of what some are calling 'digital', 'online' or 'virtual' Universities. Indeed today, it is common place to read that information and communication technologies are radically reconfiguring the landscape of higher education, changing the very nature of the university.

This clearly indicates that there is a decrease in importance of the campus, a students 'login' from a distance to access 'courseware', new media technologies replacing traditional lectures, courses being delivered and assessed over the internet, promising to make higher education available anywhere and at anytime.

For an academic institution mastering Internet technology is not a luxury, but a necessity, because without thorough knowledge and expertise of this technology every effort will end up in vain. Relies on collaboration and teamwork.

With its IT super strength is in the midst of a 'dotcom' wave. The initiation taken by IGNOU in introducing on-line education programmes is one of the best examples. IGNOU launched in January 2000, two of its web-based educational programmes viz. The Bachelor of Information Technology (BIT) and Advanced Diploma in Information Technology (ADIT), School of Management Studies offered MBA degree programmes, PG Diploma and Capsule courses with on-line support through a project called Management Education through Interactive Delivery Systems (MEIDS). Now many more programmes are being offered and planning for many such courses.

In addition to IGNOU there are many more new educational provider who have recently entered the Indian Scene. Indian Space Research Centre (ISRO) launched the Education Satellite (EDUSAT) as world's first educational satellite on 20th September 2004. The main purpose of this is to provide education to all

people who are living in rural and remote areas. There are many satellite interactive terminals have been placed around the country providing two-way communication between teachers at a central point and students at remote location. Consortium for Educational Communication (CEC), that is working as the sub-hub of EDUSAT, and INFLIBNET Centre are playing a major role to make people aware about the EDUSAT and spreading the message of networking classrooms in colleges located at remote areas.

3.   Definition and different forms of Digital Divide

The simplest definition for digital divide accepted by experts, is "the gap that exists between those who have and those who do not have access to technology (telephones, computers, Internet access) and related services". This definition was further revised by adding the user must have posses the ability to use the available resources properly, if you have all latest technology and information and you don't know how to use and where to use leads you to the digital divide.

Access to Internet is not only the single aspect but also connected with more aspects i.e. physical access, information literacy, usage etc. There are different forms of digital divide. Some of them are discuss below:

3.1   Social Factors

- Language Divide: Language is the main vehicle to communicate the information. More than 6500 languages are in the world and out of these, considerable amount of literature is being published in 200 languages. It is known that Internet is dominant by English language. Many countries are not very comfortable with English language, therefore, it become a hurdle to use Internet by the people who don't know English. Despite these factor the World Wide Web is used 31.6%, Chinese (13.2%), Japanese (8.3%), Spanish (6.4%), and German (5.9%).

- Gender Divide: No doubt women are much ahead in professional fields today but still there are various barriers that keep women away from the use of computer and the Internet. In western countries like US gender digital divide is decreasing very fast but in Arabic and Asian counties this gap is existed prominently.

- Generation Gap: Generation gap is also playing a major role in digital divide. Widely access of Internet has started just 20 years back and today around 650 millions people are communicating through Internet. The youngsters are using the Internet early in their lives and are the frequent users of Internet or making used of digital technology. But in the case of aged have seen the Internet in the later stage of their professional lives and the use of Internet is rare. The U.S. Department of Commerce reported in 2000 that people over the age of 50 had the lowest rate of Internet use (30%) in compared to other age groups.

- E-Information Literacy: This is another form of digital divide concerned with the economic gap between communities. The term refers to gaps that exist between the groups that are having abilities to information technologies due to differing levels of literacy and technical skills, and to the gap that exists between groups who have access to useful digital content and those who do not.

3.2   Economic Factors

- Economic Divide: This factor is dealing with physical accessibility to the Internet and its other components. If you have the money you can buy or access the computers and avail the Internet facility. Thus, the Digital divide is in the form of economic or financial one.

- Rural – Urban Divide: In the urban areas much better facilities are easily available as compared to rural areas. Not only in terms of Network facilities (Internet etc.) but in terms of Water, Electricity etc too.

- Over Production – Millions of documents are publishing day by day, web pages on the Internet are doubling within every six months. It is quite impossible to access all the information that is being published on the Internet. Even 'google' is indexing and providing access to 48% of web pages available on the Internet. Therefore, access to all published information on any particular area remains a dream.

3.3. Technological Divide:

Quality of the product or instruments for example if you have Internet connection at one place and unable to access Internet through good speed (low bandwidth) it leads you to the divide. Another example is, if you have a mobile phone and at one region it is not giving you proper connection (noise pollution, not giving you proper connectivity) then it can leads to the digital divide.

3.4 Government Policies:

Some times government policies also encourage the digital divide.

3.5 Other factors:

There are various other factors which invite opportunities to grow the digital divide i.e. race, disability and individual characteristics etc.

4. Digital Divide and India:

Division is also in Web Penetration Population of different continents, in which North America is on first place with 68% penetration population, Oceania/Australia is on second with 49.2% and Europe is on third with 36.8% figures. Whereas Asia and Africa has concerned the penetration population figures are 8.9% and 1.8% respectively.

In Asia Hong Kong is on number one place with 70.70%, South Korea at number two with 63.30%, Japan, Taiwan, Singapore are the third, forth and fifth position with 60% - 60.9% figures. China has 7.90% and India is having very low penetration population of 3.60%

Internet in India is Ten years old now. The history of Internet in India actually started in August 1995, when Videsh Sanchar Nigam Limited (VSNL) launched Internet Services in the Country. In the first six months there were around Ten Thousand-Internet users and this gave the momentum to accept the challenging media of communication in the country. Today the figures of Internet users reached to 40 millions with astonishing growth which leads India one of the biggest player in IT field.

Table 1

Year	Internet Users (In Millions)	Internet Penetration Rate (in Percentage)
1995	0.01	
1996	0.25	
1997	0.45	
1998	0.70	0.1
1999	1.40	0.3
2000	5.00	0.5
2001	7.00	0.7
2002	16.50	1.6
2003	22.50	2.1
2005 (December)	39.20	3.6
2007 (Expected)	100.00	10.4

United Nations Conference on Trade and Development in its Information Economy Report 2005 revealed 89% annual growth in the Internet users in the present year. One very interesting side is that even getting 89% annual growth for Internet users our penetration rate is looking very nominal due to heavy growth of population.

Chart 1
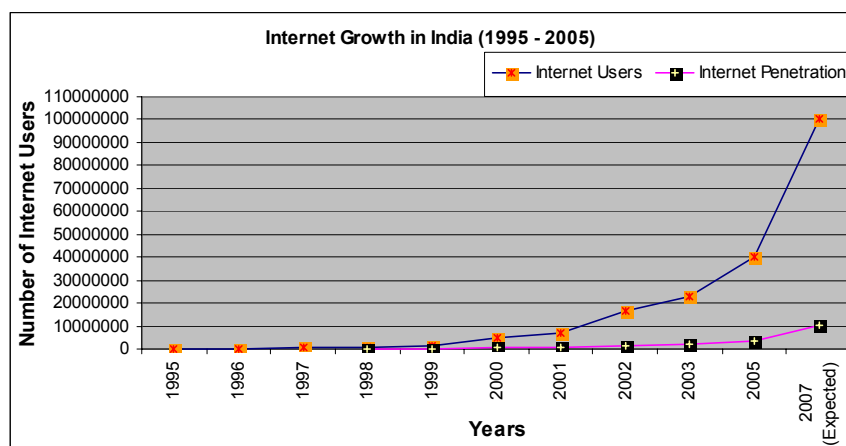
(Source: Statistics is taken from different resources and prepared the chart)

In true sense India is gearing up to bridge the digital divide. There are various points that are showing the strength of the country and making a easy way to lead the information technology world. Some of these are:

- Study of IT is 8 times easily affordable in India rather then United States and other developed countries.

- Indian IT professionals are fluent in English language and its quite easy for them to compete at International level.

- The Government also realizing the potential of IT and its impact on the betterment of the country. It has initiated various programmes to improve and encourage the IT oriented environment all across the country.

- In 2001 Cybercafes were around 18000 and the figure gone to around 1.5 lakh in 2005.

- Up to 2005 more then 52 millions individuals have been connected through mobile cell phones in the country.

4.1   Some solutions to Digital Divide:

- Access to the new technology should be provided to all the citizens irrespective of race, caste, nationality, rich or poor culture etc The libraries can play a major role to disseminate the accessibility to all.

- Open Archives Initiative can play an important role to reduce the digital divide because Information products (documents) or information tools (open software etc.) are provided to more hands so more people get familiarity to ICT.

- In India various organizations are maintaining digital libraries for their research contents and keeping open for the global use.

- Different Open software are being used in digitizing, managing and dissemination of important contents, e.g. Information and Library Network (INFLIBNET) Centre, Ahmedabad is using Dspace (Open Software of MIT, US) for maintaining digital library. Like this many other institutes are also using this kind of software and facilitating free access to the research contents.

- Microsoft Private Limited and Government of India will work on driving PC penetration, accelerating IT literacy, Ensuring affordable access to technology specifically in rural areas, enhancing E-governance, enabling local language computing and creating a secure IT environment.

- Training and orientation on latest technologies: Conducting various training, awareness and orientation programmes on IT is one of the important tools to reduce the digital divide.

- India is a multilingual country and to bridge the digital divide one should have to offer the multilingual Internet technology to allow the masses in the IT environmental streams.

- At National Level different countries are making various kind of policies which to ensuring Internet access by all citizens. In America, former President Bill Clinton allocated millions of dollars to enhance Internet access to all the countrymen, and in UK Government provided extra budget to boost the Internet access within the country. The same way in India, Government is trying all its best efforts to ensure Internet access to all the research and academic community. For getting the qualitative changes in the growth of academic and research output of the country "UGC-Infonet" project is running and worked as a backbone for E-Journals Consortium for free access to the higher educational system of the country.

5.   Role INFLIBNET in Bridging the Digital Divide – UGC-Infonet initiative

In the era of digital divide academic and research community are in the crucial period of transformation especially in India. They have to be dependent upon the electronic based collections rather than print

based resources due to faster and quicker means of searching, browsing and interlinking facilities. Their expectations have been growing tremendously in this electronic age. But the computer literacy rate, which is a prerequisite in accessing electronic resources, in India, is comparatively less then many developed countries. Along with this it brings out challenges like copyright, archiving and how to exploit these available e-resources are some of the major aspects one should be aware about. So, there is need for awareness among the Indian academic and research community for proper utilization of subscribed resources.

The UGC-Infonet E-journals Consortium is an ambitious programme initiated by University Grants Commission to facilitate free access to scholarly electronic journals and databases in view of limited resources subscribed by majority of universities in the country. Probably for the first time in the history of higher education system in India, higher education has been given prominence and access to many scholarly journals is made available from the support of University Grants Commission. Presently the system allows universities covered under the purview of UGC but gradually it will be extended to colleges and different R & D Institutes of the country. The ultimate goal of this programme is work on the virtual philosophy of libraries i.e. right information to the right user at the right time with the help of state-of-the-art technology. Access is more important rather than collection development, whatever you have, that should be accessible. User awareness programmes conducted by the Centre are started working as a tool to achieve the goal of qualitative and authentic research output from the side of Indian universities with the help of scholarly and updated information. This consortium bridging the gap between information and it's end user.

5.1   UGC-Infonet and digital divide:

- Providing Internet access to more than 150 universities of the country and likely to envelop other academic and research institutions with the colleges.

- The programme is free to privileged universities and funds are being provided by UGC.

- INFLIBNET is applying all its best parameter for selecting the scholarly and peer reviewed literature from all streams of learning and making it available to the end users.

- Training and orientation to handle the technologies which is used in the programme, imparted by the Education and Research Network (ERNET) with the help of INFLIBNET.

- INFLIBNET is conducting various training and awareness programme to improve the information literacy with in the user community.

5.2   Key features of UGC-Infonet: E-Journals Consortium

- The programme was launched with the aim to get qualitative changes in the higher educational system of the country by providing free access to electronic contents, using state-of-the-art-technology.

- Initially the whole programme is funded by UGC for the first three years. Programme will be evaluated after three years.

- INFLIBNET is working as a nodal agency to monitor and execute the programme systematically.

- Up to December 2005 more than 100 universities were accessing E-Journals subscribed under E-Journals Consortium.

- Till 2005 around 150 universities have already enveloped in this virtual venture.

- Various experts are also helping by providing expert guidance and advice on various issues related electronic resources.

- UGC has established various committees (includes experts from various disciplines) to ensure better functioning of the programme.

- INFLIBNET is conducting various local, regional and national training and awareness programmes to improve the e-information literacy to use available resources exhaustively and extensively.

- Guidelines for 'UGC-Infonet for Colleges' and 'Associate Membership' are also in consideration.

5.3   Awareness programmes to the faculty and Research Scholars

Awareness is the key for success of the programme, INFLIBNET conducted number of training courses, workshops and user awareness training programmes during 2004, 2005 and will continue to organize during 2006 for the success of any new initiative and INFLIBNET has conducted several such programmes for the benefit of universities and institutions.

Following programmes were arranged in the year 2004 and 2005.

- 6 Workshops on "E-Resource Management Using UGC-'Infonet" of five days each covering 96 universities.

- 58 one day user awareness training programmes at different universities.

- 9 STN training programmes in collaboration with Science Edge Information, Pune and the universities.

- 4 training programmes on JSTOR access – in collaboration with Ford Foundation.

- 5 National Seminars at different universities with the target audience as faculty, research students, library professionals.

5.4.   Future Programmes required to be conducted.

The future programmes include user awareness training programmes at universities, Collect user feedback time to time and publish in the newsletter as well as on website, UGC-Infonet E-Journals Consortium – Annual Meet and meeting of librarians time to time, Intensive training programmes for professionals, Evaluation studies on the benefits of UGC-Infonet E-Journals Consortium etc.

6.   Conclusion

We are dealing with digital divide directly or indirectly. This divide is not only to have or have not. Internet is now available in almost all territories of the world, and thanks to the UGC-Infonet for providing Internet connectivity to the universities and colleges in India. It not only offers a medium for academia to communicate and collaborate on research matter but has also become the backbone for many commercial and legal ventures.

Today information seeking is directly identified with Internet tomorrow, education seeking will similarly identify with the Internet. As a network coupled with streamed audio technology it provides the needed infrastructure for global educational delivery.

One has access to digital contents but don't know how to use retrieve or use these contents also leads to digital divide. Today almost all countries are taking hard steps to bridge the digital divide. In India Government is collaborating with different national or International organizations to extend the IT oriented environment. To bridge the digital divide INFLIBNET Centre (under UGC-Infonet) is providing free electronic access to scholarly literature to the research and academic community over the Internet. INFLIBNET is

taking all care of spreading e-Information literacy to the end user and to library and information science professionals as well, so that users and professionals can utilize these resources to the highest extent. We hope that e-subscription initiative of UGC-Infonet will bring remarkable change in the academic environment in bridging the digital divide.

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