

Networked Distance Education in India

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Abstract: *Distance education provides immense opportunity for networked education. IGNOU has made remarkable progress in the area of networking. An education network is being developed to provide mass training and resource based learning through the educational technology. This paper highlights the development of networked education in India and suggests a model for the virtual classroom. Networking in other education and research institution has also been spelt out.*

Genesis of Distance Education in India

At the time of independence in 1947 the population of India was approximately 350 million. At present the population has crossed the 995 million mark and by its rate of growth, it is expected to exceed the figure of 1000 million by the end of the century. Out of the total population, nearly 400 million people are literate. It has been a matter of great concern for our leaders as education is an indispensable tool for the proper development and growth of an individual and society. Hence it was emphasised in Article 45 in Part IV of the constitution that the States are to provide free and compulsory education to all children until they complete the age of 14 years. This target has remained a dream even after 50 years of independence. Even if compulsory education for all children up to the age of 14 years is provided, that would cover up to 200 million children. This will put an increasing demand for higher education. The regular or face-to-face educational system has been found to be inadequate to withstand this demand for providing education to all.

Status of Distance Education in India

Distance Education in India saw the beginning as early as in 1962 in the form of correspondence Courses offered by Delhi University through its School of Correspondence and Continuing Education. The University Grants Commission, in concurrence with the Education Commission (1964-66), supported the establishment of the Correspondence Course Institutes (CCIs) by formulating guidelines and providing seed money.

The idea of establishing an open university to provide quality education to the "much larger body of population which remains out of university system" was proposed as

early as 1970 in a seminar co-sponsored by the Ministry of Information and Broadcasting and the University Grants Commission. Following the recommendations of the Seminar, the Government of India appointed an eight member working group with Shri G. Parthasarathy, the then Vice-Chancellor of Jawahar Lal Nehru University as its chairman. The Working Group considered the proposal and recommended the establishment of an open university. At present there are nine open universities, one National Open School and few open schools at state level in India. The first open university was established in Andhra Pradesh (the Andhra Pradesh Open University, now renamed as Dr. B.R. Ambedkar Open University) at Hyderabad in 1982. The Indira Gandhi National Open University (IGNOU) came into being in 1985. The success of establishing an open university as a single mode university has resulted in the establishment of seven more state open universities viz. Kota Open University (Kota, Rajasthan, 1987), Nalanda Open University (Patna, Bihar, 1987), Yashwantrao Chavan Maharashtra Open University (Nashik, Maharashtra, 1989), M.P. Bhoj Open University (Bhopal, Madhya Pradesh, 1992), Babasaheb Ambedkar Open University (Ahmedabad, Gujarat, 1994), Karnataka State Open University (Mysore, Karnatak, 1996), and Netaji Subash Open University (Calcutta, West Bengal, 1997). Today, we have nine open universities and 62 institutes of correspondence courses/distance education located at conventional universities (Panda, 1999).

Distance education institutions in India are of two types: Open Universities and Institutes/Directorate of Correspondence Courses. The Open Universities set up either by Central or State Governments are autonomous institutions whereas the latter are extended arms of conventional universities imparting distance education for various courses/programmes.

Student Services Network in Distance Education

One of the major concerns of an open university is to provide appropriate and efficient student services to the large number of its students scattered all over the country.

The open universities' network of delivery services consists of Regional and Study Centres. IGNOU has 21 regional Centres and 403 Study Centres, of which 262 are Regular Study Centres, 117 Programmes Study Centres, 5 Sub-centres and 19 Recognised Study Centres. In addition, there are 40 Work Centres in different regions. Similarly Kota Open University has 6 Regional Centres and 33 Study Centres in the state of Rajasthan. A schematic representation of student services is given in Fig. 1.

Recently IGNOU has diversified its delivery channels. Besides the Study centres, it has established 11 partner institutions for delivering computer education programmes and management programme. In addition, there are 27 Distance Learning Facilitators (DLF) providing support services to the learners. National Open School in India also utilise the services of DLF.

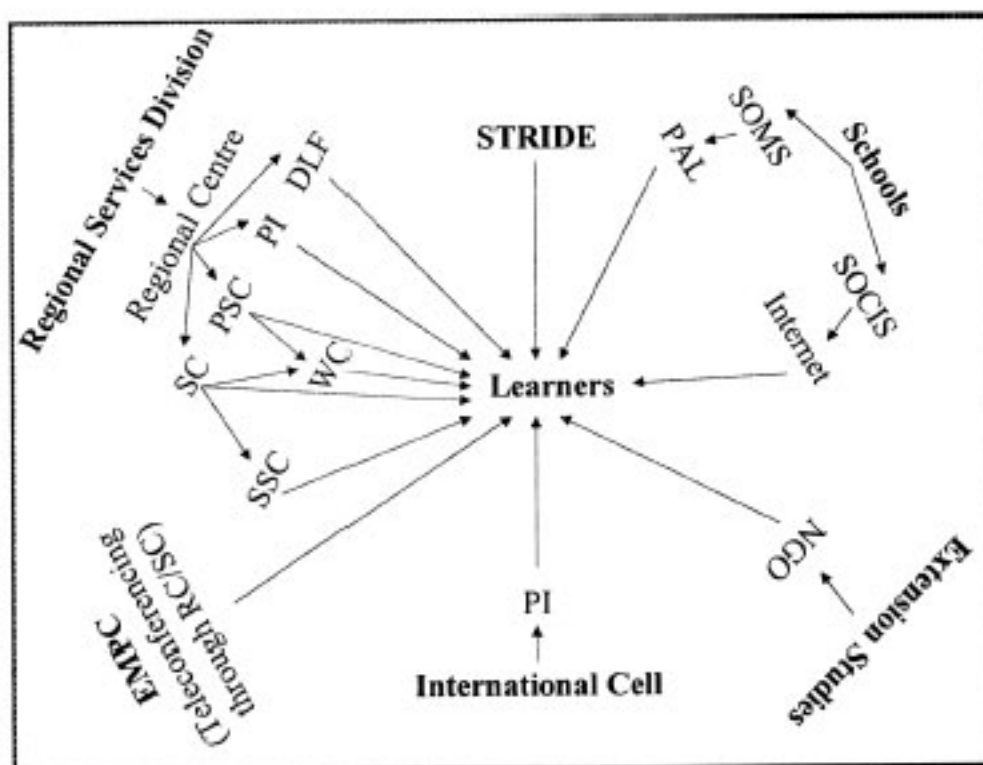


Fig. 1 : Student services network

International Scope

The high quality of study material for distance learners produced has made its impact on international level. Thus keeping in view the constant and high demand, the IGNOU Act amendment (Statute 29 "Extension of IGNOU programmes abroad") was passed in August 1997 by both Houses of Parliament, to make a provision which enables the University to set up "Study Centres" outside India.

Currently IGNOU's academic programmes are on offer in Al Ain, Abu Dhabi, Fujairah, Doha, Dubai, Kuwait, Sharjah and the Sultanate of Oman in the Middle East Asia. Management, Commerce, Social Sciences, Tourism Studies, Library and Information Sciences, Computers and Guidance are some of the areas of study offered to students in these countries.

An MoU has been signed between IGNOU (the Rajiv Gandhi Foundation) and the Govt. of Seychelles for offering IGNOU programmes in the Indian Ocean Islands. To begin with, B.A. and B.Com are to be offered, followed by B.Sc Nursing.

The International Cell plans to develop software for the Bangladesh Open University relating to student support services and the examination system. The proposal sent by IGNOU is under the active consideration of BOU.

Preparatory work is going on to offer (i) Lab technicians' education programmes, (ii) Youth in Development programmes and (iii) International Executive MBA/MPA programmes offered by the Commonwealth of Learning, Vancouver, Canada and the Commonwealth Secretariat, London, UK, for the learners in India through the distance education mode.

Internet Services in India

Internet services in India were offered initially in the four metros of New Delhi, Calcutta, Mumbai and Chennai by Videsh Sanchar Nigam Limited (VSNL) in August, 1995. At present these services are under the jurisdiction of VSNL and Department of Telecommunications (DoT) operating through a Network of 42 Nodes. India has witnessed the growth of Internet usage as in other parts of the world, for example, the connectivity has increased from 50,000 in September 1997 to over 1,50,000 presently. This growth is expected to get further boost with the formulation of new ISP policy declared on November 6, 1998 by the Government of India. Through this landmark decision, the policy permits unlimited number of ISPs with no licence fees for the first five years. It can thus be safely assumed that such a deregulated and open scheme for ISPs will certainly address the connectivity needs of our educational sector also. Currently India is well connected with optical fibre cable systems, with FLAG (5 Gbps per fiber), SEAME-WE-3 (10 Gbps per fiber) and other cables are in the pipeline. VSNL is providing international bandwidth on six gateways with a bandwidth of over 80 Mbps. Efforts are going on for much larger capacities on optical fiber systems for internet. Thus it can be ascertained that there shall be a transformation from satellite-based connectivity to all-fiber internet connectivity, significantly enhancing performance on client server applications or transaction-oriented applications on the internet.

Direction of Networked Community Development

Serious efforts were initiated in State Open Universities in 1993 to link Regional Centres through a communication network by Commonwealth of Learning by means of Fax and Audio-Conferencing. In another development during the same year a teleconferencing experiment was carried out by IGNOU and Indian Space Research Organisation. The experiment was a success and was immediately adopted as a regular feature for the student support services. Currently the academic telecounselling for nearly all the IGNOU programmes is being made available to the learners through the length and breadth of country by organising sessions on an average of about 500 hours per year. This facility is also shared by some SOUs e.g. Kota Open University, YCM Open University and Dr. B.R. Ambedkar Open University. Development of the network of DRS, i.e. dish antenna for teleconferencing (TC) took a long time and now they are at more than 160 centres of open universities and other institutes.

In terms of computer networking, open universities are well equipped e.g. in IGNOU Headquarters at Delhi and at Regional Centres LAN has been setup with 250 nodes and 30 servers. Efforts are going on to connect different open universities through WAN consisting of an Uplink (hub) at IGNOU headquarter with Network Management System (NMS) and various VSATs located at different centres. The IGNOU hub and NMS will also work as the national backbone of the Educational Network which could be used by State Open Universities, DEIs and other traditional and vocational educational institutions in India. Networking is always a sharing and collaborative exercise and thus during the transition period, print-based physical delivery system and network-based electronic delivery system will coexist.

The most important component on the network is the courseware of various educational programmes and academic services. This work has started already with two special projects supported by IGNOU and Kota Open University for using ITV and network, the mass computer education project and MEIDS Programmes. The School of Management Studies will also put reference journals for their students on the network, and all counselling on ITV. The School of Computer & Information Sciences has also offered its programmes through virtual campus. (please visit <http://www.ignou.edu/socis/vci>)

The very nature of distance education system and the percentage of clientele served by educational sector makes its imperative to strengthen the existing network for offering effective student services. Currently various state open universities are enjoying a common resource pool with the objective to avoid duplicity of efforts. Table 1 shows the various courses for which the study material produced by IGNOU is being used by other open universities.

Table 1 : State open universities using IGNOU study material

S. No.	Name of the University	Name of the Programmes/Course	Medium at IGNOU	Medium Offered by SOU
1.	Dr. B.R. Ambedkar Open University Hyderabad	CFN, MBA	English	Telugu/Urdu English
2.	Kota Open University Kota (Rajasthan)	B.A., B.Com. MBA	English/ Hindi	Hindi/Eng.
3.	Yashwantrao Chavan Maharashtra Open University, Nasik (Maharashtra)	Foundation Course in Humanities, Social Science Science & Tech., Growth and Philosophy of Distance Education MBA, PGDHRM, BLISc	English	Marathi/ English
4.	Babasaheb Ambedkar Open University, Ahmedabad (Gujrat)	BA, B.Com. CFN. Foundation Course in English (FEG). Hindi (FHD)	English/ Hindi	Gujarati/ English/
5.	Bhoj Open University Bhopal (Madhya Pradesh)	MBA	English	English

In India, over one million of population of students is being catered to for their educational needs by various open universities. Postal services is the prime mode to reach to the students and thus despatching of material to all the learners is a massive task. If we consider even a one percent miscarriage, this would affect 10,000 learners. Hence, there has to be more realistic, efficient and reliable way to disseminate the information and material to the pupils both in time and safe.

Quality counselling is also another major concern to be provided to learners. It is very clear that experts for all courses may not be available every where. Thus to tap these human resources and to provide remedial measures to the existing practices of support services, establishment of the education network in the form of a knowledge Network with a long-term target to provide mass training and resource-based learning through the use of education technology is the need of the hour. It will offer: (i) virtual or distributed learning through ITV, (ii) net based learning/group activity and (iii) one-to-one, one-to-many, many-to-many communication through email, video-conferencing etc.

Implications for Networking

Through networking the educational sector is undergoing a metamorphism creating a new outlook for interactive, collaborative and networked education. Since distance education becomes more viable when economies of scale is achieved through networking in the field of tutoring and counselling, delivery of learning material, and assessment etc. The below are the areas where the learners of OU may be benefited and in future, as the networking is strengthened through linkage of other state open universities, more clintele will get better opportunities for their skill upgradation.

(a) Admission and Evaluation: The open universities are planning to introduce admission-on-demand and examination-on-demand where a learner will be able to get admission or write examination as per his/her convenience through network. This will reduce the time lag in different processes of admission announcement, actual admission and the commencement of programme.

Currently IGNOU has offered computer education through the internet "Around the Globe Round the Clock" in two cycles viz January and July session. The following programmes are available for the learners anywhere in the world who have access to internet:

1. Master of Computer Application
2. Bachelor of Computer Application
3. Bachelor of Information Technology
4. Advance Diploma in Information Technology
5. Certificate in Computing

The Application form/information brochure is available at the IGNOU website (<http://www.ignou.edu/socis/vci>). In addition to it many Internet Access Points (IAP) have been empanelled in Delhi, Bihar, Chandigarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Madhya Pradesh, Orissa, Punjab, Rajasthan, Tamilnadu and Uttar Pradesh to provide education through internet facilities to learners.

(b) Distribution of Material: Currently print material is the main source of information for the students, but efforts have already been initiated to put all material related to computer courses on the web. Those students who get enrolled themselves with IGNOU through internet, they are provided with a login and password to enable them to download their material and assignments.

(c) **Tutoring/Counselling:** The counselling which was being conducted at the study centres through face-to-face interaction of counsellor and learner, has been reduced by 40 percent for management and computer courses after the installation of Dish antenna at many places. Very soon after the installation of VSAT equipments at regional centres, it will substantially improve the quality of tutoring alongwith extending the outreach of distance education. Interactive Radio Counselling services have also been added to the network.

(d) **Access to Databases:** The networking has provided access to databases within and outside the organisation, thus enabling the learners, researches and planners in the planning and development area to have accurate, update and timely information.

(e) **Updating the Material:** It is being planned that CRC (Camera Ready Copy) of the study material will be uploaded over the net which can be downloaded at various receiving-ends so that time lag is greatly reduced. Thus the study material will be early printed and can be easily updated.

(f) **Certification:** On the similar lines of e-commerce, it is being planned to deliver mark-sheets and certificates/degrees through the network, but a careful consideration has to be given to develop security system e.g. "e-water marking".

(g) **Collaborative Writing:** IGNOU is one of the five mega open universities of the world and many other open Universities abroad have adopted IGNOU course material. Thus various course teams can team-up at various locations for collaborative writing and design and development of courses/programmes through cyber-zones.

(h) **Collaborative Groups:** The very concept of "isolation of learner" in distance education is also being changed by the net. Through providing them a platform e.g. online discussion and to have a common association e.g., (<http://www.infophil.com/india/alumni/ignou>).

Design of Virtual Classroom

Since web technology has given a new dimension to the field of virtual reality, its potential has been harnessed by various open universities across the globe in establishing either virtual classrooms or even virtual universities. IGNOU has been making tremendous efforts in making on-line education available to its learners through web. The web system comprises of two components:

- (a) for learners registered with open university,
- (b) for prospective learners and visitors interested in open and distance education in India.

The IGNOU learning zone will thus cater to the specialised needs of its clientele by providing the following facilities:

- course navigator
- course component having text, audio, video and animation clips
- on-line quizzes and assignments (through Java appalet)

- on-line mentor (through email or IRC)
- previous year's question papers
- "What's New" (through e-Newsletter)
- related web links
- faculty profile
- students profile

A few of the above features are still under development.

Models of Learning over Internet

Since the traditional f2f tutoring has its own limitations, Net can be adopted as an alternate model of learning.

Model-I (Unguided Approach)

In this "unguided model", the learners access the course material over the net as per their convenience. The entire course content is put on the net and learner is free to proceed as per his ability.

Model-II (Supervised Approach)

In this model, the course material is provided over the web for a certain duration and learner is informed about the availability of the content and time span. The learner undergoes the content, attempts built-in exercises, interacts with peer and tutor. At the end of this session, the summary is put up on the site for recapitulation and schedule for next session helps in guiding the learners. To upkeep the motivation of learners, the content material for, say only 2 sessions, is made available so that learner develops the habit of following the schedule and complete the set targets within specified time spans. This model provides flexibility and develops time-management skills. With a view to let the learners prepare for examination through revision, The entire course material is again made available, before a month for the scheduled examination.

Networking at Open Schools

In India in addition to Open Universities, nearly 800 accredited institutions (academic and vocational) have been networked under the umbrella of National Open School to provide education upto secondary stage. The National Open School has plans to constitute a forum as a network of schools through Internet to serve the learners who have access to internet in their schools or at home. Already the administrative and academic activities are being managed through LAN with Novel Netware 3.12, Pentium based Server and many terminals connected to it as nodes. This forum called as 'Indian Open Schooling Network' (IOSN) will provide a computer grid enhancing teaching and learning, providing career counselling, directory services and course material to its learners. In future IOSN will become a part of the "Commonwealth Electronic Network for School

and Education" (CENSE). The reader may visit <http://www.nos.org> for greater details on open schools in India.

Networking in other Education and Research Institution

In the recent times, the IT has made such a strong impact in the field of education that even the traditional educational and vocational institutes can not afford to lag behind. Most of these institutes like Bhabha Atomic Research Centre, Bombay (BARC); Centre for Artificial Intelligence and Robotics, Bangalore (CAIR); Indian Institute of Management, Calcutta (IIMC), Indian Institute of Management, Lucknow (IIML), Inter-University Centre for Astronomy and Astrophysics, Pune (IUCAA), Indian Institute of Management, Ahmedabad, Indian Institute of Science, Bangalore (IISc), Indian Institute of Technology, Bombay (IITB), Indian Institute of Technology, Delhi (IITD), Indian Institute of Technology, Kanpur (IITK), Indian Institute of Technology, Madras (IITM), Institute of Rural Management, Anand (IRMA), National Institute of Ocean Technology, Madras (NIOT), Sardar Vallabhabhai Regional College of Engineering and Technology, Surat (SVREC), and Tata Institute of Fundamental Research, Bombay (TIFR) etc. have already gone over the net and have their web presence. There are more than 225 traditional universities/institution, deemed to be universities/institutions of national importance in India. Most of them have their libraries connected to the Net.

A visit to the following sites will provide a link to the various educational institutes (Traditional, Vocational and Open and Distance Education):

<http://www.123india.com/education/organisations>

<http://www.india.edu>

<http://www.infophil.com/india/alumni/ignou>

<http://www.nos.org>

<http://www.indonet.com/edwebindia.html>

Networking of Library Resources

The library services in India are also passing through an interesting evolution. Some segments have witnessed an unprecedented boom in networking through WAN for their resources. e.g. DELNET, CALIBNET (Calcutta Library Network), MALIBNET (Madras Library Network) and INFLIBNET (Information and Library Network). The Delhi Library Network (DELNET) although started in January 1988, got itself registered as a society in 1992. Initially it was sponsored by National Information System for Science and Technology (NISSAT), Department of Scientific and Industrial Research, Govt. of India. Presently National Informatics Centre (NIC), Planning Commission to Govt. of India and India International Centre, New Delhi are promoting DELNET.

The main purpose of DELNET is to develop a network of libraries so that duplicity of efforts could be avoided through computerisation of activities related to collection, storing and dissemination of information. The major compilation work for creating

various union catalogues e.g. Union Catalogue of Books, Union List of Current Periodicals, Union Catalogue of periodicals, CD-ROM database, databases of India Specialists, Database of Periodical Articles, Books-in-Print Database, Union list of video recordings, Urdu Manuscripts Database and Database of Theses and Dissertations has already been completed. Efforts are also on for constant updation of this information.

DELNET also provides E-mail facility and access to various Indian and international databases to the users in its seventy-six member libraries. The topologies of the library networks in India comprises of STAR type for DELNET, DISTRIBUTED for CALIBNET and HIERARCHICAL for INFLIBNET. More details on library networks are available at <http://www.nic.in.delnet> or <http://delnet.nic.in/delnet>.

Conclusion

Internet and Intranets have become indispensable tools for success in any organisation. India which is considered to be most rich in terms of manpower who have excelled in the area of cognition, affection and psychomotor skills, there is no denying the fact that Indians stand second to none in the world. Already most of the educational institutions have got their web presence and email usage is dominant among academics for exchange of ideas. The students community in general also uses email for their academic matters. In case of Open Universities, mostly the students send email for their problems like non-receipt of Study Material, assignments, non-inclusion of marks in grade card etc. The reason for not using email for academic discussion may be the resource barrier: either the teaching faculty (academic counsellors) who are located all over India do not have easy access to email or if they have, then students are not aware of their addresses. In order to overcome this problem, IGNOU has started publishing email address of all its regional centres in the admission prospectus.

The trend globally indicate that student support service in open and distance education can be made more scientific, standardised and systematic through proper networking either institutional or electronic. New technologies will play a key role in the future development of distance education making it more economical, accessible and efficient.

Reference

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