

## Challenges and Barriers to Bridging Digital Divide

\* Navneet Kumar Sharma

\* Junior Research Fellow, Department of Library and Information Science, Banaras Hindu University, Varanasi (U.P.) India; Email: navneet.dlis.bhu@gmail.com

---

### Abstract

*Modernisation of present day society largely depends on the numbers of individuals using internet as a part of their daily life. India is going through the important phase of modernisation with the help of revolution in Information and Communication Technology and “Digital India” scheme launched by Indian government. Since around 60% of the total population lives in rural or sub-urban regions, so it seems to be very challenging to project the idea of digital India to such populations. Here the term “Digital Divide” comes into the picture which states about the disparity between information-rich and information-poor people. Government schemes like ‘Digital India’ project are an approach towards diminishing the digital divide. Libraries as a social service institution has to play a major role in minifying the gap of digital divide. They can impart crucial role in making India a global digital power. Librarians and information professionals have to develop certain user-oriented skills and redefine their service menu. This paper aims to outline the different areas in which librarians can work together to minimize the gap of digital divide in rural as well urban regions. It also discusses the possible causes for the digital divide in India. Keeping all the important factors of above mentioned topics, this paper highlights the basic concept of digital divide and role of librarians in uplifting the socioeconomic status of the common people.*

---

**Keywords:** Digital Divide, Information and Communication Technology, Digital India, Librarians.

### 1. Introduction

The soul of India lives in villages as said by M.K. Gandhi. India is the 2<sup>nd</sup> largest country in terms of population next to China. 68.84% of Indians (833.1 million people) live in 640 867 different villages (Census, 2011). India could never develop without the development of its villages. Indian government had launched many programs for the development of villages and villagers. But the progress of the village community is not as much as expected. Recently, Indian government has launched Sansad Adarsh Gram Yojana to adopt a village by a Member of Parliament every year. The Member of Parliament has to make all around development of that particular village. Few model villages are created with the help of this plan. The progress of these schemes depends on the execution level. Even, most of the people living in villages are not aware of many services launched by government. This problem can be solved by using digital devices and internet. Internet is supposed to be one of the basic necessities of the life these days. It is because most of the things are available online such as shopping, banking, connecting people, travelling, hotel bookings etc. Much information of daily needs is available through the internet. To make India a developed country, the people of India should be well versed with Information and Communication Technology (ICT) tools and should be connected to the internet.

The following chart is the list of top five countries in the world with highest number of internet users. India is the 2nd largest country with most number of internet users in the world. This may be because of the 2nd largest population of the country. It seems that people of India are using digital devices in good number. But this chart does not explain the ground reality of internet users in India.

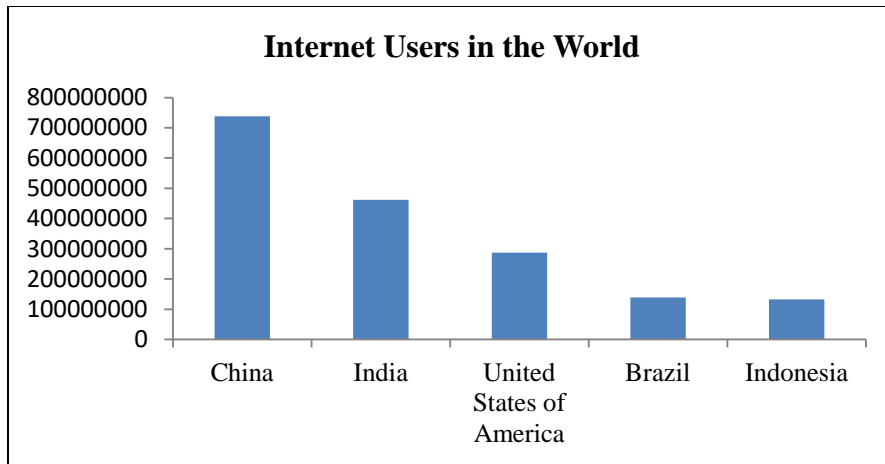


Figure-1: Top Five Country in the world with number of internet users  
(Source: <https://www.statista.com/statistics/262966/number-of-internet-users-in-selected-countries/>)

The second figure where percentage (%) of internet users is shown, we can see the actual scenario of India using internet. Percentage of internet is a ratio of total internet users and total population of the country multiplied by 100. This second chart shows Indians are at bottom place in the list of five countries that have most number of internet users in the world.

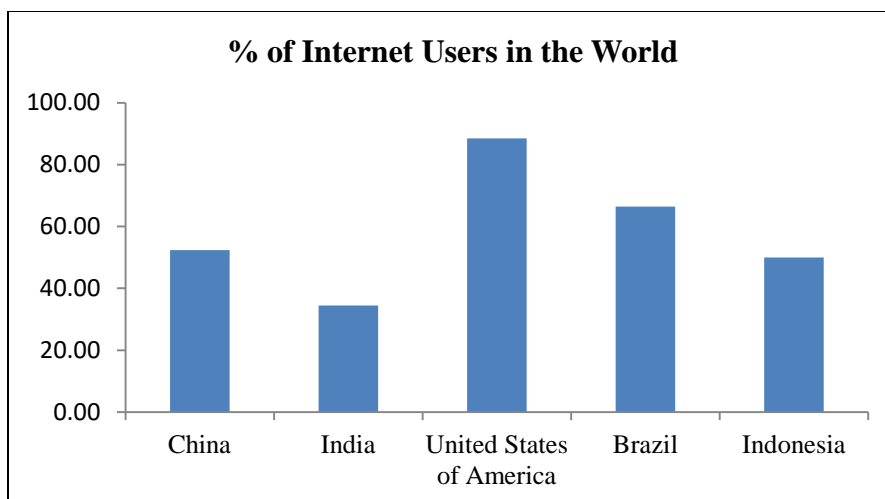


Figure-2: Top Five Country in the world with number of internet users  
(Source: 1. <https://www.statista.com/statistics/262966/number-of-internet-users-in-selected-countries/>  
<http://worldpopulationreview.com> )

This is the actual ground reality of internet users in India where most of the population are unaware of the digital devices and internet. The possible reason for this data is the digital divide. Digital divide is the gap between those individuals who use technology and those who do not. For a country to be developed the digital divide must be minimized.

## 2. Digital Divide

Digital divide is thought to be a gap between people that belong to various sections of society at different socioeconomic levels in terms of their opportunities to access and use information and communication technologies (ICT) and internet (OECD, 2001). One of the major aspects of digital divide is the information technology (IT). Information technology can be used to share and receive information quickly. Hence, it is significant to know the gap between those who have access to IT or those who do not (Boyd, 2002). Digital Divide is the process of making strata within society due to inequality of opportunity to access and use internet and digital technologies.

The digital divide has many facets and multiple dimensions. For better understanding of the digital divide, the understanding of all its dimensions is required. Table 1 summarizes these dimensions. These dimensions of the digital divide incorporate a variety of social matters concerned with education, social equity, and the appropriateness of technology.

Table - 1: Dimensions of Digital Divide

Service availability	ICT services must be made available freely to individuals for comprehensive use of digital devices.
Awareness	Awareness about the digital devices, their extent of use and other significant features are necessary as far as use of ICT devices is concerned.
Opportunity to learn and use new media	Opportunity for becoming digitally literate is another most important dimension of digital divide.
Mastery of technologies	Individuals must have understanding of use of technologies and where to use them.
Experience	To fully exploit the capacity of the ICT devices, sufficient experience is required.
Skills	Right skills for the right job are essential to gain benefit from the technology.
Support	Everyone has free access to genuine assistance when they need to make good use of ICT tools.
Cultural	The cultural dimension is important to understand each other's information needs of all the potential users.
Disability	With the growth in ICT, this dimension is also obtaining equal opportunities of using the digital devices.
Linguistic	Language should not be hindrance in maximum utilization of the digital devices.
Gender	The other dimensions are adapted as required so that gender is not a barrier to equal enjoyment of the benefits of ICTs. Gender should not be hindrance in maximum utilization of digital devices
Empowerment of civil society	Social framework should support individuals from taking benefits of ICT tools and techniques.

(Source: Harris, 2002)

The above table shows the multi faceted nature of digital divide. It encompasses a variety of social issues and addresses the heart of the digital divide. The key issue in digital divide is not unequal access to digital devices but rather the unequal ways that digital devices are used (Warschauer, 2003). Most important issue that addresses the digital divide is the awareness.

Everyone in the country must be aware of the technological innovations and know-how of the innovated devices.

### 3. Cause of Digital Divide in India

The factors that influence the cause of digital divide include:

- **Computer literacy:** It is the ability of individuals to use computer and computer related technologies. Disparity in this ability leads to digital divide.
- **Tech savvy operations:** Individuals who are good at technology use have advantage towards those who does not use it efficiently .They save their time than those who are not good at using technology. For example using internet banking, ATM machine etc.
- **Use of information:** Information is received quickly by those individuals who are more prone to digital devices. This can be very well visualized between rural-urban communities. Urban people use information more frequently than the rural one.
- **Working knowledge of English:** Language barrier is one of the important causes of the digital divide in India. Most of the online/digital applications prefer English language and in India there is flood of languages. Many places in India do not prefer English language. In fact they are not very used to English.
- **Internet:** Internet is necessity of the present time. People using internet have more advantage in terms of comfort and convenience in the lifestyle than those who do not use internet.
- **Economic inequality:** Economic inequality is the unequal distribution of income and opportunity between different groups in society. This inequality does not allow some people to buy digital devices frequently. Even education is also affected by economic conditions of a particular family.
- **Social mobility:** Social mobility is shifting from one social status to another, commonly to a status that is either higher or lower. If there is shifting from higher social status to lower, then there be a chance that families of lower status are less used to digital devices.
- **Digital inequality:** The disparities in knowledge and ability of using digital and information technology among individuals with different demographics, socioeconomic backgrounds, and digital and information technology experience and competencies. In India, there is disparity of internet connection between rural and urban internet connectivity.
- **Low literacy rate:** The literacy rate of India is relatively low in comparison to many countries of the world. This education disparity rate becomes the cause of digital divide in India.

### 4. Digital India (DI) Initiatives

There are various initiatives launched by Digital India project by Government of India in three areas viz. infrastructure, services and empowerment. The vision of Digital India programme is to transform India into a digitally empowered knowledge society and economy. Although all the schemes in this program is somehow or other aimed to minimize the gap of digital divide, but still a list of some DI initiatives is given that has directly concern in minifying the digital divide in India.

- **Study Webs of Active learning for Young Aspiring Minds (SWAYAM):** This

service focuses on bridging the gap of digital divide among students who have never touched digital devices. The purpose is to bring into the mainstream of the knowledge society and economy. It provides an IT platform that hosts all the courses taught in classroom teaching from 9th grade till post-graduation. These course can be accessed free of cost from any place and at any time. The module of all these interactive courses is framed by good teachers in the country. This service will aid in narrowing the digital gap in India.

- **Sugamya Pustakalaya:** It is India's first and largest collection of books (digital library) specially meant to serve people with print disabilities. Several organizations collaborated together for this library to end the 'book famine' faced by visually challenged people. Over 328900 books are available for access where users can maintain their reading shelves online. Textbooks and periodicals in different languages and different formats are available. Books are present in various formats such as DAISY Text Only, DAISY Text Only and EPUB with Media Overlay. This initiative will bring the visually challenged people into the mainstream and helps in minifying the digital divide gap.
- **Bharat Interface for Money (BHIM):** This application enables to perform your payment transactions simple, easy and quick. They use Unified Payments Interface (UPI) for the same. There is facility to perform instant bank-to-bank payments. In this mobile based application, users can send and request money. Facilities like payment reminders and split bills are also available through this application. This application make a strong foundation to connect people of India nation-wide in terms of their money transactions and help in minimizing the digital divide.
- **Pradhan Mantri Gramin Digital Saksharta Abhiyan (PMGDISHA):** It is a training program for the Indian citizens from 14 years for age to 60 years to make them capable of operating computer or digital access devices (like tablets, smart phones etc.). After completing the 20 hours in 10-30 days of duration, people will be able to send and receive e-mails, browse Internet, access Government services, search for information, undertake digital payment etc. This training programme aims to work especially for rural communities across states and union territories and make them digitally empowered. The objective is take to make at least one member of the eligible house digital literate.
- **ePathshala:** It is developed by Central Institute Of Educational Technology (CIET), National Council of Educational Research and Training (NCERT) and hosted by National Informatics Centre (NIC). It is a platform which enables access to e-resources specifically eTextbooks. It has separate modules for students, teachers, educators as well as parents. All the NCERT textbooks are digitized in English, Hindi and Urdu languages. These eTextbooks will also be available in local languages too. Work on more native languages is in progress.
- **Unreserved Ticket through Mobile Application (UTS App):** It is a collaborative effort of Indian Railways and Government of India to developing the nation towards digitized and cashless economy. With the help of UTS App, everyone will be able to book unreserved tickets instantly. Earlier, only reserved tickets were booked online, but this application provides more flexibility and convenience to the citizens of India. During sign up process, the individual has to select his/her zones of Indian Railways such as North Zone, Eastern Zone etc. This application will also help in eradicating black money.
- **Mobile Apps Kisan Suvidha and Pusa Krishi:** These two android based applications are launched for the benefit of farmers and all the stakeholders associated with agriculture. They can be downloaded from Google Play Store. mKisan is basically a

SMS Portal developed to give need based knowledge or information to the farmers to address their concerns and queries. Kisan Suvidha is also designed to give information to the farmers. Kisan Suvidha deals with topics with necessary details on seeds, fertilizers, market value, weather forecasting, plant protection practices and dealers information.

- **Digital AIIMS:** It is the collaborative effort of All India Institute of Medical Sciences (AIIMS), Unique Identification Authority of India (UIDAI) and the Ministry of Electronics and Information Technology (MeiTY). The purpose of this project is to create digital identity of every patient generated on Aadhar platform. Along with digital identity, there are various important modules are associated with this project such as patient registration, clinics, billing and accounts, path lab etc.

## 5. Application of Digital India Initiatives for Library and Information Centres

Digital India initiatives are boon to the libraries unless they are aware of this. The vision of the Digital India Project is to transform India into a digitally empowered society and knowledge economy. The Digital India programme is centered on three key vision areas: Digital Infrastructure as a Core Utility to Every Citizen, Governance and Services on Demand and Digital Empowerment of Citizens. Libraries are the best place that serves all users irrespective of their age, caste, gender, social status and other factors. They can work in accordance with the project and help in fulfillment of the objectives of this initiative.

Library and Information Centres can organize orientation programmes, outreach programmes for rural areas. They can train the common people about the online payment transactions to make their life more comfortable. They can train people about the basic skills of ‘internet browsing’ and ‘information searching’ on internet. These basic understanding will impart a level of confidence to the people and help in minimizing digital divide in the nation.

National Digital Library (NDL) project is an application of Digital India initiatives for library and information centre. It is launched by Ministry of Human Resource Development under its National Mission on Education through Information and Communication Technology, hosted and developed at Indian Institute of Technology (IIT) Kharagpur. The purpose of this project is to develop a framework of virtual repository of learning resources with a single-window search facility. It is developed to help students for their examinations, common people to learn multiple things at one place, research scholars for life-long learning in all disciplines. NDL is also available on mobile through Android and iOS.

## 6. Librarians’ Approach - Minimizing digital divide

There are many people of different profile in the society who want to do some good work or social work for the society. They hesitate in doing any good work for the sake of the people around them. Librarians are a community that is meant to serve its users. As minimizing digital divide is a challenging task for anyone, so it requires patience, hard work and honesty from the people who are supposed to serve the people in any form. Librarians fit well in this whole composition.

- **Information Managers:** Librarians are trained in tracking down the information; store and manage them to make it available to the users with little or no time gap. They perform information packaging and consolidation work and bring in the information in usable form for the readers.

- **Training:** Training is an important tool in minimizing the digital divide. Librarians can aid in training the common people. They can frame a module or a workshop with few technical sessions. Once the people get the taste and feeling of digital devices, they will be trained very easily. In the next level, these first order trainees will serve as trainers for other people. This will continue till we minimize digital divide to zero level.
- **Authenticity of Information:** The basic difference between Google and library is the information present on Google is not necessary true and authentic. The library keeps record of only authentic sources of information and they take responsibility of the authenticity of information.
- **Resources for Families:** Many working people who are not sure what the Internet has to offer them do believe that their children need to know how to use computers and the Web to do well in school. Workers accustomed to seeing the library as a place for their kids to study can use it as a resource for their families to learn about and use computers.
- **Information and Media Literacy:** Librarians can help in empowerment of common people through Media and Information Literacy (MIL). MIL is significant step for promoting equal access to information and knowledge. They promote free and independent information and media systems. Librarians help in empowering citizens by providing them understanding of functions of media and other information providers. This information is used in daily life and help in diminishing the digital divide.
- **Categorization of Information:** They help in categorization and sorting of information on the basis of their context such as private information and public information. Private information does not allow anyone to seek and request for whereas public information can be accessed on request.

## 7. Conclusion

In this present era, it is important for everyone to cope up with the growing technological innovations. At least basic knowledge devices are necessary for making life convenient. India is a developing nation and a hub for social, cultural and economic activities. The people of India have to take complete benefit for the government schemes like Digital India initiatives. These initiatives are diverse and interactive in nature and can benefit to the last section of the society. These initiatives will help in diminishing the gap of digital divide in India. Digital divide is a good indicator of the development of a nation. If digital divide approaches zero value, then it is supposed that the most of the people are using digital devices and technological application will be used exhaustively by the people. Librarians' role in diminishing digital divide can't be ignored in this regard. They play a crucial role in nation building by serving the entire community of the nation. They serve academicians, scientists as well as the common man through academic, special and public libraries respectively. By making right provisions in their approach and services, they can extend their outreach to all sections of society. They can help in proper implementation of the Digital India initiatives and other government schemes to the people of India living in rural areas of the country.

## References

1. Boyd, E. C. (2002). Introduction to the special series on the digital divide. *Informing Science. The International Journal of an Emerging Transdiscipline*, 5(3), 113-114. Retrieved from <http://inform.nu/Articles/Vol5/v5n3p113-114.pdf>
2. Chandramouli, C., & General, R. (2011). *Census of India 2011. Provisional Population Totals*. New Delhi: Government of India.

3. eHospital@NIC Govt. of India. Available on <http://ehospital.nic.in/ehospital/Login.jsp> . (Accessed on Decemeber 23, 2017).
4. Empowerment Digital India Programme. Available on: <http://www.digitalindia.gov.in/empowerment> . (Accessed on Decemeber 18, 2017).
5. ePathshala. Available on <http://epathshala.nic.in/> . (Accessed on Decemeber 18, 2017).
6. Free online course on Swayam by Faculty and Universities, Such as : NPTEL , UGC , CEC, NCERT , NIOS, IGNOU & IIMB. Available on <https://swayam.gov.in/> . (Accessed on Decemeber 18, 2017).
7. Gupta Neeru and Arora Kirandeep (2015). Digital India: A Roadmap for the development of Rural India. *International Journal of Business Management* , 2(2), 1333-1342.
8. Harris, R. (2002), 'ICTs for Rural Development: An Asian Perspective'. Prepared for the Asian Regional Consultation on Rural Women in Knowledge Society December 2002, Patancheru, India.
9. Home | Sugamya Pustakalaya. Available on <https://library.daisyindia.org/NALP/welcomeLink.action> . (Accessed on Decemeber 18, 2017).
10. Mobile Apps Kisan Suvidha and Pusa Krishi launched | Department of Agriculture Cooperation & Farmers Welfare | Mo A & FW | GoI .Available on <http://agricoop.nic.in/recentinitiatives/mobile-apps-kisan-suvidha-and-pusa-krishi-launched> . (Accessed on Decemeber 23, 2017).
11. National Digital Library of India. Available on <https://ndl.iitkgp.ac.in/> . (Accessed on Decemeber 23, 2017).
12. OECD (2001) "Understanding the Digital Divide", OECD, Paris.
13. Pradhan Mantri Gramin Digital Saksharta Abhiyan. Available on <https://www.pmgdisha.in/> . (Accessed on Decemeber 20, 2017).
14. Pippa Norris, The Digital Divide: Civic Engagement, Information Poverty & the Internet Worldwide, 2001, pp.123-126.
15. Services | Digital India Programme. Available on <http://www.digitalindia.gov.in/rural> . (Accessed on Decemeber 18, 2017).
16. Singh, Neena. 2007. Bridging the Digital Divide in India: Some challenges and Opportunities, World Libraries.
17. UTS Mobile Ticketing. Available on <https://www.utsonmobile.indianrail.gov.in/RDS/login;jsessionid=73EF46CD50BF2E262845C32A6E430101?0> . (Accessed on Decemeber 23, 2017).
18. Vision and Vision Areas | Digital India Programme. Available on <http://digitalindia.gov.in/content/vision-and-vision-areas> . (Accessed on Decemeber 24, 2017).
19. Warschauer, Mark. (2003). Demystifying the Digital Divide. *Scientific American*, 289 (2), 42-47.

