Online information system and services of the libraries and information centers of indian institutes of technology

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ABSTRACT

The paper discusses the status of online information services of IITs. It highlights the adopted methods and techniques in maintaining these services in IITs. It is significant to find out the processes of management and dissemination in rendering these services in IITs. The paper discerns the same. It also discusses the impact of these services on users. The paper highlights the extent of these online information services in near future.

Keywords: Online sources, Computerization, Readers' services, networking.

INTRODUCTION

So much information is being generated that we are conformed to 'Information explosion', 'Information pollution' and 'Exponential growth' of information. This is causing concern on the communication, distribution, availability, access, and exploitation fronts of information, particularly so in science and technology; Management of information is thus drawing greater attention than ever before [1]. Under no circumstances, however, should the network be designed merely as a library tool. When designing a new system or a segment thereof it is necessary (a) to formulate the problem, (b) to choose appropriate objectives, (c) to define relevant factors in the environment, and (d) to use ingenuity in inventing new systems and new segments. The Information Management Strategy is concerned with how the information services are organised for the different facets of the Institution (i.e., centralised, distributed, out-sourced) and policy issues such as who gets access and what level of access they receive. [2, 3]:

1.   Information System's support for business processes and practices.

2.   Information System's support for decision making.

3.   Information System's support for the innovative planning.

Depending upon the specific requirement of users, various types of information systems may be developed [4].

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NEED TO EVALUATE INFORMATION SYSTEM AND SERVICES

The idea of evaluation seems to be one which has come into the professional consciousness only in very recent years. All service functions in all organizations are being reviewed in terms of their necessity for the aims of the organization and libraries and information systems are no exception [5]. The consequence of this is that the idea of cost has come to be associated with evaluation and there has been, perhaps, an over-emphasis on costs, at the expense of justifying services on the grounds of usefulness to the library user [6]. "What can we evaluate?" is very simple: any aspect of organizational functioning can be subject to evaluation. Thus, we can evaluate [7, 8]:

• the way the management structure functions;

• internal operations relating to information materials, such as cataloguing and classification, indexing, etc.;

• library/information services to users:

• new programmes of service delivery;

• new possibilities for technological support to services;

• alternative possibilities for doing anything;

• the functioning of a total system prior to planning change.

REVIEW OF LITERATURE

Content-oriented information management has a much stronger focus on the provision of external information [9]. In some publications only the provision of external information (from databases) [10, 11] or information and documentation [12] are related to information management. For other authors, the provision of external information is an important part of information management [13]. The external information concerning changes in relevant segments of the environment is much more important for the success of an organization than the management of information technology [14]. This also shows the importance of external information for strategic planning [15]. Digital rights management (DRM) has had a chequered history. It has been called "the saviour of intellectual property rights" and "completely useless" in protecting digital content. The truth probably lies somewhere in between. [16, 17].

However, Web 2,0 technologies can help libraries to create collaborative and participative environment. Availability of technologies gives libraries the ability to offer improved, customer-driven services to their users [18]. Digital libraries are unable to fulfill some of the functions of the physical library as physical spaces, but are able to offer functions beyond what the physical library can offer as cognitive spaces [19].

The insights in this piece may clarify for the practitioner the present and future role of the systems division within the larger framework of the academic library. [20]. A digital library can use this approach to anticipate a reader's needs in advance based on the mining results [21]. Future research should focus on highlighting non-print formats to maximize use [22]. Printed journals are consulted by the majority of users compared with e-journals. Keyword is the most popular search method for searching e-journals among research scholars, whereas the date of publicationcarries the least percentage among all the options [23]. As virtual reference and online discovery tools evolve, so do interactions with patrons [24].

Seadle, (2010) discusses the importance of,

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and problems with, interoperability along long term digital archiving systems [25]. Moghaddam (2010) gives an overview of the challenges imposed on libraries by the presence of digital resources [26]. Saxena (2010) informs that E-Journals are very important source of information for R&D community in the world and now e-journals have become most preferred source of information for researchers [27]. According to Elaiess (2010), world is witnessing a considerable transformation from print based-formats to electronic-based formats thanks to advanced computing technology, which has a profound impact on the dissemination of nearly all previous formats of publications into digital formats on computer networks [28]

Objectives and scope of the study

The objectives of the study are as following:

1. To find out the status of online information services of IITs.

2. To study adopted methods and techniques in maintaining these services in IITs.

3. To find out the processes of management and dissemination in rendering these services in IITs.

4. To find out the impact of these services on users.

5. To find out the extent of these online information services in near future.

Scope of the study:

Libraries and information centers of the following institutions are to be investigated under the study:

1. Indian Institute of Technology, Delhi

2. Indian Institute of Technology, Guwahati

3. Indian Institute of Technology, Madras

4. Indian Institute of Technology, Roorkee

5. Indian Institute of Technology, Kanpur

6. Indian Institute of Technology, Kharagpur

7. Indian Institute of Technology, Bombay

METHODOLOGY OF THE STUDY

We may define 'Methodology' as the systematic method of discovering new facts of verifying old facts, their sequence, interrelationships, casual explanations and natural laws which govern them. Questionnaires have been designed to collect data from the library and users. The selection of a particular sample design attempted to maximize reliability and external validity, subject to cost and feasibility constraints. The users of the libraries of IIT Libraries are the students, faculty members of that campus which represent the target population of this study. The questionnaire method has been employed to collect the data for the present study and to select the sample population. Keeping in mind the objectives of the study a questionnaire was designed and distributed among the users. 700 questionnaires were distributed among the users. Each library was circulated 100 questionnaires for the users of library. Out of these which 13 were not taken into consideration as they were incomplete? About 23 questionnaires were not found back. In all 664 questionnaires were completely filled and returned and analyzed for the present study. Apart from the questionnaires, a form for content analysis of library websites/ portals was prepared to record presence of online information system, sources and services of these IIT libraries and information centers.

1. General information:

Table 1: General Information

S. No.	General information	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Name of library	Central Library	P K Kelkar Library	Central Library	Central Library	Central Library	Central Library	Central Library
2.	Year of establishment	1961	1959	1958	1959	1847	1994	1951

2. Source of Finance:

Table 2: Source of Finance

S. No.	Source of Finance	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	UGC/MHRD grant	√	√	√	√	√	√	√
2.	Special grant	√	√	√	√	√	√	√
3.	Library fee	√	√	√	√	√	√	√
4.	Library fines	√	√	√	√	√	√	√
5.	Marketing of products and services	√	√	√	√	√	√	√

3. Computerization of library:

Table 3: Computerization of library

S. No.	Computerization of library	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Computerization of library	√	√	√	√	√	√	√
2.	House-Keeping jobs	√	√	√	√	√	√	√
3.	Readers' services	√	√	√	√	√	√	√
4.	Management Support activities	√	√	√	√	√	√	√

DATA ANALYSIS AND FINDINGS

The data has been presented in the tables for the analysis. The tabulation is to find out the impact of online source and services of Indian Institute of Technology, Delhi, Indian Institute of Technology, Guwahati, Indian Institute of Technology, Madras, Indian Institute of Technology, Roorkee, Indian Institute of Technology, Kanpur, Indian Institute of Technology, Kharagpur, Indian Institute of Technology, Bombay.

The table shows that IITD library was established in 1961, PK Kelkar Library at IITK was established in 1959. in the same year IITM Central library was established. The IITKgp central library was established in 1951. The newest among them is the Central library, IIT Guwahati. Various libraries have been established during the 1950s and 1960s. The oldest one was established in the year 1847. This is the IIT Roorkee, it was basically University but was upgraded to IIT in 2004.

The above table shows that the sources of finance in these IIT libraries are categorized as UGC/MHRD grant, Special grant, library fee and fines. The marketing of information products and services has also come into picture as source of finance. The libraries and information centers of various IITs receive the grants from UGC/MHRD, Special grant time to time. It is also found that library fees and fines also provide some kind of financial assistance to these libraries and information centers. The marketing of information products and services

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4. Housekeeping jobs of library:

Table 4: Housekeeping jobs of library

S. No.	House-Keeping Jobs Of Library	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Acquisition	√	√	√	√	√	√	√
2.	Cataloguing	√	√	√	√	√	√	√
3.	Circulation	√	√	√	√	√	√	√
4.	Serial control	√	√	√	√	√	√	√
5.	Journal indexing	√	√	√	√	√	√	√
6.	Stock verification	√	√	√	√	√	√	√
7.	Any other (please specify)							

5. Readers' services of library

Table 5: Readers' services of library

S. No.	Readers services of library	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	CAS	√	√	√	√	√	√	√
2.	Bibliographical	√	√	√	√	√	√	√
3.	Union catalogue access	√		√		√		√
4.	SDI							
5.	Database searches	√	√	√	√	√	√	√
6.	Article delivery	√	√	√		√	√	√
7.	Any other (please specify)							

has also been playing the role in providing some kind of financial assistance.

The above table reflects about the Computerization of libraries and information centers. All the libraries and information centers are computerized. The computerization has taken in the areas such as housekeeping jobs, readers' services, management support activities as well as networking for information provisions.

Computer is being used for house- keeping jobs. Currently acquisition, cataloguing, serial control sections are being maintained in the various libraries and information centers of IITs.

Readers' services are very important in the special as well as academic library. As it has been reflected that computer is being used for readers' services. Various areas such as CAS and SDI are incomplete with out the use and application of computers. Bibliographical services can easily be provided with the help of computerization. Access to Union Catalogue is very important and with the support of computerization, it can be maintained and updated timely. No library has indicated any other application of computer in readers' services.

It is quite impressive that all these libraries and information centers are providing access to various kinds of databases. Each kind of database has its own significance and it cannot be marred by any other kind of database. Bibliographic, Referral, Numeric as well as full-text databases are available in these libraries and information centers. Though it can be an intriguing question

which kind of database would be most popular?

Library provides CD ROM Search Service in all these libraries and information centers. It is ultimate impression that these libraries and information centers allow users to search themselves. None of the libraries and information centers has shown if library staff does the search

for users. It can be assumed that all the users are well equipped with knowledge of information technology. Staff might also be helpful whenever any demand arises.

6. Database services of library:

Table 6: Database services of library

S. No.	Database services of library	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Bibliographic	√	√	√	√	√	√	√
2.	Referral	√	√	√	√	√	√	√
3.	Numeric	√	√	√	√	√	√	√
4.	Full-text	√	√	√	√	√	√	√
5.	Any other (please specify)							

7. CD ROM Search service:

Table7: CD ROM Search service

S. No.	CD ROM search service	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Library provides CD ROM Search Service	√	√	√	√	√	√	√
2.	Allow users to do searches themselves	√	√	√	√	√	√	√
3.	Library staff does the search for users							

8. Online search service:

Table 8: Online search service

S. No.	Online search service	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Library provides Online Search facility	√	√	√	√	√	√	√
2.	User searches himself	√	√	√	√	√	√	√
3.	Library staff searches							
4.	Computer specialist searches							

9. Feed back:

Table 9: Feed back

S. No.	Feed back	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Library has any system of feed back	√	√	√	√	√	√	√
2.	In-built							
3.	Through network	√	√	√	√	√	√	√

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The table shows that each library provides Online Search facility and it is pervasive that the user himself searches. No library has reflected that the library staff searches for users. There are no indications of such that computer specialist

Each library has system of feed back through network. It is an important aspect of library and information services. The above table reflects that most of the users visit library daily. While discussing the respondents of IITD library, it is

10. Status of Users:

Table 10: Status Of Users

S. No.	Users	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	UG Student	47 (47.96)	53 (53.54)	44 (44.90)	49 (52.69)	56 (60.22)	52 (57.78)	45 (48.39)
2.	PG Student	21 (21.43)	20 (20.20)	28 (28.57)	19 (20.43)	12 (12.90)	12 (13.33)	21 (22.58)
3.	Research Scholar	15 (15.31)	12 (12.12)	14 (14.29)	13 (13.98)	12 (12.90)	12 (13.33)	10 (10.75)
4.	Faculty member	15 (15.31)	14 (14.14)	12 (12.24)	12 (12.90)	13 (13.98)	14 (15.56)	17 (18.28)

11. Visit to the Library:

Table 11: Visit To The Library

S. No.	Users	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Daily	65 (66.33)	65 (65.66)	58 (59.18)	62 (66.67)	68 (73.12)	64 (71.11)	55 (59.14)
2.	Several times a week	36 (36.73)	34 (34.34)	40 (40.82)	31 (33.33)	25 (26.88)	26 (28.89)	38 (40.86)
3.	Once in a week							
4.	Occasionally							
5.	Never							

searches in these libraries and information centers.

evident that 66.3% of them visit library daily. The most frequent visitors are from the IITR

Figure 1: Visit to the Library
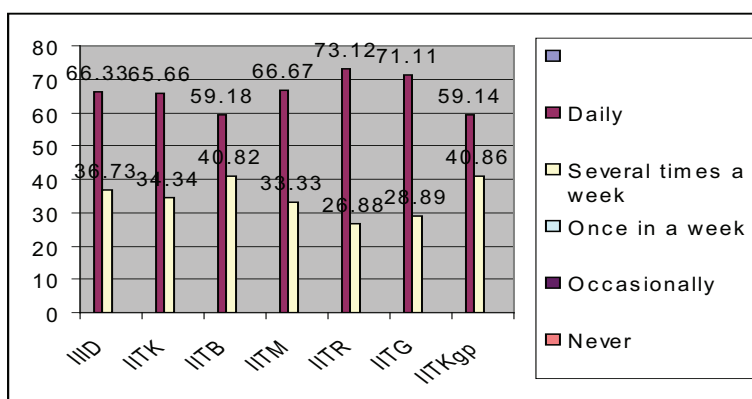
12. Purpose Of Visiting The Library:

Table 12: Purpose Of Visit The Library

S. No.	Users	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Borrowing and returning of reading material.	98 (100)	99 (100)	98 (100)	93 (100)	93 (100)	90 (100)	93 (100)
2.	Preparation of classroom teaching	49 (50)	78 (78.79)	69 (70.41)	76 (81.72)	81 (87.1)	71 (78.89)	89 (95.70)
3.	Gathering of professional information.	67 (68.37)	45 45.45)	78 (79.59)	69 (74.19)	84 (90.12)	78 (86.67)	91 (97.85)
4.	Keeping up to date	98 (100)	99 (100)	98 (100)	93 (100)	93 (100)	90 (100)	93 (100)
5.	Consulting reading material for research	96 (97.96)	93 (93.94)	95 (96.94)	90 (96.77)	92 (98.92)	88 (97.78)	89 (95.70)
6.	Carrying out internet search	98 (100)	89 (89.9)	92 (93.88)	93 (100)	91 (97.85)	90 (100)	93 (100)

library. The IITB respondents have the least daily visit pattern.

The above table shows that 100% respondents have a tendency of borrowing and returning of reading material from the library. The purpose

13. Time Spent In The Library:

Table 13: Time Spent In The Library

S. No.	Spending Time	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Less than one hour	15 (15.31)	19 (19.19)	12 (12.24)	14 (15.05)	12 (12.90)	15 (16.67)	19 (20.43)
2.	one hour	50 (51.02)	41 (41.41)	28 (28.57)	28 (30.11)	36 (38.71)	49 (54.44)	31 (33.33)
3.	Two or three hour	20 (20.41)	20 (20.2)	30 (30.61)	29 (31.18)	22 (23.66)	10 (11.11)	30 (32.26)
4.	More than three hour	16 (16.33)	19 (19.19)	28 (28.57)	22 (23.66)	23 (24.73)	20 (22.22)	13 (13.98)

14. Material Used By Users:

Table 14: Material used by users

S. No.	Material	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	e- Books	98 (100)	99 (100)	98 (100)	93 (100)	93 (100)	90 (100)	93 (100)
2.	e-Reference books	92 (93.88)	79 (79.8)	91 (92.86)	89 (95.7)	82 (88.17)	78 (86.67)	78 (83.87)
3.	e-Journals	79 (80.61)	87 (87.88)	91 (92.86)	88 (94.62)	81 (87.1)	89 (98.89)	83 (89.25)
4.	e-Thesis	98 (100)	89 (89.9)	98 (100)	93 (100)	93 (100)	90 (100)	93 (100)
5.	CD ROM database	94 (95.92)	91 (91.92)	93 (94.9)	89 (95.7)	87 (93.45)	81 (90)	78 (83.87)
6.	Online database	96 (97.96)	93 (93.94)	95 (96.94)	90 (96.77)	92 (98.92)	88 (97.78)	89 (95.7)
7.	Multimedia sources	67 (68.37)	69 (69.7)	72 (73.47)	74 (79.57)	64 (68.82)	65 (72.22)	78 (83.87)

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The above table shows that 100% of the respondents have reflected their choice of using e-books at these information centers. The popularity of e-books is increasing day by day. We can see that electronic reference books or material is most popular among the respondents of IITM and least popular among the respondents of IITB. The e-journals are most popular among the respondents of IITM and least popular among the IITD in this sample. The electronic thesis's are quite popular among all the respondents. Online databases have created a niche for themselves. The usage is reflected by the choice of the respondents. The multimedia sources are not as popular as other information sources among the respondents.

seems to be universal. Preparation of

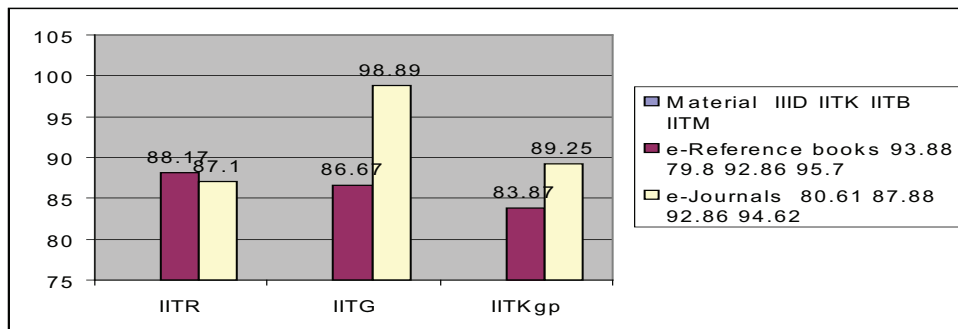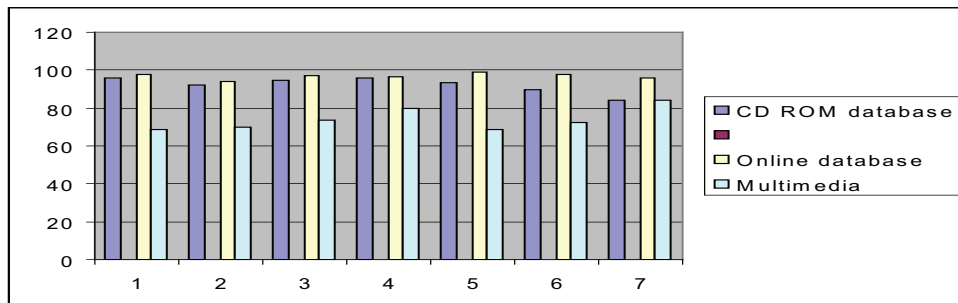## Figure 2: Materials Used By Users (1)

Figure 3: Materials used by Users (2)

15. Awareness of Services

Table 15: Awareness of Services

S. No.	Awareness of services	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Lending	91 (92.86)	82 (82.83)	89 (90.82)	89 (95.7)	84 (90.32)	78 (86.67)	83 (89.25)
2.	Reference	87 (88.78)	88 (88.89)	91 (92.86)	85 (91.4)	81 (87.1)	81 (90)	84 (90.32)
3.	Online search	95 (96.94)	89 (89.9)	98 (100)	91 (97.85)	93 (100)	78 (86.67)	91 (97.85)
4.	CD ROM Search	84 (85.71)	78 (78.79)	82 (83.67)	86 (92.47)	87 (93.55)	89 (98.89)	79 (84.95)

classroom teaching also seems to be quite significant among the respondents of various IIT libraries. 100% of the respondents are having the purpose of keeping up to date themselves. Consulting reading material for research is more popular than gathering of professional information among these respondents. Carrying out internet search is also very important as for the users. The awareness is greatest among the respondents of IITD library. IITB respondents (92.86%) have shown their awareness towards the reference service of the library. 100% respondents at IITB, IITR are aware of online searching. The least number of respondents are from the IITK about the awareness of online searching. CD-ROM search awareness is found

16. Reference Service:

Table 16: Reference Service

S. No.	Reference Service	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	User education	91 (92.86)	82 (82.83)	89 (90.82)	89 (95.7)	84 (90.32)	78 (86.67)	83 (89.25)
2.	Library orientation	87 (88.78)	88 (88.89)	91 (92.86)	85 (91.4)	81 (87.1)	81 (90)	84 (90.32)
3.	Use of online resources	79 (80.61)	87 (87.88)	91 (92.86)	88 (94.62)	81 (87.1)	89 (98.89)	83 (89.25)
4.	Library helps to search the online resources	98 (100)	89 (89.9)	98 (100)	93 (100)	93 (100)	90 (100)	93 (100)
5.	Library helps to Use reference sources	94 (95.92)	91 (91.92)	93 (94.9)	89 (95.7)	87 (93.55)	81 (90)	78 (83.87)

100% respondents have it in IITD, IITM, IIT Kgp as well.

The awareness of information services plays a

at the most (98.89%) among the respondents of IITG and least (78.79%) at IITK respondents.

While doing the in-depth analysis of

17. Satisfaction For Services

Table 17: Satisfaction For Services

S. No.	Satisfaction	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Yes	96 (97.96)	92 (92.93)	88 (89.8)	93 (100)	91 (97.85)	85 (94.44)	90 (96.77)
3.	No	2	07	10		02	05	03

great role in defining the status of library among the users. The respondents have reflected various flavors while answering the awareness status of various services of library among themselves. Majority of them (more that 80% respondents) are aware that library does have lending service reference services provided at the various IIITs, it is significant that respondents at each IIT library have shown that library provides user education. According to respondents (92.86%) of IITB, library orientation is being provided. According to 100% respondents of IITD, IITB,

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IITR, IITG, and IIT Kgp, the library helps to search the online resources. At IITB and IITR, 100% respondents have opined that library

information.

At IITM, 100% respondents are satisfied with

18. Online networking service:

Table 18: Online networking service

S. No.	Online networking service	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	Library has facilities for inter-library networks	90 (91.84)	80 (80.81)	80 (81.63)	90 (96.77)	91 (97.85)	83 (92.22)	86 (92.47)
2.	Union catalogue of books	80 (81.63)	76 (76.77)	78 (79.59)	83 (89.25)	80 (86.02)	79 (87.78)	82 (88.17)
3.	Union catalogue of periodicals	86 (87.76)	87 (87.88)	93 (94.9)	85 (91.4)	82 (88.17)	80 (88.89)	83 (89.25)
4.	Union list of current periodicals	94 (95.92)	91 (91.92)	90 (91.84)	89 (95.7)	87 (93.55)	81 (90)	78 (83.87)
5.	Access to national databases	95 (96.94)	89 (89.9)	98 (100)	91 (97.85)	93 (100)	78 (86.67)	91 (97.85)
6.	Access to international databases	84 (85.71)	78 (78.79)	82 (83.67)	86 (92.47)	87 (93.55)	89 (98.89)	79 (84.95)
7.	E-mail	95 (96.94)	90 (90.91)	97 (98.98)	89 (95.7)	87 (93.55)	79 (87.78)	90 (96.77)

helps to use of the bibliographical sources.

the services provided by the library. More that 95% of respondents have shown satisfaction at

Figure 4: Awareness Of Services
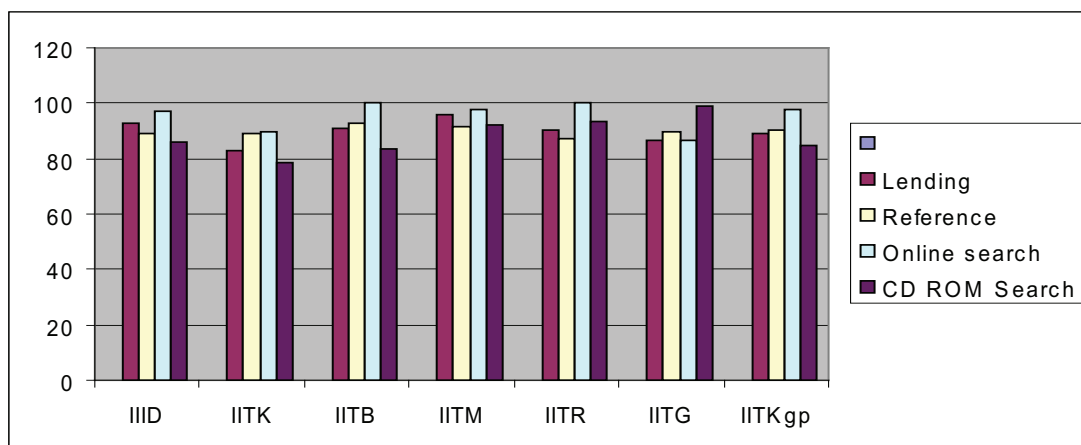
Most (98.89%) of the respondents at IITG have opined that library helps to Search for specific

various IITs.

Library has facilities for inter-library

networks, shown by the majority of the respondents at various IITs. Union catalogue of books, periodicals and list of current periodicals has a significant place in information access and services. This network based service is popular among the respondents. Access to national databases and international databases has also grown during the last two decades and is well reflected by the respondents. Hardly the respondents have not a penchant for the e-mail facility and document delivery.

CONCLUSION

Indeed, students entering higher education increasingly have experienced online information services at the secondary and even primary levels. Students have immense wherewithal with digital media use through messaging, gaming and mobile platforms. Participation in courses in both traditional universities and newer for-profit organizations is burgeoning. In many ways libraries and other elements of higher education are evolving away from physical onsite usage to an online interface that in many ways reflects gaming interfaces. Geographically separated learners can get informational and technical support through a variety of platforms and interfaces.

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