UGC- Infonet: An Indian Consortium Model for Higher Education

Purushothama Gowda M.

Sr. Asst. Librarian , Mangalore University Library, Mangalore University

Mangalaganhgotri-574 199

Abstract

Application of ITC to the process of resource sharing made the consortium online. UGC-Infonet consortium is one of the land mark achievement in the field of higher education in India. It is only the possible solution to the ever growing demand for information and ever decreasing the budget to the universities. UGC-Infonet is the E-consortium, the users can access the scientific and research articles on 7x24 hour basis on their desk top. It provides around 5000 full text journals to the 150 universities in the Xth plan and planning to cover all the remaining universities as well as to the 17,000 colleges in a phased manner in the XIth plan. At present it includes 25 databases to cover all fields of higher learning of relevance to universities including: Arts, humanities and social sciences, physical and chemical sciences, life sciences, computer sciences, mathematics and statistics.

Introduction

We are living in the information age. The availability of online information and its effective use contributes to all round development of individuals and nations. Information is the most crucial input resource for development and it has been rightly said that "the future of each nation as well as that of mankind is based on, now more that ever, on information or knowledge gained rather than any other material or resources. Information leads to knowledge and in turn to innovation and development"[1] At the higher education level everyone needs advanced and scholarly literature to improve the quality of study, teaching and research. With remarkable development in the Information and Communication Technology (ICT), information resource in abundance is made available through the consortia approach on the net/ online.

Scholarly journals provide basic theoretical background as well as an in put for the research at the higher education level. Because of the ICT and consortia approach for resource sharing, today majority of the research articles are available online. These online electronic journals are bargained, negotiated and acquired from the publishers and other database vendors and access for the same is enabled by the UGC-INFONET consortia on 7x24 hour basis at the desk top of the academician. The electronic journals are made available beyond the barriers of time, distance and cost.

Development of Higher Education in India

Higher education in our country has come long way since independence. The government policy and efforts for promotion of higher education have been guided by the New Education Policy, 1986 and program of action, 1992 and other policy initiatives in the 1990's.The higher education policy and program of action has been guided by five goals of which include Greater access, Equal access, Quality and Excellence , Relevance and Value based education [2]. To achieve these goals, higher education system has been liberalized, consequently more and more universities and colleges have been opened by the different state governments with the financial support and guidance from the UGC. The all round development of education in the past 60 years is tremendous and same is presented in the

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Reprint requests: Dr Purushothama Gowda M
Sr. Asst. Librarian
Mangalore University Library, Mangalore University
Mangalaganhgotri-574 199
Tel: 9449450671
E-Mail: gowda_mp@yahoo.com

Year	No of Universities	No. of Colleges	No. of Teachers	No. of Students
1947	20	500	15000	0.5 million
2006	367	18064	4,88,000	11.2 million

following table.

The growth of education in the last 60 yearsSource: UGC- thrust and priorities of XI th Plan

From the table it is clear that the number of universities has increased from 20 in 1947 to about 367 in 2006 indicating thirteen-fold increase. The number of colleges increased from 500 in 1947 to 18,064 in 2006. similarly the number of teachers has increased from 15,000 in 1947 to 4,88,000 in 2006. and number of students increased from about half million to 11.2 million.

However, the quality of higher education has been not improved in the speed of number universities and academicians increased. To improve the standard of academic and research activity, there is a urgency of high attention from the respective agencies. The main reason is the universities across the country are facing an acute shortage of fund to support their academic and research activities. The quality of academic activities in the higher education mainly depend on the availability and access to international scientific periodical information as well as world class laboratories.

The majority of the universities across the country are facing the financial crises to subscribe these costly, scholarly, scientific and research based journals and is deprived of access to the latest published literature in their respective field. To improve the quality of education and research, the access to core and peer reviewed scientific publication is the basic requirement. The situation calls for and only available option is the optimum use of available resources through rational allocation of funds to subscribe or at least providing access to these core publications to improve the education and research activity in the universities. Thanks to developments in ICT, library consortia and licensing models, it has become possible to access online resources at more affordable price.

Library Consortia at the Higher Education Level

The consortia approach for to online access to e-resources plays an important role in the higher education level . This is really contributes to boost the academic activities viz. learning. teaching and research activities of the university education. The main advantages of the co-operative access to e-information is the minimizing acquisition cost of international scientific periodicals, consequently user satisfaction [3]. Urbano et al pointed out that cooperation among members has proven to be fairly positive because gained access to large amount of information that they would otherwise have been unable to obtain through individual subscription [4]. with regard to consortium initiatives in India, Chakravathy and Singh concluded that the efforts of UGC-INFONET and INDEST consortium will strengthen higher education system in India.[5]

UGC, INFLIBNET and E-Consortium

Professor Arun Nigavekar, Chairman, UGC set up a committee to study the possibility of setting up a consortium of universities to obtain Internet access to scholarly journals. The national negotiation committee set up by UGC recommended a number of resources covering all areas of learning. The UGC and INFLIBET extended the program in three phases to about 150 universities. It is expected that the entire university system will be covered under the program very soon. They also planning to extend this program to the 17,000 colleges in a phased manner.. Universities will become members of the consortium after signing a MOU with the UGC and INFLIBNET. The UGC provide funds for the program, which will be free of cost for the universities.

In addition to the teaching and learning, universities should support the research activities. As discussed above the quality of academic activities of the universities are mainly depends upon the availability or at least accessibility to the world class scientific articles in their respective field of research. Due to

limited resources, majority of the universities were finding it difficult to provide access to scientific and research articles to their users. In the context of more than 10,000 Ph.D.'s produced every year by these universities, the universities were badly in need of support for information sources for its users so that the quality of education and research could be improved. Further, the journals procured by these universities were duplicated, and there was no formal understanding between them for resource-sharing. Resource-sharing activity was totally localized, informal, and minimal. Even individual universities were finding it difficult to share resources between different departments due to the distance between departments and department libraries on campuses. Many universities also did not have the necessary ICT infrastructure and networking facilities, unlike premiere institutions such as the IITs and IIMs. As an apex organization, the UGC was realized the importance of the consortium and forced to work out strategies for providing increased access to information. It became more essential in the context of increased quality consciousness and competition from foreign and private institutions. As a backdrop to this situation, the UGC planned and established the Information and Library Network (INFLIBNET), which is supposed to take care of networking libraries and their resources in the higher education institutions across the country. This was established along the lines of The Joint Academic Network (JANET) in the UK.

Looking at the information needs of the users of academic institutions, the UGC has launched two ambitious programs: UGC-Infonet and UGC-Infonet e-Journals Consortium. It was difficult for the universities to raise the necessary funds to develop the network infrastructure. Therefore, the UGC-Infonet project, in collaboration with Education and Research Network (ERNET), has provided the infrastructure and also upgraded existing networks to broadband. This network initially connected a select 150 universities on a turnkey basis. They also have plans to use VSAT technology to facilitate networking for both urban and rural universities. Over a period of time, this service is planned to extend to other remaining universities and 17,000 colleges. INFLIBNET will coordinate between ERNET and the individual universities. Further, INFLIBNET maintains one print copy of almost all the journals subscribed to as a national archive[6] .UGC-Infonet E-Journal Consortium. In the process of improving the quality of higher education, the UGC decided to subscribe to e-journals and provide access to Indian universities and colleges.

The UGC has also initiated a program providing Internet access to scholarly literature in all areas of learning. The program is wholly funded by the UGC. All universities which come under UGC's purview have been provided grants to obtain Internet connectivity under UGC-Infonet and from members of this program. It will gradually be extended financial and technical support to all colleges as well.. The UGC-Infonet E-journal consortium is one of the greatest event in in the higher education and research field which has been formally launched on the concluding day of UGC's Golden Jubilee celebrations by his Excellency the President of India, Dr. A P J Abdul Kalam at Vigyan Bhawan on 28th December 2003 by dedicating a bouquet of e-journals to the nation.

With globalization of higher education and competitive research the demand for the scientific and nascent information has increased over the years. Due to scarcity of funds, libraries have been forced to discontinue the costly scholarly and scientific international journals, which have great impact on the higher education and research. In order to provide the current literature to academia, UGC has timely initiated the UGC-INFONET: E-journal consortium. It is a great boon to academia in the country, which enables them to access large number of scholarly and scientific publications from reputed publishers, aggregators and society publications. Under the consortium, about 4500 full text scholarly electronic journals from 25 publishers across the globe can be accessed. The consortium provides current as well as archival access to core and peer-reviewed journals in different disciplines. The whole program has been implemented in different phases. So far 150 Universities out of

367 Indian Universities, which come under the purview of UGC, have been provided access to these journals and it will gradually be extended to affiliated colleges as well.

ICT is a Means to Library Consortia

Today Library Consortia mainly stands on the ICT platform and facilitate online access to information at finger tips of the end users. The primary purpose of establishing a library consortia is to share all the available resources including, e-resources , online databases, books and periodicals amongst members. However, the mode of consortia approach has gone under transformation with infusion of new ICT. Today focus has been also shifting from print-media to digital and on-line environment. The emergence of internet, particularly the World Wide Web (WWW) as a new media of information delivery triggered proliferation of web-based full-text online resources [7]

UGC-INFONET E-Consortium in Higher Education

UGC is modernizing the university campuses with state-of-the-art campus wide networks and setting up its own nationwide communication network named UGC-INFONET.

The UGC-INFONET will be overlaid on ERNET infrastructure to provide assured quality of service and optimal utilization of bandwidth resources. The project is being funded by the UGC with 90% capital investment and 100% recurring cost during the X Plan period. A Joint Technical and Tariff Committee (JTTC), consisting of leading experts in the country has been set up to guide and monitor the entire project. INFLIBNET Centre, an autonomous IUC of the UGC, is the nodal agency for coordination of the UGC-INFONET and facilitates linkage between ERNET and the universities.UGC-INFONET will be a stepping stone in the process promoting the quality of higher education in several ways.

1. It will become a vehicle for distance learning.

2. It will be a tool to distribution of education material and journals to remotest of areas.

3. It will be a resource for researchers and scholars for tapping most up-to-date information.

4. It will form a medium for collaboration among teachers and students, not only within the country but all over the world.

5. It will be on Intranet for university automation.

6. It will establish a channel for globalization of education.

Primary Functions of UGC -INFONET

* Cataloging services

* Collections sharing

* Electronic content licensing

* Electronic content loading/presentation

* Interlibrary loan/document delivery

* Preservation

* Storage facilities

* Training

* Union lists/shared online catalogs

* Other: Networking all the academic institutions of the country

The E-Journals program is a cornerstone of the UGC-INFONET effort, which aims to address the teaching, learning, research, connectivity and governance requirements of the universities. The E-Journals program demonstrates how ICT can be used to stretch and leverage available funds in furthering these aims. The program has been made possible due to close understanding and cooperation between the UGC, ERNET, the Inter-University Centres IUCAA, INFLIBNET and CEC, and national and international publishers.

Subject Areas Covered under UGC-INFONET

The E-Journals program aims to cover all fields of higher learning of relevance to universities including:

* Arts, humanities and social sciences

* Physical and chemical sciences

* Life sciences

* Computer science, mathematics, statistics

The literature made available through this program includes research articles, reviews and abstracting databases. Access is provided

wherever available to both current and archival literature. Portals are also available to enable users to navigate easily through the literature.

INFLIBNET has been given a responsibility to administer and monitor the program and have independent electronic access to all the publications to help with the process. It will be provided with one free print copy of each journal subscribed under the consortium for archival purposes (by many of the publishers). A web site is designed to provide information to consortium members about the status of the program at <web.inflibnet.ac.in/econsortia/index.htm>. INFLIBNET also conduct training programs to spread awareness and to develop expertise within the university community in the use of E-Resources. Special training programs will be conducted on different university campuses by publishers of Complex databases.

Databases included in the UGC-INFONET

Today UGC-INFONET provide many publications, which includs more than 4,200 scholarly journals, are available to about 150 universities from the following organizations:

1. Oxford University Press
2. American Physical Society
3. Kluwar Online
4. Portland Press
5. Mathe Science
6. Annual Reviews
7. Blackwell
8. Taylor and Prancis
9. American Institute of Physics
10. Project Muse
11. American Chemical Society
12. Chemical Abstracts Service (CAS)
13. Royal Society of Chemistry
14. Institute of Physics
15. Cambridge University Press
16. BIOSIS
17. Nature Publications
18. Science Online
19. JSTOR
20. Springer-Kluwer
21. Encyclopaedia Britannica
22. Elsevier Science
23. Emerald
24. J-Gate
25. Ingenta

Discussions are in progress with several other publishers and their publications are expected to become available in the future. Access is available through individual university IP ranges. The remaining universities will join in phases. One-day user awareness training programs were conducted at more than 129 universities to provide orientation on the use of electronic journals and databases. Many more such programs are planned to cover all the selected universities.

While accessing the resources through the above said databases, it wants to avoid duplication of procurement of the titles by the universities as well as bargain for the best subscription rates. Initially, the UGC had subscribed to almost 2,000 e-journals, eight databases, and two portals. Through this project, the e-journals were procured with a discount of between 60 and 90 percent, and access to archival materials was included. The total budget for this project was allocated by the UGC. In due course, the UGC may collect subscription fees from individual universities With the provision of the network infrastructure, the UGC was able to provide access to e-journals. Initially, connectivity was provided to fifty universities starting on January 1, 2004, on a trial basis. It was extended to another fifty universities for the year 2005. during 2006, it has covered another 50 universities. So far it has covered 150 universities and now planning to extended to other remaining universities and 17000 affiliated colleges in a phased manner. Provision of access to e-journals is basic, but more important issues are users' acquaintance with the technology and provision of training to the users to enable them to make optimum use of the resources. Even though the e-resources provide easy and fast access for users, many universities still lack campus networks, resulting in limited access to these resources. Some of the

universities still depend on dial-up Internet facilities. However, these days, universities are building improved infrastructure that will enable access through leased lines (IP-based access).

This consortium has improved access to an increased numbers of journals. It has provided the facility for users to directly download information. However, user statistics for the first six months, from January to June of 2004, are not so encouraging. INFLIBNET has received statistics from some of the publishers, and they indicate that the total number of downloads by the member universities was 305,530, out of which American Chemical Society (ACS) journals constituted 37.65 percent. The latest statistics were not yet available but indications are that there is considerable increase in downloading by the users, due to awareness programs and seminars conducted by the universities and by INFLIBNET (Murthy et al., 2005).

It is worth mentioning that a J-gate portal is being procured by UGC-Infonet. It lists about 14,000 journals, both free and subscription based. The user can get access to full-text articles in free journals through a hyperlink. The list is being updated and more and more titles are

being included.

A data center with server and storage facilities for content of common interest is being planned for the UGC-Infonet center. The universities can host their Web sites through this data center. An informatics lab was opened at the INFLIBNET center with state-of-the-art technology including wireless technology. This lab is open to faculty and scholars from various universities in the country; there is also provision for supplying photocopies of print journal articles.

INFLIBNET is also building a database of Ph.D. theses submitted to Indian universities. Even the Vidya Nidhi project based at the University of Mysore is in the process of creating a database of Ph.D. theses with financial support from institutions such as NISSAT. It may be worth mentioning that the UGC has already initiated steps for creation of a full-text database of Ph.D. theses presented to Indian universities. It prepared norms for creation of an Electronic Theses Database (ETD). The main purpose of this initiative is to provide free and unlimited access to these theses. However, implementation may take more time.

Out of the 171 universities selected for the

Status Summary	
Status	**No. of Universities**
Agreements Signed	146
Funds Released From UGC	150
PO Received by ERNET	149
Links Commissioned	149
Universities which have received training	129
Total BB VSAT Links	50
Total SCPC Links	45
Total Leased Links	54

consortia 150 universities started the UGC INFONET journals consortia in a phased manner. In the first phase 50 universities have been identified in the year 2004, in 2005 in the second phase INFLIBET has been identified another 50 universities for the consortia and in the year 2006 another 50 universities have been identified by the INFLIBNET.

List of Resources

The above table indicates that there are 25 databases, out of which, 19 are full text, two are portals and four are bibliographic databases. The royal society of chemistry database include six sub bibliographic databases. The portals gives access to full text journals as well as hyperlink to other data bases. For example J-gate portal is

FULL TEXT DATABASES	No of Journals	Website address
: American Chemical Society (31)	31	http://www.pubs.acs.org/
American Institute of Physics (18)	18	http://www.aip.org/
American Physical Society (10)	10	http://www.aps.org/
Annual Reviews (29)	29	http://arjournals.annualreviews.org
Cambridge University Press (189)	189	http://journals.cambridge.org/
Elsevier Science (34)	34	http://www.sciencedirect.com/
Emerald (28)	28	http://www.emeraldinsight.com
Encyclopedia Britannica	1	http://search.eb.com/
Institute of Physics (36)	36	http://www.iop.org/EJ
J-STOR (457)	457	http://www.jstor.org/
: Nature (1)	1	http://www.nature.com/
Portland Press (4)	4	http://www.portlandpress.com/pp/default.htm
Project Muse (222)	222	http://muse.jhu.edu/journals
: Royal Society of Chemistry (23)	23	http://www.rsc.org/
Science Online (1)	1	http://www.scienceonline.org/
Springer & Kluwar Journals (1217)	1217	http://www.springerlink.com/
Blackwell		http://www.blackwell-synergy.com/
Taylor and Fracis (1105)	1105	http://journalsonline.tandf.co.uk
Oxford University Press		http://www.oxfordjournals.org
PORTALS		
Ingenta - Gateway Portal (5400)	5400	http://www.ingenta.com/
J-Gate Gateway Portal (15000)	15000	http://www.j-gate.informindia.co.in/
BIBLIOGRAPHIC DATABASES		
Chemical Abstracts Service (1 Database)	1	http://stnweb.cas.org/
Biological Abstracts (1 Database)	1	http://web5.silverplatter.com/webspirs/start.ws?customer=c180470

being procured by UGC-Infonet lists about 14,000 journals, both free and subscription based. The user can get access to full-text articles in free journals through a hyperlink. The list is being updated and more and more titles are being included over period of time.

Open Access Journals

Today the open access free journals are also important sources of e-resources. The publications also include the research and scientific information and are equally very good source of information. In addition to the subscribed databases, INFLIBNET has provided some open access journals. The user can access these journals through the above said websites. These websites are also provide important and relevant information inputs to the academic,

General List of Open access eprints	http://dmoz.org/Science/Publications/Archives/ Free_Access_Online_Archives/
PubMed Central (PMC)	http://pubmedcentral.nih.gov/
Networked Computer Science Technical Reference Library	http://www.ncstrl.org
http://www.ncstrl.org CERN Document Server (CDS)	http://weblib.cern.ch/
Citebase	http://citebase.eprints.org/cgi-bin/search
http://repec.org/	BioMed Central
http://www.biomedcentral.com/start.asp HighWire Press Free	http://highwire.stanford.edu/lists/freeart.dtl
BBS Prints Interactive Archive	http://www.bbsonline.org/ Citeseer
http://citeseer.nj.nec.com/cs	Cognitive Science
http://cogprints.ecs.soton.ac.uk/ Eprints.org archives	http://software.eprints.org/
Public Library of Science	http://www.plos.org/index.html Directory of Open Access Journals
http://www.doaj.org	

research and teaching paternity of the higher education institutes.

List of Subject

From the table it is clear that more than 60% of journals are belongs to the science and technology departments and it gives less number of journals to the social science and humanity subjects. More over, the majority of almost all the departments are says that the relevant and core journals in their own subjects are very less when compared to the number of journals available in the respective subject. The faculty members and research scholars are the

Subject	No. of Journals Covered	Subject	No. of Journals Covered
AGRICULTURE	39	HISTORY	221
ANTHROPOLOGY	45	HUMANITIES	26
ARCHEOLOGY	17	INFORMATION SCIENCE	19
ARCHITECTURE	9	LANGUAGE & LINGUISTICS	79
ARTS	184	LAW	61
ASTRONOMY	17	LIBRARY SCIENCE	36
BIOCHEMISTRY	1	LITERATURE	159
BIOLOGY	306	MANAGEMENT	16
BIOTECHNOLOGY	15	MATHEMATICS	192
BOTANY	39	MEDICAL SCIENCE	494
BUSINESS	43	PHILOSOPHY	124
CHEMISTRY	167	PHYSICS	178
COMMERCE	3	POLITICAL SCIENCE	153
COMPUTER SCIENCE	133	PSYCHOLOGY	147
CULTURE	21	RELIGION	55
EARTH SCIENCE	64	SCIENCES	56
ECOLOGY	7	SOCIAL SCIENCES	166
ECONOMICS	188	SOCIOLOGY	155
EDUCATION	159	STATISTICS	36
ENGINEERING	158	TECHNOLOGY	17
ENVIRONMENTAL STUDIES	93	ZOOLOGY	16
GEOGRAPHY	45		

opinion that inclusion of core journals are more useful for their teaching and research rather than increasing the number of journals which are less important in the UGC-INFONET consortia.

Conclusion

UGC-Infonet E-journal Consortium is a land mark event in the history of Indian higher education. On the one hand, it is an viable solution to meet the ever growing demand for the core scientific publications from the users and on the other, it is only available solution to the ever decreasing budget and ever increasing prices for the journals. Students, research scholars, and faculty members are able to access to large amount of information that they would otherwise have been unable to obtain through individual subscription. The only available solution in the academia is the optimum use of resources through judicial allocation to subscribe or at least to provide access to the core publications to improve the quality of higher education in the country. Today, the tremendous developments in ICT, library consortia and licensing models, it has become possible to have wide access to online resources at more affordable price than ever.

References

1. BIRADAR (B S) KUMAR (S B T)and KUMAR (A M). Information use pattern by sericulture scientists: A case study of Karnataka State Sericulture Research and Development Institute Library, Bangalore. SRELS Journal of Information Management. 40,3; 2003 255.

2. THROAT (Sukhadeo). University Grants Commission: Thrusts and priorities of XI plan. March1 2007; 1 -14.

3. ROSALY (F)and TARUHU (R) Electronic library for scientific journals : consortium project in Brazil, Information Technology and Libraries . 19,2 ; 2000 ;61-65.

4. URBANO (et.al.). The use of consortially purchased electronic journals by the CBUC 2002-2003, D-Lib Magazine. 10, 6 2004. Http://www.dlib.org/d;ib/june04/anglada/06anglada.html.

5. CHAKRAVARTHY (R) and SING (S), E-resources for Indian universities : New initiatives. SRELS Journal of Information Management. 42, 1; 2005; 57-73.

6. MURTHY (et al) . UGC-Infonet: E-journals consortium : An Indian model bridging the gap between scholarly information and user. Paper presented at CALIBER - 2005 Cochin , India, February.

7. http://www.thefreelibrary.com/knwoledge-sharing+activities +in+ India –a0144666665.