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Assessment of Automated Information Systems in two Nigerian University Libraries

Abdul Isah*

ABSTRACT

This study assessed automated information systems in two academic libraries in Nigeria; University of Lagos Main Library and Keneth Dike Library, University of Ibadan. Purposive sampling technique was used to determine the population of the study which comprises library users and staff. Six research questions were developed to guide the study. Data was collected through questionnaire and observation. The findings show that automated information systems in the two libraries are not fully utilized due to inadequate knowledge of the numerous benefits of the system. However, lack of funding, erratic power supply and inadequate orientation were identified as the inhibitors to the full utilization of the library facilities.

Keywords- Library automation, Information systems, Information services Information accessibility, Information and communication technology usage

INTRODUCTION

The need to improve human activities on earth informed the development of various technologies which were designed to meet various human needs, Libraries and information centres are not left out among the beneficiaries of the various technological innovations. Library automation is one of the by-products of this modern advancement in human knowledge. American library Association (ALA) Glossary of Library and Information Science (1983) defines automation as "the performance of an operation, a series of operation or process by self activating, self controlling, or automatic means. It implies the use of automatic data processing equipment such as a computer or other labour saving devices". Library automation is the most sophisticated electronic device invented by human being for processing enormous amount of raw data into meaningful and useful form of information with hspeed, accuracy and reliability.

There are two basic aims behind the desire to automate library processes according to Mclean (1981) these aims are "to be more efficient in what is already being done, and to offer services and support which could not be achieved manually". In another dimension Arua (2005) stressed that "the purpose and justification of library automation is to increase frequency and accuracy of records updating, decrease the time required to maintain records to improve the formats of the records and to provide multiple copies of records when they are needed.

Despite the numerous benefits of library automation, there are challenges associated with it and these challenges are more with the developing nations of the world due to economic crunch and political instabilities. Obajemuu, Ogunyade and Nwoye (2004) corroborated this assertion in their study of use of CD-ROM, according to them, poor facilities, poor f

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unding, foreign exchange constraints, expertise requirement and apathy constituted barriers to the use of CD-ROM resources in some academic and research libraries in Nigeria.

As a way of addressing the challenges posed by the new Information and Communication Technology (ICT) especially as it affects the developing nations of the world, several attempts have been made by researchers and stakeholders in the field of information towards finding solution to these impediments to full implementation of ICT. Idowu (1997) noted that several conferences and seminars have been convened to address the issues of computerization of library services/systems in Nigeria. Various themes have been put into focus at these conferences and seminars, which revolve round problems of establishing and implementing, automated system in libraries. However, there is dearth of research on the assessment of the new information system vis-avis its usage, relevance and benefits among the few libraries that have adopted or in the process of full adoption of automated information systems.

In view of this, the present research will examine the usage and accessibility of library automation in two first generation universities in Nigeria: University of Ibadan (UI) and University of Lagos (Unilag).

The university of Ibadan library was established in 1948. It is now made up of main library known as "Kenneth Dike Library" (KDL)

HISTORICAL BACKGROUND OF THE UNIVERSITY OF IBADAN AND UNIVERSITY OF LAGOS LIBRARIES

and College Libraries. The Kenneth Dike Library is the largest in Tropical Africa with over 500,000 volumes and 6,000 serial publications. KDL serves an estimated student population of about 17,000 and about 2,000 staff. The Kenneth Dike Library like other University libraries conceived the idea of automation in the early nineteen seventies (1970s) and started actively in 1978 according to Igbeka (2002) in the drive toward a successful library automation a task-force committee was set up for its uptake. The task-force had the privilege of obtaining or receiving advice from several library automation experts from the United States (US) and Britain as well as local computer-consultants.

The library Automation Committee projected three phase of the computerization project for the library. Phase 1: Database creation (current books & Retrospective Conversion).Phase 2: Setting up of the circulation module & linking the faculty libraries to the main library. Phase 3: Setting up the acquisitions module & serials module. The retrospective conversion exercise of the library was limited to only the post 1974 records and to aid in the processing of new books. LG CD-MARC was purchased and subscribed. The conversion exercise of the KDL took a long period of time due to frequent strikes by the academic staff of the university this informed contraction of the work to two consultants. One of the consultants was very knowledgeable in the software the library (KDL) was using, that is TINLIB. Despite these, the re-conversion exercise has not yet been completed.

University of Lagos Library was opened to readers in 1965, it has a total floor area of 63,360 square feet, with a capacity to hold 250,000 volumes and seat 800 readers. The library has built over the years a comprehensive collection of research and teaching materials in all major field of knowledge in support of the university's teaching and research programme. It now has a stock of over 330,000 bound volumes and subscribes to about 2,000 journal titles. The plan to automate the University of Lagos Library was

conceived barely ten years after the university's door opened to the public on October 2nd 1962. The interest then was to ease the problems affecting research, teaching and learning. To effect this, the university of Lagos library management considered the computerization of some of its operations and the series of activities in this direction culminated the commissioning of a Plessey library lending systems in September 1976 for technical reason, some of them, regrettably turned out to be still born babies (Adediji 1997). The library is presently using parallel conversion that is the automated and the manual card catalogue systems are both in use side by side. Since the retrospective conversion is still in progress.

The rate at which library and Information centers are embracing the new information technology of disseminating information calls for an assessment of the system, especially in a developing country like Nigeria where there are different obstacles to effective dissemination of information.

OBJECTIVES OF THE STUDY

The main objective of the study is to assess automated information systems in two Nigerian university libraries. The specific objectives are to:

(1) Find out the level of awareness and usage of automated information systems.

(2) Determine the attitude of users to the new information technologies.

(3) Find out how effective is automated information systems to users information needs.

(4) Find out how library automation influences information services of the libraries under investigation.

(5) Identify the problems encountered by user when using the new information and communication technologies.

LITERATURE REVIEW

AUTOMATION AND INFORMATION ACCESSIBILITY

Library automation is a new modern trend in librarianship profession and it has over the years gained wider acceptance in libraries and information centers, especially in academic environment. Library automation as viewed by Zaid (2004) is the reality of the 21st century. It makes libraries smart and offers many opportunities to improve services to library patrons. Ifidon (2000) noted, that in an information age where there is hardly any field of human endeavor that has not been touched by the new Information and Communication technology, automation would be the answer to most of readers' services problems. He further pointed out that circulation of materials will be done much faster, the records of loans transactions will not only be in the computer memory but they can also be analyzed by type of materials, status of borrowers, and sex. Eyitayo (1996) agreed that automated library system has enormous potentials in the management of vast resource available in the library. Access to these resources is facilitated and the rising needs of library patrons can then be met effectively and efficiently.

AUTOMATION AND AFRICAN EXPERIENCE

Information explosion has catalyzed increased demand for IT related information services. Libraries and information centers have joined the rest of computer enthusiasts in introducing Information and Communication Technology (ICT) to improve their services. Libraries in African universities have not remained aloof in this regard (Nakondo 2004).Shibanda (2001) stressed that if Africa fails to embrace this wave of worldwide digital information technology, then, they may as well sink by it. He therefore

cautions that the existing fear and resistance on the right to communicate, access to information and exchange of experiences and ideas via Internet connectivity need not be tolerated. As noted by Nwalo (2000) application of computer to various human enterprises in Africa is still relatively new. In a survey carried out by Rosenberg (2005) on current status of university libraries in Africa, the finding revealed that majority-40 libraries (65%) of the libraries investigated had embraced automation system. Most began with cataloguing, but have neither finished that nor moved onwards to other processes. Thirteen libraries (21%) have not yet started any automation and only 9(15%) consider that they are fully automated. At the university of Zambia through a project known as Computers for Academic Management and Administrative Support (CAMAS) donor funding was secured and the library was able to install 200 computers through the university, that were among other things used to facilitate access to the library catalogue by students and staff (Chifwepa 2003).

Despite the numerous benefits of ICT Africa did not have much to show in the first and second evolutionary stages of automation. This according to Mutula (2005) was largely due to the fact that cost of systems was high and it was difficult to justify such systems. Nwalo (2000) also noted that computer engineers and Technologists are still very few in Africa relative to the demand. The effect of this according to him is that the cost of maintenance of automated library systems becomes prohibitive as libraries compete for the services of the very few maintenance personnel available in their localities.

Abolaji (2005) asserts that concerted efforts to automate library functions in Nigeria commenced in the early 1970s it was not until the last decade of this millennium that significant and widespread progress was made. Several attempts had been put forward by university libraries in Nigeria to automate their operations at one time or the other. In all these, attempts, automation of the total library have failed. However, the university libraries have not ceased attempting to automate ever since. Ehikamenor (1990) in his research to state of automation in Nigerian Universities found out and concluded that library automation is not a mirage in Nigerian University libraries. Benki (1991) equally surveyed thirty (30) Nigerian Universities libraries charging system and observed that non out of the twenty four (24) universities that responded to his questionnaire has computerized its system fully. Benki concluded that poor economic state

RESEARCH DESIGN

in the country and Africa at large may affect automation of library services in Nigeria. He therefore urged the National University Commission to sponsor automation project in three (3) universities he found that have large stock; Universities of Ibadan, Ahmadu Bello and Nsukka.

The study employed survey research design to examine the impact of library automation on information accessibility in Kenneth Dike Library, University of Ibadan Main Library and Univer-

POPULATION AND SAMPLE

sity of Lagos Main Library. The Survey research according to Obasi (1999) is the process of eliciting data from a target population through either questionnaire or interview instrument and subjecting such data to statistical analysis for the purpose of drawing conclusion.

The population for this study comprised of 1,500 registered users and staff of the libraries under investigation. (U.I: 709 registered users

TOOLS USED IN THE STUDY

The tools used for the collection of data on this study were Questionnaire and Observation.

and 67 staff, UNILAG:649 registered users and 75 Staff) The researcher decided to use registered users and library staff of the two libraries because the actual facilities to be investigated are used in the library. Purposive sample technique was used to select 450 participants from the two libraries being the 30% of targeted population 1,500.

A total number of 450 copies of questionnaire were administered in the two libraries. The questionnaire was designed by the researcher and this consists of two categories. The first category is for the users of the library automated systems which comprises of a set of 19 questions aimed at

OBSERVATION

investigating, identifying and determining the use of automated information systems in the two University libraries. The second category is for library staff in the two libraries. This consists of a set of 15 questions aimed at finding out the user interface of the library automated system and general constraint to effective utilization of the automated system.

In the course of carrying out the research, personal

VALIDITY AND RELIABILITY OF THE INSTRUMENT

observation of the libraries helped the researcher to establish facts about the general operation of the automated information systems in the libraries. This revealed some of the constraints users generally faced in their attempt to use automated information systems in the library.

To ensure the validity of the questionnaire used to gather data on this study, it was given to experts whose research areas are relevant to this study. These include Senior Lecturers from the department of Library, Archival and Information Studies, university of Ibadan. Their observations and suggestions were used to review the draft questionnaire before final adoption. To ensure the reliability of the instrument, it was administered on twenty participants out of the envisaged population of the study. A test-retest reliability method of three weeks interval was conducted, response obtained were subjected to

DATA COLLECTION PROCEDURES

Pearson Product Moment Correlation method and a reliability co-efficient of 0.73 was obtained for the library users questionnaire while 0.72 was obtained for the library staff questionnaire.

The researcher personally administered the questionnaire. This was in order to ensure that the questionnaires were properly completed and returned. A total number of 450 copies of questionnaire were administered in the two libraries. This gave a total of 30% of the target population of 1500. The questionnaires were administered in this order; 400 questionnaire designed for library users and 50 for the library staff. Out of the 400 administered questionnaires in the two libraries, 380 was completed and returned. ; At the University of Lagos Main Library, 200 questionnaires were administered 195 completed and returned. While at the University of Ibadan Main Library, 200 questionnaires were administered 185 completed and returned. Out of the 50 questionnaires administered to the library staff, 39 were completed and returned. Meaning that out of the 25 questionnaires administered to library at the University of Lagos, 20 were completed and returned, while at the University of Ibadan 19 questionnaires were completed and returned.

METHOD OF DATA ANALYSIS

Descriptive statistics including frequencies count and percentage were used in reporting the findings.

Results

LIBRARY USERS

Table 1 : Awareness of automated information systems

	University of Lagos				University of Ibadan			
Items	**Yes**	**%**	**No**	**%**	**Yes**	**%**	**No**	**%**
Photocopier	186	95%	9	5%	180	97%	5	3%
Scanner/Printer	154	79%	41	21%	132	71%	53	29%
E-Classroom	132	67%	63	32%	144	78%	41	22%
OPAC	185	94%	12	6%	169	91%	16	9%
CD-ROM	146	75%	49	25%	140	76%	45	24%
Internet	188	96%	7	4%	176	95%	9	5%
Online Journal	119	61%	76	39%	164	89%	21	11%

As shown in the table one above, majority of respondents in the two university libraries indicated that they were aware of the availability of the various automated information systems in the library.

Table 2: Frequency of Use of automated System

	University of Lagos						University of Ibadan					
Items	**Rarely**	**%**	**Sometime**	**%**	**Frequently**	**%**	**Rarely**	**%**	**Sometime**	**%**	**Frequently**	**%**
Photocopier	23	12	58	30	114	58	25	14	65	35	95	51
Scanner/ Printer	121	62	62	32	12	6	131	71	42	23	12	6
E-Classroom	68	35	99	51	28	14	105	57	46	15	34	18
CD-ROM	100	51	58	30	37	19	81	44	49	26	55	30
OPAC	99	51	72	37	24	12	120	65	60	32	5	3
Internet	25	13	50	26	120	61	41	22	57	31	87	47

From the table two (2) above, the frequency of use of the various automated information systems in the libraries varies, in the two libraries, the majority of the respondents indicated that they use photocopier frequently that is 114 (58%) and 95 (51%) from University of Lagos and University of Ibadan respectively. On the other hand, majority of the respondents from the two libraries rarely use scanner and printer in the library.

At the University of Lagos Library, 68 respondents (35%) indicated that they rarely use electronic classroom, 95 (51%) indicated that they sometime use electronic library while only 28(14%) of the respondents indicated that they make use of electronic classroom frequently. The situation is similar to the response from the University of Ibadan, 105 (57%) indicated that they sometimes use electronic classroom while only 34 (18%) indicated that they make use of electronic classroom frequently. However, the level of usage of Internet at the two libraries indicated that majority of respondents make use of Internet facilities frequently that 120 (61%) and 87 (47%) respectively. The table also shows that CD-ROM and OPAC are rarely used by patron at the two libraries as 100 (51%) respondents at University of Lagos indicated that they rarely use CD-ROM while 81 (48%) at the University of Ibadan also indicated that they rarely use CD-ROM.

The table 3 above revealed that majority of the respondents 142 (73%) and 131 (72%) from UNILAG and UI respectively showed positive attitudes to computerization. This type of attitude of user will continue to improve only when the systems function effectively without

Table 3 : Attitude of Users to Computerization

Institution	Positive	%	Negative	%
University of Lagos	142	73%	73	27%
University of Ibadan	131	71%	54	29%
Total	273	72%	107	28%

any hindrance to their use.

As shown from the table 4a above, majority of respondents 140 (72%) and 124 (67%) from University of Lagos and University of Ibadan respectively considered photocopier facilities in the library very effective while only 10% in University of Lagos and 6% in University of Ibadan considered it not effective.

Table 4A : Effectiveness of Automated Information Systems

	University of Lagos						University of Ibadan					
Items	**Very Effective**	**%**	**Effective**	**%**	**Not Effective**	**%**	**Very Effective**	**%**	**Effective**	**%**	**Not Effective**	**%**
Photocopier	140	72	45	23	10	5	124	64	49	26	12	6
Scanner/ Printer	39	20	67	35	89	45	35	19	44	24	106	57
E-Class-room	47	24	62	32	86	44	112	61	61	33	12	6
OPAC	82	42	49	25	64	33	46	25	34	18	105	57
CD-ROM	54	28	30	15	111	57	42	23	51	28	92	50
Internet	132	68	48	25	15	8	129	70	47	25	9	5
Online Journal	70	36	108	55	17	9	49	26	87	47	49	26

On the contrary, the majority of the respondents from University of Lagos and University of Ibadan 89 (45%) and 106 (57%) respectively considered scanner/Printer not effective in the library. However, in the case of electronic classroom, while majority of respondents in University of Lagos 86 (44%) considered it not effective, the majority of respondents in University of Ibadan 112 (61%) on the contrary considered electronic classroom very effective the variance in the responses on e-classroom from the two universities might be as a result of conditions **attached** to the use of the e-classroom and its accessibility to library users.

Table 4B (Library Staff): Contribution of Automated Systems on the Library's Information Services

Institution	Positive	%	Negative	%
University of Lagos	146	75%	49	25%
University of Ibadan	128	69%	57	31%

The table 4a, also shows that the majority of respondents in the two universities considered CD-ROM not effective while on the contrary, majority of the respondents 132 (86%) and 129

Table 5 : Influence of Automated Systems on the Library's Information Services

Institution	Positive	%	Negative	%
University of Lagos	146	75%	49	25%
University of Ibadan	128	69%	57	31%

(70%) in University of Lagos and University of Ibadan respectively considered internet search ing very effective.As shown in the table 4b above, the majority of respondents (Library Staff) in the two libraries 18 (90%) in University of Lagos and 14 (74%) in University of Ibadan indicated that automated systems of the library produced positive impact on the information services to its clienteles.

The table 5 above showed that majority of respondents from the two universities indicated that the automated information systems in the library had positive impact on the use of the library facilities while, only 25% and 31% respondents from University of Lagos and University of Ibadan respectively responded in the contrary.

As shown in the table 6a above 102 (52%) respondents in UNILAG indicated that library opening hour does not constitute any hindrance to successful use of automated information systems while in the contrary, majority of the respondents 89(49%) in UI indicated that library opening/closing hours hindered successful use of automated information systems in the library. In the same vein, majority of respondents 88 (45%) in UNILAG indicated that the design of lecture time table does not affect their use of library facilities, while in the contrary majority of respondents 84 (45%) in UI considered the design of lecture time table as obstacle to successful use of facilities in the library.

However, the majority of the respondents in the two libraries indicated that erratic power supply affected successful use of automated information systems in the library, this finding is similar to

Table 6A : Obstacles that Hinder Successful Use of Automated Information Systems in the Library

	University of Lagos							University of Ibadan					
Items	**Strongly Agreed**	**%**	**Agreed**	**%**	**Disagreed**	**%**		**Strongly Agreed**	**%**	**Agreed**	**%**	**Disagreed**	
Opening/Closing Hours	62	32	30	15	102	52		89	49	64	33	32	17
Design of Lecture Time	66	35	39	20	88	45		84	45	62	34	39	21
Erratic Power Supply	145	71	42	22	8	4		105	57	46	25	34	18
Lack of Orientation	121	62	62	32	12	6		126	68	41	22	18	10
Poor knowledge of Computer	122	63	50	25	23	12		25	14	65	35	95	51
Position of the facilities	69	35	80	41	46	24		56	30	87	47	42	23

Table 6B (Library Staff) : obstacle to effective Automated Information Services in the Library

	University of Lagos							University of Ibadan					
Items	**Strongly Agreed**	**%**	**Agreed**	**%**	**Disagreed**	**%**		**Strongly Agreed**	**%**	**Agreed**	**%**	**Disagreed**	**%**
Power Failure	15	75	4	20	1	5		14	74	3	16	2	10
Technical Problem	13	65	5	25	2	10		12	63	3	16	4	21
Lack of Training	6	30	5	25	9	45		5	26	6	32	8	42
Fund	15	75	2	10	3	15		14	74	4	21	1	5

result of Ogunsola(2005) as one of the problem facing Nigerian libraries. In the same vein, the majority of the respondents in UNILAG and UI respectively indicated lack of orientation on how to make use of library facilities and inadequate knowledge of computer as factors affecting effective use of library.

From the above table 6b it shows that erratic power supply, technical problems and lack of adequate funding constitute major obstacle to effective automated information services in the two libraries under investigation. Only 30% and 26% respondents from UNILAG and UI respectively indicated lack of training as factor that hinder effective automated library services.

DISCUSSION OF RESULTS

The research findings have established the fact that users of the two libraries under investigation were aware of the existence of automated information systems in the libraries, however the level of usage of these facilities varies; while some are used others were rarely used by respondents. For example majority of respondents from UNILAG and UI respectively rarely make use of Online Public Access Catalogue (OPAC). This finding contradicts the study of Pease and Gouke (1982) whose report showed that 90% of the users of card catalogue who tried the online catalogue switched over to its use. However, the story is different in the use of internet as majority of respondents in the two libraries make use of internet frequently. This finding is corroborated by the result of a study by Chiemeke et. al (2007) which found out that the Internet enjoyed more patronage for the purpose of research because the users visited the Internet more often for research purposes. The variance in the Pease and Gouke research to this present research on the use of OPAC is no doubt connected to various obstacles to effective use of automated facilities in the developing countries and Nigeria in particular. The findings in this research also revealed that erratic power supply, funding technical knowledge and lack of orientation on the use of the facilities in the libraries constituted factors hindering the successful use of the library automated information systems.

The finding generally revealed that majority of respondents show positive attitudes to various automated information systems in the libraries., This corroborated the finding by Savenije (2005) that users' of university libraries require no additional intermediaries to access library collections and that researchers, teachers and students will make use of the retrieval tool independently and will only require assistance from the library when they need specific instructions or are confronted with specific problems. However, this attitude of users did not translate to effective use of some of the automated facilities in the two libraries investigated, for example respondents from UNILAG and UI indicated that the CD-ROM facility is not effective.

CONCLUSION

As revealed from the findings of this research, the level at which our various academic libraries are making use of information and communication technologies is still at a very low percentage compared to what is obtainable in the developed nation. In order to improve this situation libraries and information practitioners must first recognize the numerous benefits of automated information systems to their information services and they should be able to convince the parent institution on the need to provide adequate fund for the procurement of the facilities. Also, adequate provision should be made for the training of library staff on the uses of the various information and communication technologies. The users of these systems must

also be put in mind when designing the systems. Orientation should be organized for the users in order to create awareness and the benefits of the automated information systems in the library.

Suggestions for further studies

In the light of the findings of this study, future research should be directed towards addressing:

- An assessment of automated information systems in academic and special libraries
- The status of automation versus digitization in African academic and Research libraries

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Dewey Decimal Classification: A study of changes made in its 23rd edition

Dr. Sanjay K. Kaushik

ABSTRACT

Growth of knowledge is a continuous process. Huge amount of literature is added every year, thus giving birth to new concepts. The basic purpose of any classification scheme is to map the existing knowledge. It is really a challenge before the classificationists to revise the scheme from time to time so that new concepts or branches of knowledge can be accommodated in the scheme. Only one scheme i.e. Dewey Decimal Classification emerged unique out of so many classification schemes, the reason is continuous revision and updation. OCLC has adopted a continuous revision policy for the revision of Dewey Decimal Classification. That is why the 23rd edition of DDC is released in May 2011 for USA and in July 2011 for rest of the world. The present paper highlights the different milestones fallen in the journey of DDC from its 1st edition to 23rd edition. The new features of DDC 23 and major changes have also been discussed in the paper.

Keywords: Library Classification; Dewey Decimal Classification; Recent Trends in Classification; Recent Advances in Classification.

INTRODUCTION

Library classification is necessary for every big library to process its collection and arrange the documents on shelves. For this purpose, one or the other scheme of classification is used in each and every big library. To maintain the relevancy of a classification scheme, it must be continually revised and expanded. The Decimal Classification Editorial Policy Committee (EPC) is responsible for revisions and expansions in DDC. EPC was established in 1937 to serve as an advisory body to the DDC. The 23rd edition of DDC is released in May 2011 for USA and in July 2011 for rest of the world[1]. This new edition incorporates a number of welcome changes.

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HISTORICAL BACKGROUND

Since the publication of its first edition in 1876, the Dewey Decimal Classification (DDC) system has crossed many milestones[2]. Some major milestones are mentioned in the below table:-

New feature of DDC 23

Edition 23 is the product of a new development of print editions of the Dewey Decimal Classification. Like its predecessor edition 22, it was produced in the context of the web, but edition 23 is the first edition produced as a by-product of the underlying database instead of as the sole focus of editorial development. The web also enables the OCLC to update the DDC continuously and provide the update regularly to the users of DDC.

Major changes in DDC 23

Edition 23 is a complete overhaul of the

representation of groups of people, significant revisions of several standard subdivisions, numerous updates throughout the tables and schedules. It also includes some structural changes. These changes can be discussed under two subheadings as under[3].

Year	Milestones
1876	The first edition entitled "A Classification and Subject Index for Cataloguing and Arranging Books and Pamphlets of a library" is published
1885	The second edition is published under the name of great Melvil Dewey
1900	The first abridged edition of the DDC is published
1916	The Decimal Classification Advisory Committee- the American Library Association's first advisory committee- is appointed
1923	The DDC editorial office moves to the Library of Congress in Washington, DC
1930	The Library of Congress begins to print Dewey numbers on catalog cards
1931	The great Melvil Dewey departs
1937	The Decimal Classification Committee is established
1953	The Decimal Classification Editorial Committee is reconstituted to represent the American Library Association (ALA), Forest Press and the Library of Congress to guide to editorial development of the DDC.
1958	The 16th edition of the DDC is published. This edition was edited under agreement between the LC and Forest Press.
1988	Forest Press becomes a division of OCLC
1993	OCLC Forest Press publishes Electronic Dewey, the first library classification scheme in electronic form
1996	The 21st edition of the DDC for Windows are published, the first time print and electronic formats are published simultaneously
2000	WebDewey in CORC is published
2002	WebDewey and abridged WebDewey are published
2003	22nd edition of DDC is published
2008	First time EPC chairperson was elected from outside North America
2011	23rd edition of DDC is published

Changes in tables

The phrase "kinds of persons" is replaced with "groups of people". The caption "History and description with respect to" is entirely deleted from table 1 at -08 and elsewhere in DDC. The caption "Social groups" at 305 is substituted with "Groups of people". The caption "Persons treatment" in table 1 at 092 is changed with "Biography". There is slight change at -09 in table 1 too, "Historical, geographic, persons treatment is now "History, geographic treatment, biography". There is also a significant expansion for collected biography of groups of people by various attributes in table 1 under -092.

Some selected changes are provided below:

Changes in schedules

A number of new numbers, relocations, revisions and expansions have been provided in DDC 23. These are being discussed class wise:-

Computer science, information & general works

The schedules 004-006 Data processing Computer science has been completely updated. Many new numbers like 003.72 Networks, 004.167 Hand-held computing devices, 004.568 Semiconductor devices, 004.6782 Cloud computing, 004.695 Internet telephony, and subdivisions, etc. have been included in the schedules. Certain relocations have also been made such as class number for Embedded computer systems is relocated to 006.22 from 004.1. World Wide Web is relocated in 025.042 (Library Science) from 004.678 (Computer Science). Data mining is relocated to 006.312 from 005.74. Overseas information libraries relocated to 027.5 from 027.65.

The class number for general encyclopedic works in Serbian and Croatian (037.82 in DDC 22) is bifurcated in 037.82 for Serbian and 037.83 for Croatian. The class number [001.432] is

discontinued in DDC 23 and the class number for Historical methods already available at 907.2 is to be used. The class numbers for Alphabetic catalog of nonprivate libraries; private and family libraries; subject auction catalogs; subject sales catalogs [017.5-017.8] are discontinued and relocated in 017.1-017.4. The numbers [018] Catalogs arranged by author, main entry, date, or register number and [019] Dictionary catalogs are also discontinued and relocated to 017. The numbers for pre-coordinate indexing [025.482] and coordinate and post-coordinate indexing

Table 1. Standard Subdivisions

-0141	Discourse analysis *(This is new number introduced in DDC23)*
-0286	Green technology (Environmental technology) *(This caption is changed from waste technology)*
-0721	Research methods *(This is new number introduced in DDC23)*
-081	People by gender or sex *(This caption is revised and expanded)*
-0865	People by marital status *(This caption is changed from marriage status)*
-0867	Transgender and intersex people (*This is new number introduced in DDC23)*
-09	History, geographic treatment, biography *(This caption is changed from* Historical, geographic, persons treatment*)*
-0925	Collected biography of people by specific gender or sex; age groups; relationships *(This is new number introduced in DDC23)*
-0928	Collected biography of members of specific religious group

Table 2. Geographic Areas, Historical Periods, Persons

-31	China to 420
-32	Egypt to 640
-34	South Asia to 647 *(Note: under these captions, time is added for the first time and below to many of these ancient world numbers an add note is added instructing to add the numbers from the modern world)*
-46911	Viana do Castelo district [formerly -46912]
-46912	Barga district (*This is new number introduced in DDC23)*
-4861	Skane County
-4862	Blekinge County
-4863	Kalmar County (*-486 is expanded and new nos. from -4861 to -4869 are introduced in DDC 23)*

Table 3B: Subdivisions for works by or about more than one author

–3082	Autobiographical and biographical fiction (*this is new number introduced in ddc23)*
-308768	Alternative histories (*this is new number introduced in ddc23)*

Table 3C: Notation to be added where instructed in table 3B, 700.4, 791.4, 808-809

–32	Travel and geography *(This caption is changed from Places)*

Table 4. Subdivisions of individual languages and language families

-01430285	Computer Applications
-0145	Pragmatics
-0147	Languages for special purposes
-0188	Corpus linguistics
-823	Punctuation

(These are the new numbers and two of these are further expanded too)

Table 5. Ethnic and national groups

-591	Romanians
-5992	Friulians
-5994	Ladins
-5996	Romansch
-5998	Sardinians and Corsicans
-91454	Bihari
-9517	Hakka

Note: All these numbers are new introduced in DDC 23. In addition to these many other numbers like -935, -954,-959, -9838, -9922 are expanded in DDC 23)

Table 6. Languages

-599 is expanded and many other new numbers are added:

-5992	Friulian language
-5994	Ladin language
-5996	Romansch language
-5998	Sardinian and Corsican
-699	Galician
-91489	Divehi (Maldivian)
-95978	Yao
-99482	Tongan (Tonga)
-99484	Niue (Niuean)
-9959	Eastern Fijian languages

Philosophy and Psychology

Two new numbers 150.1985 for Personal construct psychology and 150.1988 for Positive Psychology are introduced in the psychology main class. The schedule 155 of Differential and developmental psychology is revised and expanded. Now under 155 a table is provided with add notes, so that the different aspects of individual psychology can be applied to the numbers identified with *. In Philosophical logic 160, under standard subdivision .1 Philosophy and theory, provision of specific systems of classical and non-classical logic and its subdivisions is made as 160.119 and 160.1198. Certain new numbers like: 176.2 Ethics of reproductive technology; 176.22 Ethics of Human cloning; 176.3 Ethics of Birth control; and 176.4 Ethics of Sexual relations are added.

The class number for inter-personal relationship is relocated to 155.4192 from 155.418. The relocations made in psychology schedule include: from 155.6 (Psychology of adults), Sensory perception, movement, emotions, physiological drives of adults is relocated to 152, conscious mental processes and intelligence to 153 and applied psychology of adults to 158. The relocations are also made in the schedule of Philosophy. Some of these are: From 197 Philosophy of former Soviet Union; Philosophy of Azerbaijan relocated to 199.4754, Philosophy of Armenia relocated to 199.4756, Philosophy of Georgia relocated to 199.4758, Philosophy of Moldova relocated to 199.476, Philosophy of Ukraine relocated to 199.477, Philosophy of Belarus relocated to 199.478, Philosophy of Lithuania relocated to 199.478, Philosophy of Latvia relocated to 199.4796, and Philosophy of Estonia relocated to 199.4798.

A few class numbers are discontinued and relocated. These are: [155.334] Bisexuality relocated to 155.343; [155.60866] Adults in general by sexual orientation relocated to 155.34; [155.6089] Ethnic and national groups relocated to 155.82; and [155.63] Adults by gender or sex relocated to 155.33.

Religion

In main class for religion the numbers for codex iruis canonici (262.94) and Eastern churches (281.5) are expanded and many new numbers like 262.941 General norms, 262.942 The people of God, .943 Teaching mission of the church, 281.52 Eastern Catholic churches, .54 Saint Thomas Christian churches, etc are introduced. 296.76 for Persons experiencing illness, trouble, bereavement is also a new number in DDC 23.

The class numbers for creeds of Eastern Catholic churches relocated to 238.15, creeds of Saint Thomas Christian churches relocated to 238.154, creeds of Oriental Orthodox churches relocated to 238.16, creeds of Assyrian Church of the East relocated to 238.18, from 238.19. Hadith (Traditions) [297.124] is discontinued and relocated to 297.125. The class numbers [297.09023] and [.09024] for 14th and 15th century are discontinued and relocated to higher order i.e. 297.09022.

Social sciences

In the schedule of social sciences numerous new numbers are introduced. These are: 302.343 Bullying, 332.04246 Emigrant remittances, 335.4346 Asian national variants, 340.114 Justice, 341.2421 Council of Europe, 347.057 Legal costs and fees, 361.43 Self-help groups, 362.682 Elder abuse, 363.3494 Tsunamis, 371.391 Waldorf method, 378.1035 Industry relations, 391.72 Finger rings, and 393.93 Funerals.

The class number 320.54 Nationalism is revised and termed as Nationalism, regionalism,

internationalism. Under 320.54 the provision of adding area table is made. The class number 304.2082 for factors affecting social behavior of women is relocated from 305.42. Ideologies based on groups of people have been relocated to 320.56 from 320.508. The number for Appellate procedure in criminal courts is relocated to 345.144 from 347.08. Young people as parents relocated to 362.7874 from 362.7085. The class number for explosives is relocated to 363.1798 from 363.33. The class number for riddles as jokes by known authors is relocated from 398.6 to 808.882.

A large number of class numbers in social science schedule are discontinued and relocated. Such as: Women by social and economic levels [305.48963] relocated to 305.482; white collar classes relocated to office worker .96513 and clerks .965137 in 305; Regional nationalism [320.549] relocated to 320.54; numbers [331.114224], [.11423], [.1143] relocated to 331.11422; groups of people [362.608] relocated to 362.69; [372.82] Home economics relocated to 372.37; and Chapbooks [398.5] relocated to 002 and chapbooks relating to a specific subject with the subject.

Language

Pragmatics 401.45; speech perception 401.95; Corpus linguistics 410.188; Picture dictionaries 413.17; Maldivian languages 491.489; and Pahari languages 491.496 are the new numbers introduced in the schedules of languages. The class numbers which are revised and expanded include: 427.942 Geographic variations of English in England and Wales; 437.943 Geographic variations of German in Germany and neighboring central European countries; 447.944 Geographic variations of French in France and Monaco; 457.9 Geographic variations of Italian; and 467.946 Geographic variations of Spanish in Spain, Andorra, Gibraltar, Portugal.

Here also some numbers are relocated, and some are discontinued and relocated. These numbers are: Geographic variations of languages are discontinued and relocated from [427.1-.8] to 427.9421-.9428; [437.1-.6] to 437.9431-.9436; [439.8171-.8175] to 439.81794891-.81794895; [439.8272-.8274] to 439.8279482-.8279484; [447.1-.8] to 447.9441-.9448; [457.1-.8] to 457.9451-.9458; and many others. The provision of adding standard subdivisions to few languages is changed. Now only one zero is to be added instead of two zeros for the languages of Old Norse, Icelandic, Faroese; Hindi; Bulgarian and related South Slavic; Polish and related West Slavic; Tibetan and related Tibeto-Burman; and Thai and related Tai languages. Natural sciences and mathematics:

Natural science and mathematics

The schedule of natural sciences and mathematics has very limited changes. Certain new numbers introduced are 511.314 Modal logic; 511.317 Conditional logic; 511.318 Probabilistic logic; 514.746 Singularity theory; 515.882 Convex functions; 551.417 Wetland geomorphology; and 581.39 Age characteristics of plants. The only relocation is Trans-Neptunian objects 523.49 from 523.48. The discontinued and relocated numbers are: Meridional instruments [522.3] and Extra-meridional instruments [522.4] relocated to 522.2; and Sextants relocated to 527.0284. One zero is reduced while adding the standard subdivisions to Foundations of algebra 512.9. So, now standard subdivision numbers will be 512.901-.909 instead of 512.9001.9009.

Technology

In the schedule of Technology, a large number of new numbers have been introduced. Some of these are: 613.265 Raw food diet; 613.71489

Qi gong; 615.8514 Biofeedback therapy; 616.0475 Shock and multiple organ failure; 616.34473 Ulcerative colitis; 616.89147 Brief psychotherapy; 616.9693 Candidiasis; 618.29 Nonsurgical methods of abortion; 623.8282 Fishing boats; 624.238 Cable-stayed bridges; 636.08321 Animal hospitals; 641.8153 Crepes, pancakes, waffles; 659.1045 Use of image and themes in advertizing; 665.37 Biodiesel fuel; 684.162 Manufacturing of shelving; and 690.4 Specific parts of building.

Many relocations are also made in these classes. The class number for Connective tissue cells is relocated to 611.01826, Adipocytes to 611.018276, and Epithelial cells to 611.01876 from 611.0181; Local surface rail system using conventional (heavy) rail technology is relocated to 625.4 from 625.6; Pants (trousers) relocated to 646.436 from 646.433; Headscarves 687.19 relocated to 687.4; and headwear used as equipment in a specific sport is relocated to 688.7 from 687.4.

A number of class numbers are discontinued and relocated to other places. These are The class numbers [611.0183-.0186] are relocated to other places in 612; other hydraulic structures [627.92], [.922], and [.924] are relocated to 623.893, .8942, and .8944 respectively; [641.532] Brunches relocated to 641.52; [667.8] Japans and Japanning relocated to 667.75; [685.361], [.362], [.363], [.364], and [.367] Footwear for specific activities relocated to Ice-skates 688.7691, Roller skates 688.7621, Skateboards 688.7622, Snowshoes 688.7692, Skis 688.7693, and stilts 688.7.

Arts & recreation:

Minimalism 709.04058; Use of solar energy 720.4724; Fountains as handicrafts 745.5946; Electronica 781.648; Beauty contests 791.66; Taekwondo 796.8157; Broomball 796.965; Water polo 797.252; Eventing 798.242; etc are the new numbers introduced in the schedules of Arts and recreation.

The number for Green technology 720.28 relocated to 720.47; Cloisters 726.69 relocated to 726.796; Architecture of agricultural buildings 725.37 relocated to 728.92; Groups of hunter 757.6 relocated to 758.979929; Photography of specific subjects by special kinds of photography relocated to 778.9 from 778.3; Stereoscopic photography and projection of specific subjects relocated to 778.9 from 778.4; and Third stream music tradition relocated to 781.68175 from 781.657.

The numbers which are discontinued and relocated are: [721.01-.03] Standard subdivisions of Architectural materials and structural elements relocated to 720.1-.3; [760.01-.03], [760.044], [760.05-.09], [760.0901-.0905], and [760.092] relocated to 740.1-.3, 740.4, 740.5-.9, 740.901-.905, and 740.92 respectively; [771.33] Digital cameras relocated to 771.3; [771.47] Waste technology relocated to 771.40286; [775] Digital photography relocated to 771.44; [781.284] Polyphony relocated to 781.286; [796.78] Travel by private passenger automobile and [796.79] Travel by motor homes, recreational vehicles, trailers both relocated to 910.

Literature:

Plagiarism 808.025; Toasts and after dinner speeches 808.512; Galician literature 869.9; Maldivian literature 891.489; Pahari literature 891.496 are the few new class numbers introduced in the schedules of literature. Two new instructions appeared under 808.8198 has made the provision of adding notation 05-09 from Table 5 to base number 808.8198 for Poetry for and by ethnic and national groups

and under 808.8199 has made the provision of adding the numbers following -9 in notation 91-99 from Table 3C for Poetry for and by groups of people with specific attributes, residents of

specific areas. Resultantly, the numbers like, [808.810081-.810088], [.810091-.810099] and other similar subdivisions of .82-.87 are discontinued and relocated to other places i.e. according to the above mentioned instructions. Another number discontinued and relocated to 894.57 is [894.55] Sami literatures.

History & geography:

Historical periods of couple of countries have been revised and expanded in this edition of DDC. These countries are Italy, San Marino, Vatican City, Malta; and Vietnam. The historical periods of other countries are also expanded and new periods are included e.g. 947.0862 Administration of Vladimir Vladimirovich Putin; 954.0532 Prime minister ship of Manmohan Singh; 966.9055 Administration of Umaru Musa Yar'adua; 972.0842 Administration of Felipe Calderon Hinojosa; 985.0645 Administration of Alan Garcia; 994.071 Later part of prime minister ship of John Howard; etc.

A number of relocations are also made: Early history of Ireland for the period of 410-433 is relocated to 936.1502 from 941.501; Medieval history of Italy, San Marino, Vatican City, Malta relocated to 945.01 from 945.03; History of Moldova to ca. 640 relocated to 939.88 from 947.6; Early history to 358 of Indonesia and East Timor 959.8012 relocated to 959.8011; History of Ethiopia during 1991-1993 relocated to 963.0721 from 963.071; and many other numbers have been relocated. This all is a result of expansion of historical periods of various countries. Many numbers are discontinued and relocated to other places like: [939.47] relocated to 935.4, 935.5, and 953.02; [940-990:086914] relocated to 940-990:1; [959.8036], [.8038], [.8039] relocated to 959.8035, .8037, and .8041; [971.0187] relocated to 971.5017.

CONCLUSION

Though the credit of continuous revisions and modifications should not be taken from Decimal Classification Editorial Policy Committee, still there is a scope of improvement in Dewey Decimal Classification. The major areas are: i. The separation of Languages from Literature, ii. Separation of Geography and History from Social Sciences, iii. Area Table. The separation of Languages from the literature is a problem for the readers. In a large multi-storey library, even the floors at which the documents relating to Languages are different from that of Literature. Though, the users are more comfortable when both these classes are available side by side. In the similar fashion, there are great chances that a user of social science would also have some interest in History and Geography too. The same problem as of Languages and Literatures comes in the way of readers of large libraries. The notation for numbers of cities and states of countries other than USA and UK is not exhaustive one. In other words, we can say that the numbers provided for the Asian countries specifically are insufficient. For instance even the numbers for all the Districts of India is not covered in spite of its regular revisions.

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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].

NEED TO EVALUATE INFORMATION SYSTEM AND SERVICES

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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,

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

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							

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 searches in these libraries and information centers.

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

10. Status of Users:

Table 10: Status Of Users

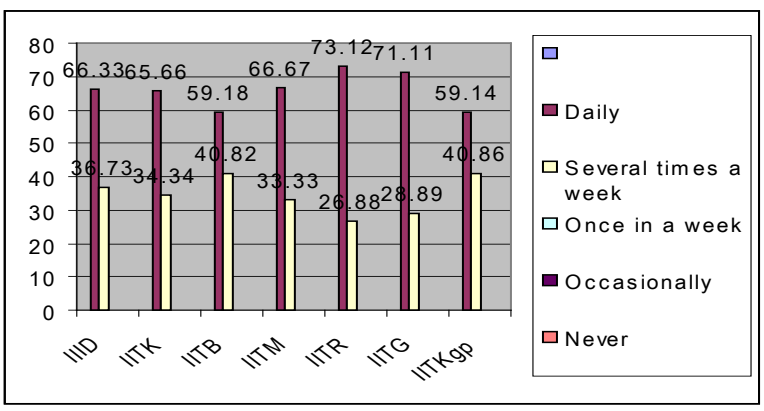
S. No.	Users	IIID	IITK	IITB	IITM	IITR	IITG	IITKgp
1.	UG Student	47 (47.96)	53 (53.54)	44 (44.90)	49 (52.69)	56 (60.22)	52 (57.78)	45 (48.39)
2.	PG Student	21 (21.43)	20 (20.20)	28 (28.57)	19 (20.43)	12 (12.90)	12 (13.33)	21 (22.58)
3.	Research Scholar	15 (15.31)	12 (12.12)	14 (14.29)	13 (13.98)	12 (12.90)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

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	IITK gp
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)

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)

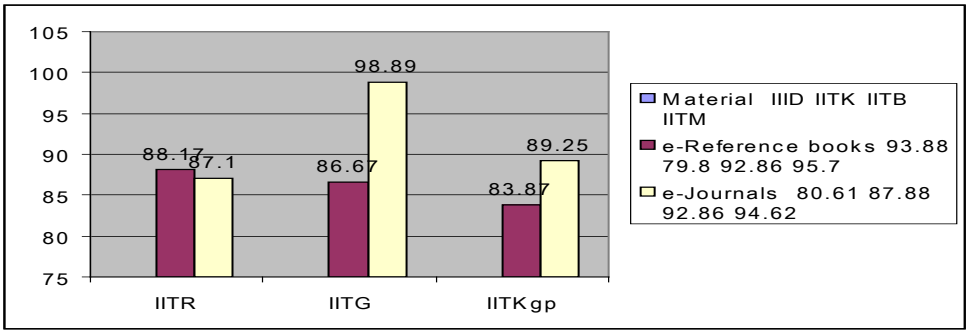
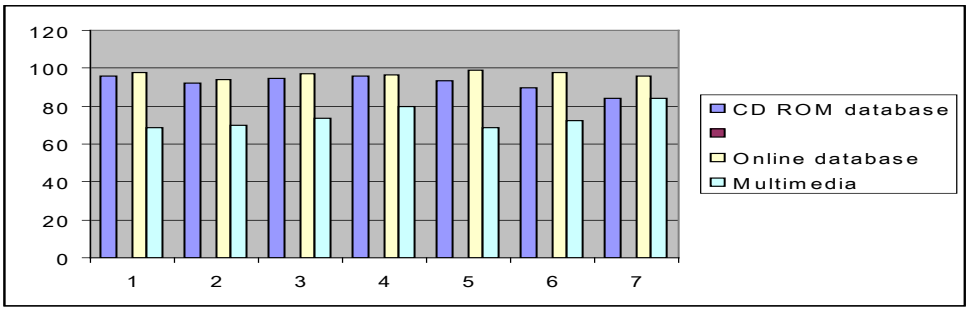


Figure 3: Materials used by Users (2)



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

While doing the in-depth analysis of 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,

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

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

information.

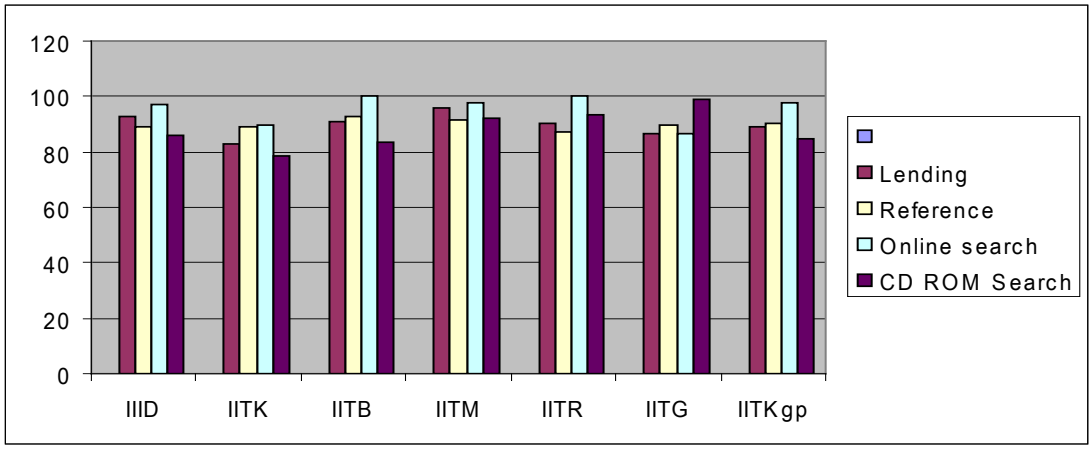
At IITM, 100% respondents are satisfied with the services provided by the library. More that 95% of respondents have shown satisfaction at

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)

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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Computerization Of Nigerian University Library Services

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ABSTRACT

We studied here the progress of computerization in Fourteen Nigerian University Libraries of which 24 were Federal, 17 state and 6 private. While the sample population was limited to the 13 University libraries that said they were computerized / automated. The response rate was 100% The services that were investigated or surveyed include Cataloguing, Acquisition, Circulation, Serials, Reference, OPAC, CD-ROM, Internet, Intranet and e-mail. The study shows that a satisfactory progress has been made in automating university libraries in Nigeria. The main issues facing automation in Nigerian university libraries concerned among others, funding, electricity, staffing and inadequate infrastructures. The result of the surveys shows that none of the library is fully automated.

Keywords; Computerization; Automation; Nigeria; University Libraries

INTRODUCTION

The library services are supportive to the university, provides the needed resources to its clientele. Library to fulfill these functions it must be guided by the goals and functions of the parent institution, which are usually outlined in the laws that established them. Anafulu (1996) stated , "A typical university law empowers the university to, among other things; erect, provide, equip and maintain libraries and other facilities. The functions according to him are to support the learning, teaching and research process in the university and in conservation of knowledge and ideas and participate in community service". The main objective of the university library therefore is to fulfillment of these objectives. The university library is a service center and it must provide the bibliographic material through acquiring, processing, organizing, and making them available in all possible formats.

Library have to support the universities objectives, in the areas of learning, teaching, research and services. Scholars and students access the Library resources for the information available in their disciplines. However, users in university libraries do not have enough access to relevant and appropriate information in their fields of interest (Aina, 2003). The reason is due to escalating cost of information materials and poor allocation of funds to universities by both Federal and State Government (Anafulu 1996; Okebukola 2002) .

Ekpeyong (1991) argues that the problem

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created by information explosion can only be solved by automation. Hoare (1986) as cited by Ekpeyong argued that automation is the only means to the control and coordination of universal bibliographic literature and research materials in all the subject fields and formats needed by their readers.

OBJECTIVES OF THE STUDY

1. To report progress that has been done by university libraries in Nigeria towards automate their services.

2. To ascertain the problems faced by them in computerizing of Library services.

LITERATURE REVIEW

In Nigeria, university libraries attempts for automation started with single applications, following the same trends as in the United Kingdom and the United States of America (Abifarin, 2003). However, processes were based mostly on the available computing facilities in their various computer centers (Ehikhamenor, 1990) and were limited to the production of lists of books on reserve, serials holdings and shelf list records. Attempts at computerization of university libraries in Nigeria, which started with single application, were limited to serials and circulation control (Edoka, 1983 and Abifarin, 2003).

In March 1975 , The University of Ibadan was the first Nigerian University to produce a catalogue of serial holdings upto 1973 in the library (Abifarin, 2003; Ehikhamenor, 1990). The University of Lagos computerized its catalogue of serials in 1977, while Nnamdi Azikiwe University library Nsukka, compiled work on its computerized serial catalogue in the same year (Ehikhamenor, 1990). An in-house serials control programme, which was handled by the computer center at the university of Ilorin Library, failed after capturing above 700 serial titles

Some other libraries had plans to automate their serial control systems and the interest in this area motivated by the conference of university librarians with a view to putting their serial holdings into machine-readable format (Abifarin, 2003). The University of Ibadan was first adopted the automation of circulation control in Nigerian university libraries as early as in 1975 with the idea of two automated systems .The two systems were the Automated Library System (ALS) and the Plessey Library Pen System. The Nnamdi Azikiwe library also was considering the automation of its circulation control system. The University of Ife also began to consider automation to resolve the problems in the circulation. Other attempts were also made at the University of Ilorin and the Kashim Ibrahim Library of the Ahmadu Bello University (Ehikhamenor, 1990). At the Kashim Ibrahim library, an in-house circulation control system was envisaged in 1978. The implementation also failed. There were plans at the University of Benin Library to computerize its entire library collection in 1976. That year, the coordinators in the Faculty of Science had carried out a feasibility study. This resulted in the design specification of a computer-based books and periodical control system (Ifediba, 1976).

Edoka (1988) carried out a survey of Nigerian university libraries, with prospect of introducing computer-based systems. The results showed that six university libraries at Ibadan, Nsukka, Ife, Zaria, Lagos and Benin – had plans for computer based circulation systems. He also found that studies of feasibility had been completed in respect of circulation procedures as a prelude to computerization in Ibadan, Ife, Zaria and Benin.

Edoka further confirmed his study found out that the libraries surveyed appeared to have decided to automate even before embarking on feasibility studies. Two years later, Ehikhamenor (1990) in another study of automation in Nigerian university libraries also found that 10 of the 19 universities surveyed had no clear focus on automation. His study confirmed the findings of Edoka's (1988) survey.

NEED FOR COMPUTERIZATION

The need for effective management of information explosion and easy access to users of informational materials forced the libraries to computerize their services. The manual system could no longer cope with information management in libraries. Ekpeyong (1991) argues that the problem created by information explosion can only be solved by automation and that automation is the only means to the control and coordination of universal bibliographic literature and research materials in all the subject fields and formats needed by their readers.

Line (1991) as cited by Tedd (1993) listed some criteria for the development of such systems. He advanced reasons, which are applicable to any type of library. The reasons are;

i. To provide a service at a lesser or no great a cost

ii. To give added benefits at lesser cost. Such services to users from computerization include on- line service which make it possible for vast resources of published literature to be searched in any specific field, either through internet or CD-ROM.

iii. Computerization enables tasks to be completed more accurately, more quickly and with increased control than with manual system. Such task include clerical, routine and repetitive tasks that are and thus prone to human error.

The above reasons may not be the only compelling reasons for automating library system. Ojo-Igbinoba (1993) identified the following four reasons to justify library automation in Nigeria:

i. The manual charging or issuing system was characterized by long queues and annoying delays;

ii. The filling of user cards and counting of statistics is not only cumbersome but sometime became out of control;

iii. Maintenance of the manual catalogue is usually problematic. The production and filing of catalogue cards often lag behind schedule sometimes books that have been shelved in the collection had no records in the catalogue;

iv. Serials control and maintenance is equally problematic with many records to create.

METHODOLOGY

The type of research design used for this study is the survey design. It looked at the fact as they have occurred.

Population

The population of study consisted of the university libraries in Nigeria. As on 2002 there were 47 university libraries in Nigeria of which the Federal Government owned 24, State government owned 17, while 6 are privately owned.

Sampling

The sample population for the study is limited to the 13 university libraries that have computerised or are computerising their services. The study population therefore

include the following: Abubakar Tafawa Balewa University, Bauchi; Babcock University, Ilishan; Delta State University, Abraka; Ahmadu Bello University, Zaria; Ladoke Akintola University of Technology, Ogbomoso; Obafemi Awolowo University, Ile-Ife; University of Agriculture, Abaokuta; University of Benin, Benin City; University of Lagos, Lagos, University of Jos, Jos; University of Ibadan, Ibadan, University of Ilorin, Ilorin, and Rivers State University of Science and Technology, Port-Harcourt

A multi stage design method was used for this study. The first stage was to design a 4-item questionnaire to determine the universities that have computerized or were computerising their services. This was administered to university libraries that were present at the NLA Conference and Annual General Meeting held in Bauchi in September 2003. The result showed that thirteen (13) universities have automated or were automating their services .The result was then compared with the study on the status of library automation by Ogunrombi (2001).

The second stage was the design of a 35-item questionnaire that was then distributed to the thirteen university libraries that were computerized.

METHOD OF DATA ANALYSIS

Table 1 shows the analysis of the thirteen University Libraries that considered that they have computerised various functions in their libraries. Out of these thirteen, 9 or 69.2% are Federal Universities, 3 or 23.1% are state owned and 1 or 7.7% is a private University.

Table 1:Categorization of respondents' universities

Type of University	Number	Percentage
Federal	9	69.2
State	3	23.1
Private	1	7.7
Total	13	100

Table 2 shows that all the traditional functions are performed in all the thirteen libraries apart from binding and photocopying services. The above analysis indicates clearly that electronic resources such as Internet, CD-ROM, Intranet and e-mail are poorly developed. Electronic resources offer the capability to conduct remote classes, provide access to remote libraries and create an environment where students and researchers can have innovative cooperative learning experiences. The Internet offers access to a vast wealth of knowledge and other library databases online, while intranet infrastructure enables easy communication among staff within a university community. These services are necessary steps toward a digital library.

Table 2: Functions and Services that have been computerized

Function Services	Yes	%	No	%
Cataloguing	8	61.5	5	38.5
Acquisition	7	53.8	6	46.2
Circulation	8	61.5	5	38.5
Serials	7	53.8	6	46.2
Reference	5	38.5	8	61.5
OPAC	6	46.2	7	53.8
CD-ROM	6	46.2	7	53.8
Internet	4	30.8	9	69.2
Intranet	1	7.7	12	92.3
E-Mail	4	30.8	9	69.2

An ideal situation for an automated library is to be connected to a campus backbone, to enable library resources to be accessed both from within and outside the university. As shown in Table 3, 53.8% have campus-wide network, 76.9% have local area network, while 38.5% have standalone. The data indicate that some libraries have more than one networking configuration.

Table 3: Type of network infrastructure

Network	Yes	Percent
Stand alone	5	38.5
LAN	10	76.9
Campus Wide Network	7	53.8

On the type of software installed, Table 4 shows that out of the 13 libraries, 38% installed TinLib, 3 or 23.1% Alice for windows, 3 or 23.1 X-Lib, SLAM and Glas both account for only 1 or 7.7 each. These findings indicate that TINLIB software is the most common software for now among the university libraries in Nigeria. There is an indication that some libraries are migrating to up to date system.

Table 4: Type of Software

Software	Frequency	Percent
Tinlib	5	38.5
X-Lib	3	23.1
Glas	1	7.7
SLAM	1	7.7
Alice for Windows	3	23.1
Total	13	100

Computerization cannot succeed without the necessary personnel to provide the strength, intelligence, enthusiasm and expertise in selecting, acquiring and installing various CD-ROM databases, for the new change. As show in Table 5, 46.2% have systems managers in their libraries, 38.5% have systems analysts, while the same 38.5% also have network administrators, As expected 53.8% engage the services of data entry clerks.

Table 5: Number of Computer Experts

Categories	Frequency	Percent
System Manager	6	46.2
Systems Analyst	5	38.5
Network Administrator	5	38.5
Systems Librarian	4	30.8
Data Entry Clerks	7	53.8

Table 6: Method of record conversion

Characteristics	Frequency	Percentage
Parallel conversion	4	30.1
Complete changeover	1	7.7
Phased approach	8	61.5
Total	13	100

On record conversion the study shows that majority of the libraries adopted the phased

approach in converting their catalogue records (61.5%), while 30.1% adopted the parallel approach. Only one library changed over completely.

The users must be given consideration when computerisation is being planned.

Although libraries started automation in Nigeria the early 1980, the process did not

Table 7: Method of Training to staff and library users.

Characteristics	Frequency	Percentage
Before installation	3	23.1
After installation	3	23.1
Before and after installation	7	53.8
Total	13	100

The study sought to know how the training aspect was carried out. The Table 7 shows that out the greatest number of university libraries, (53.8%) reported that they carried out training before and after installation, (23.1%) before installation and 23.1% after installation.

completed successfully in most university libraries. The study attempted to find out the reliability of the systems in the libraries that have automated. Table 9 shows that 76.9% considered that their systems were reliable , while the remaining 23.1% did not answer the question.

Table 8: Beneficiaries of Training

Categories	Yes	%	No	%
Senior staff	13	100	0	0
Junior staff	5	38.5	8	61.5
Typist	10	76.9	3	23.1
Library users	2	15.5%	13	100

Table 8, shows that majority of the libraries do not train their library users with only (15.5%) reporting that they carryout training on how to use the computers for this category of users.

This is an indication that 3 libraries have not carried out any evaluation of their systems.

TinLib was the software that was supplied to all the university libraries in Nigeria by the National

Table 9: Reliability of the Systems

Response	Frequency	Percentage
Yes	10	76.9
No	3	23.1
Total	13	100

The library user often deserves to be given first consideration before computerization begin because of the services to be improved so that they are aware of these services. But this is not the case with university libraries surveyed.

Universities Commission in 1993 to automate libraries. From this survey only 4 (30.8%) of the 13 libraries responded to the question why they migrated to automation. While one library said

Table 10: Reason for Migration

Reasons	Frequency	Percent
Lack of knowledge of software	1	7.7
Lack of upgrade facility	3	23.1
No response	9	69.2
Total	13	100

that they changed because of lack of knowledge of software, 3 (23.1%) said they changed because lack of upgrade facility. The fact that a library had to change from software to another is an indication that the computer configuration of the hardware and software requirement was not properly determined before automation started

and e-mail are poorly developed. Electronic resources offer the capability to conduct remote classes, provide access to remote libraries and create an environment where students and researchers can have innovative cooperative learning experiences. The Internet offers access to a vast wealth of knowledge and other library

Table 11: Problems of Computerisation

Problems for computerization	Frequency	Percent
	12	92.3
Inadequate funding	10	76.9
Irregular electricity	9	69.2
Dearth of technical experts	5	61.5
Lack of interests	6	46.8
Human factors	1	7.7
Environmental factors		

The investigator sought to know the problems that have hindered computerization. From the data in table 11, out of the 13 Libraries, 12 or 92.3% attributed their major hindrance to inadequate funding; 10 or 76.9% said that irregular electricity was a constraint; 9 or 69.2% said the problem was the dearth of technical experts; 6 or 47 % of the 13 Libraries listed human factors as a problem; 5 or 38.5% said lack of interest; while only 1 or 7.7% of the 13 libraries listed environmental factors as a problem.

DISCUSSIONS

Services that have been computerized

The study show that one library has no plans yet to automate acquisitions, 3 libraries have no plans yet to automate serials and sadly twelve libraries are not developing intranet facilities ; a means that can facilitate access to library collections through Online Public Access Catalogue (OPAC) and communication among colleagues in the same campus. The analysis from the study also indicates clearly that electronic resources such as Internet, CD-ROM, Intranet databases online while intranet infrastructure enables easy communication among staff within a university community.

Factors that aided or hindered computerization

The study shows that availability of computer centers, the relationship with the libraries and the availability of alternative source of power-aided computerization in their libraries. The study show that all the thirteen libraries surveyed have computer centers in their universities and they assists the libraries advisory capacity, supply of systems analysts, training of staff as well as users and maintenance of systems.

The study also revealed that computerization of the libraries were hindered by several factors which include inadequate funding, irregular electricity, dearth of technical expert, lack of interests, human and environmental factors.

NETWORKING

The study shows that some libraries have

more than one form of networking, for example, ten out of the of Thirteen libraries surveyed have Local Area Network (LAN), seven libraries have Campus Wide Area Network (WAN).The findings indicate that despite the problems faced by some libraries there is still a bright future for automation internet in Nigerian libraries.

SOFTWARE

The study also shows that the most common software used is Tinlib being used by 5 of the libraries. Three libraries each use Alice for Windows and X-Lib. There have been gradual migration from Tinlib which was supplied by the NUC to all the federal University libraries in 1993 to other software such as x-lib, Alice for Windows and SLAM.

REASON FOR COMPUTERIZING

The study revealed that the most important reason for embracing computerisation is to improve and increase customer services. These findings are in agreement with several authors (Ojo-Igbinoba, 1993, Tedd, 1993).

STATUS OF THE COMPUTERIZATION PROCESS

As a matter of fact none of the thirteen libraries surveyed was fully automated; rather all were partially automated.

The study also indicates that the systems are reliable. Ten out of the thirteen libraries surveyed said that their systems are reliable, while three said that their systems are not reliable. This study did not go further to ascertain the degree of reliability, which Carbine (1988) defined as the ability of an automated function to operate at a specified level of performance or effectiveness for a stated period of time, and usually measured as a percentage.

CONCLUSION

We conclude that good progress has been made for automating University libraries in Nigeria. But electronic resources and the infrastructure were poorly developed, while the major hindrance to computerization is inadequate funding, irregular electricity and lack computer personnel's.

RECOMMENDATION

Based on the findings of this study the following recommendations are made.

Looking at the problem from a National perspectives, the National Universities Commission (NUC) should make deliberate effort to ensure that computerisation is adequately funded by ensuring that the 10 percent budgetary allocation meant for Library development is promptly and faithfully released. For the Universities, it is recommended that those that have no strategic plans should formulate strategic planning that should guide library automation in the institutions. In the light of the findings of this study Librarians urgently require professional development in Information and Communication Technology so that they can contribute meaningfully to planning for systems development. Librarians who are interested in automation should be targeted for ICT development and the library

must be prepared to pay a premium to retain them, for as enthused by Markuson (1979). There is no excuse for the library staff involved in automation not to understand clearly how all parts of the system work, what the cost will be and perhaps most importantly, the capability for growth. Each library must ensure that adequate infrastructure are put in place for both intranet and internet connectivity, Local area Network (LAN) and/Campus Area Network should be installed within the university campus to ensure easy communication and access to internet and other electronic library resources.

SUGGESTION FOR FURTHER RESEARCH

The study revealed that both foreign and indigenous library software, are used in Nigeria with varied success. A comparative study of the features, relevance of indigenous and foreign software used in Nigeria University libraries is worthwhile.

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E-resources usage and information seeking behavior of the post-graduate students of Chetana's Ramprasad Khandelwal Institute of Management & Research: A survey

Ravi N. Bellary

ABSTRACT

This paper reports the results of a user study done at the Chetana's Ramprasad Khandelwal Institute of Management & Research, library. Data was collected from 240 respondents through questionnaires. It indicates that guidance in the use of library e-resources is necessary to help students meet their information requirements. Finds that e-resources are the most popular sources of information for the students' course work.

Keywords: Information seeking behavior, e-resources awareness, e-resources usage and Chetana's Ramprasad Khandelwal Institute of Management & Research

INTRODUCTION:

Information is a critical resource in the operation and management of organizations. Timely availability of relevant information is vital for effective performance of managerial functions such as planning, organizing, leading and controlling. A well established well designed information system to facilitate decision making in various projects is critical to the success of any organization. To be successful, any project requires efficient management of human and material resources. This cannot be done unless accurate, timely and relevant information is available to decision makers (Singh 2007).

Electronic resources are very important sources for the teaching, learning and research and development for all the universe subjects. Electronic resources are becoming vital to carry any meaningful research. These resources are widely used by scientists, engineers, managers to carry out day-to-day qualitative and quantitative research and education (Mahapatra 2006).

Information seeking is a human process that requires adaptive and reflective control over the afferent and efferent actions of the information seeker. Information seeking behaviour resulted from the recognition of some needs, perceived by the user, who has a consequence make demand upon on formal system such as libraries and information centers, or some other person in order to satisfy the perceived information need. The information seeking behavior essentially refers to locate discrete knowledge elements.

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It is concerned with the interactive utilization of the three basic resources namely, people, information and system. Further in order to satisfy the information needs the user actively undergoes the information seeking process. The attempt of the user in obtaining the needed information results from the recognition of some needs perceived by the user (Singh 2007).

According to Wilson's Nested model the concepts of information seeking, information retrieval and information behaviour are objects of investigation of information science.4 Within this scientific discipline a varity of studies has been undertaken analyzing the interaction of an individual with information sources in case of a specific information need, task and context (Wilson 1999).

In this article, I present and collocate the findings of a recent investigation that have been conducted at Chetana's Ramprasad Khandelwal Institute of Management & Research, Mumbai (CRKIMR) a project that seeks to bring e-resources use and utilization of the postgraduate students of the CRKIMR. The results of this study bring a comprehensive detailed picture of the use of e-journals and information seeking behaviour by the postgraduate students of CRKIMR library. This investigation is probably one of the first of its kinds in the Institute, after implementing the electronic resources for the teaching and learning programme.

OBJECTIVE OF THE STUDY

The main objective of the study is to explore information seeking behavior of students of CRKIMR, library. The specify objectives are as follows

1. To establish the postgraduate students' information needs;

2. To determine the postgraduate students' information seeking behaviour;

3. To know the adequacy of e-resources;

4. To establish the problems that postgraduate students encounter in information seeking; and,

5. To suggest strategies of improving postgraduate students' information seeking behaviour.

LITERATURE REVIEW:

Literature review is the backbone of any research work, reveals the current trends and the future requirements in the subject of the concerned research project. At this juncture it is appropriate to undertake a detailed review of the literature with a view to identifying the research gap, need and importance for the proposed study, appropriate methodology and tools to be employed etc. Following paragraph devoted to give a brief account of the qualitative literature published till April 2010 in the field of Library and Information Science. More specifically, it is aimed to identify the information seeking behaviour. The published literature collected for the purpose of this study has been presented in the following paragraphs.

Eskola, worked on University students' information seeking behaviour in a changing learning environment. It examined, how are students' information needs, seeking and use affected by new teaching methods? And results found that proper training is required for maximum utilization of library resources (Eskola 1998).

Shokeen and Kushik, studied about information seeking behaviour of social scientists working in the universities located in Haryana. It examined that, most of the social scientists visit the library daily. The first preferred method of searching the required information

by the social scientists followed by searching through indexing and abstracting periodicals, and citations in articles respectively. The social scientists use current journals followed by books (Shokeen and Kushik 2002).

Miriam, Ikoja–Odongo and Kigongo–Bukenya, conducted a study on Information seeking behavior of undergraduate students of Makerere University, Uganda. It examined that, the sample consisted of 104 undergraduate students selected from their first, second and third year study. The results provide an insight into the factors that influence students information–seeking behavior and the information sources used. The study makes recommendations that could lead to the improvement of students' information seeking behavior and use of information resources (Miriam, Ikoja-Odongo and Kigongo-Bukenya 2004).

Callinan, studied on Information-seeking behaviour of undergraduate biology students: A comparative analysis of first year and final year students in University College Dublin. It examined that, the purpose of this study was understand what differences exist between first year biology and final year biochemistry students in University College Dublin so that measures can be taken to address those needs. It examines student's awareness and use of different sources of information for their course-work, their use of the (E-) library, why they visited the university library, the type of assistance they had received in using the library as well as the type of instruction they would like to receive in the future (Callinan 2005).

Fatima & Naved, conducted a study on Information seeking behavior of the Ajmal Khan Tibbiya College, Aligarh Muslim University: A survey. It examined that, how students of Ajmal Khan Tibbiya College seek information from the library. It mentions that most of the respondents visited the library several times a week to meet their information needs (Fatima and Naved 2008).

Haridasan & Khan conducted a study on Impact and use of e-resources by social scientists in National Social Science Documentation Centre (NASSDOC), it examined that, the e-resources in the National Social Science Documentation Centre (NASSDOC) library in New Delhi, India and determines their usage, performance, degree of user satisfaction, and barriers faced in the access of e-resources. It also attempts to find out the users' views about computer literacy among the social scientists (Haridasan & Khan 2009).

Sharma worked on use and Impact of E-Resources at Guru Gobind Singh Indraprastha University (India): A Case Study. It examined that, the existence of various e-resource databases in Guru Gobind Singh Indraprastha University Library. The study also highlights the preferences and importance of online resources among the teachers and research scholars (Sharma 2009).

Kacherki & Thombare studied on print Vs e-journals and information seeking patterns of users: A study of SPJIMR. It examined that, the information seeking patterns of SPJIMR library users and also finds out the advantages and disadvantages of e-journals. The main findings were e-journals are highly used for the community (Kacherki & Thombare 2010).

Nicholas, Rowlands & Jamali worked on evaluation of e-book usage and information seeking and reading behaviour of business and management students. It examined tha, the comparisons are made with students in their subjects. The main findings were that e-textbooks can prove to be extremely popular and widely used, mainly for obtaining snippets of information and for fact finding. The main reason for using e-textbooks was ease to access

and convenient (Nicholas, Rowlands and Jamali 2010).

Maharana, Sethi & Mallick studied on usage of electronic information resources and services at IIT, Kharagpur Library. It examined that, the recent trends of e-resources and services, the article describes electronic information resources, systems and services offered by the central library of IIT, Kharagpur, which has developed anewmission and vision to support anewstrategy of library collection and services through electronic media. It has also created varied access routes of information for its potential users to widen the usage of e-resources (Maharana, Sethi & Mallick 2010).

METHODOLOGY AND SCOPE

This study used questionnaire based survey method. The questionnaires were personally distributed to the postgraduate students of CRKIMR at their library and class room in the month of March 2010.

ANALYSIS AND INTERPRETATION

260 questionnaires were distributed to the postgraduate students who were present in the library and class room. 240 filled-in questionnaires were returned by the students with the overall response rate being 92.31%. The collected data were analyzed, classified and tabulated by statistical method.

A. BASIC INFORMATION

Questions like name, sex, course and qualification were asked. Out of 240 respondents 142 (59.17 %) were male and 98 (40.83%) were female.

1. Initiated to use the library: Table I shows that majority of students i.e. 102 users (42.50%) visit library for the teachers advice to make use of library resources and 97 users (40.42%), use the library for self response followed by 30 users (12.50%) initiated by the library staff and 11 users (4.58%) for the friends.

2. Frequency of visit to the library: Table II shows the frequency of visit to the library, the question has been divided in to four time group, as shown in the table 198 users (82.50%) were visiting the library daily and 30 users (12.50%) were once in a week followed by 7 users (2.92%) were once in a fortnight and 5 users (2.08%) once in a month.

3. Time spent in the libraryn: From table

Table-I

Sr. No.	Initiated to use the library	No. of Respondents	Percentage
1.	Friends	11	04.58
2.	Teachers	102	42.50
3.	Library Staff	30	12.50
4.	Self	97	40.42
	TOTAL	**240**	**100.00**

Table-II

Sr. No.	Frequency of visit to the library	No. of Respondents	Percentage
1.	Daily	198	82.50
2.	Once in a week	30	12.50
3.	Once in a fortnight	7	2.92
4.	Once in a month	5	2.08
	TOTAL	**240**	**100.00**

III, it is seen that 121 (50.42%) users spent their time in the library for more than three hours, 71 (29.58%) users spent their time in the library for three hours, 28 (11.67%) users spent their time in the library for two hours, 13 (5.42%) users spent their time in the library for one hour followed by 7 (2.92%) users spent their time in the library for less than one hour.

Table-III

Sr. No.	Time spent in the library	No. of Respondents	Percentage
1.	Less than one hour	07	2.92
2.	One hour	13	5.42
3.	Two hours	28	11.67
4.	Three hours	71	29.58
5.	More than three hours	121	50.42

4. Purpose of visit to the Library

Table IV shows, that 207 (86.25%) users were visited library for the study purpose, 201 (83.75%) users for the to borrow / return / renew books, 127 (52.92%) users to access e-resources, 109 (45.42%) users visited to read newspapers / business dailies, 109 (45.42%) users to refer journals and magazines followed by 107 (86.25%) users to refer books in the library, 90 (37.50%) users visited library to get information, 82 (34.17%) users visited to refer project reports submitted to the institute, 65 (26.08%) users visited to use / borrow audio visual materials like CDs & DVDs.

Table-IV

(Multiple answers)

Sr. No.	Frequency of visit to the library	No. of Respondents	Percentage
1.	To Study	207	86.25
2.	To get information	90	37.50
3.	To refer books	107	44.58
4.	To use / borrow audio visual materials (CDs & DVDs)	65	27.08
5.	To read newspapers / Business dailies	109	45.42
6.	To refer project reports	82	34.17

B. LIBRARY COLLECTION:

5. Adequacy of library collection:

Table V shows that adequacy of library collection, 230 (95.83%) users responded that library has adequate collection of books, 180 (75%) users for the journals and magazines, 90 (37.50%) users for the reference sources and 201 (83.75%) users for e-resources.

Table-V

(Multiple answers)

Sr. No.	Adequacy of library collection	No. of Respondents	Percentage
1.	Books	230	95.83
2.	Journals / Magazines	180	75.00
3.	Reference Sources	90	37.50
4.	E-resources	201	83.75

7. Use of print & electronic resources:

Table VI shows that majority of users prefer electronic resources for their study i.e. 120

(50%), 98 (40.83%) users responded for the print resources and 22 (9.16%) for both the resources.

6. Library resources:

Most of the users found that, library has adequate collection to meet their demands i.e. 223 (92.92%), 15 (6.25%) users responded that library collection should be moderate and 2 (0.83%) users responded for the inadequate library resources.

Table-VI

Sr. No.	Resources	No. of Respondents	Percentage
1.	Print	98	40.83
2.	Electronic	120	50.00
3.	Both	22	9.17
	TOTAL	**240**	**100.00**

B. CHARACTER OF INFORMATION SEEKING BEHAVIOUR:

8. Content of e-resources

Table-VII

Sr. No.	Content of e-resources	No. of Respondents	Percentage
1.	Better than print version	113	47.08
2.	Same as that of print version	93	38.75
3.	Not better than print version	34	14.62
4.	Not sure	0	0.00
	TOTAL	**240**	**100.00**

Table VII shows 47.08% users responded that e-resources are better than the print version, 38.75% users responded e-resources are as same as print version, 14.62% users responded for the e-resources are not better than print version.

9. Purpose of using e-resources:

From table VIII, It is seen that 191 (79.58%) users refer e-resources for the writing notes, 140 (58.33%) for the writing projects, 98 (40.83%) for the seminars purpose, 28 (11.67%) for the writing papers and 20 (8.33%) for the research work.

10. Frequency of using e-resources:

Table-VIII

(Multiple answers)

Sr. No.	Content of e-resources	No. of Respondents	Percentage
1.	Writing papers	28	11.67
2.	Preparing notes	191	79.58
3.	Seminars	98	40.83
4.	Projects	140	58.33
5.	Research work	20	8.33

The frequency of use e-resources is divided in

Table-IX

Sr. No.	User of e-resources	No. of Respondents	Percentage
1.	Daily	180	75.00
2.	2-3 times in a week	40	16.67
3.	Once in a week	13	5.42
4.	Occasionally	07	2.91
	TOTAL	**240**	**100.00**

to four parts, as table IX shows that majority of the users i.e. 180 (75%) were using e-resources daily, 40 (16.67%) were 2-3 times in a week, 13 (5.42%) once in a week followed by 7(2.92%) users occasionally.

11. Articles read:

The table X shows that 73 (30.42%) users read the articles more than 15 every day, 71 (29.58%) users read 11 to 15 articles every day, 53 (22.08%) users read 1 to 5 articles every day followed by 43 (17.92 %) users read for 6 to 10 articles every day.

Table-X

Sr. No.	No. of articles read in a week	No. of Respondents	Percentage
1.	Nil	0	0.00
2.	1-5	53	22.08
3.	6-10	43	17.92
4.	11-15	71	29.58
5.	More than 15	73	30.42
	TOTAL	**240**	**100.00**

12. Comparison of e-resources with print version:

Table XI shows the comparison of e-resources to print resources. It was found that majority of the respondents strongly agreed for the statements i.e. 201 (83.75%) users agreed for the easy & convenient to search for the information in the e-resources, 219 (91.25%) users agreed for the search time taken in e-resources are lesser than the print version, 203 (84.58%) users agreed for the e-resources are available immediately to refer, 209 (87.08%) users agreed for the e-resources can be access by the user from their desktops at workplace, followed by 180 (75%) users agreed to e-resources are provide links for other related articles or references.

Table-XII

(Multiple answers)

Sr. No.	Reasons	No. of Respondents	Percentage
1.	Lack of time	189	78.75
2.	Uncomfortable	89	37.08
3.	Cannot find what to look for	202	84.17
4.	Not easy to use	114	47.50
5.	Lack of infrastructure	97	40.42
6.	Access time is slow	126	52.50
7.	Unorganized	98	40.83
8.	Difficult to read from screen	76	31.67
9.	Lack of training	129	53.75
10.	Preference to print version	89	37.08

Table-XI

Sr. No.	Strongly Agree		Agree		Uncertain		Disagree		Strongly Disagree	
	Respondents	%	Respondents	%	Respondents	%	Respondents	%	Respondents	%
1.	201	83.75	035	14.58	002	00.83	002	00.83	000	00.00
2.	219	91.25	019	07.91	002	00.84	000	00.00	000	00.00
3.	203	84.58	028	11.67	007	02.91	002	00.84	000	00.00
4.	209	87.08	027	11.25	002	00.84	002	00.84	000	00.00
5.	180	75.00	058	24.17	002	00.84	000	00.00	000	00.00
6.	065	27.08	073	30.42	033	13.75	027	11.25	042	17.50

13. Reasons for not using the e-resources:

From the table XII shows the reasons for not using the e-resources. It was found that 202 (84.17%) users were responded for the cannot find what they are looking for, 189 (78.75%) users for the lack of time, 129 (53.75%) users responded for the lack of training, 126 (52.50%) respondents for the access time is slow, 114 (47.50%) users for the not easy to use, 98 (40.83%) respondents for the unorganized, 97 (40.42%) respondents for the lack of infrastructure, 89 (37.08%) for the preference to print version also for the uncomfortable with e-resources followed by 76 (31.67%) difficult to read from screen.

15. Rating of information services:

Most of the students found that, library's information services are excellent with 65.00 % stating for the ebsco database, 45.42 % for the ICFAI online publications, 53.75 % for the CMIEs prowess, 62.08 % for the CMIEs industry analysis service, 76.25 % for the Tulsient server and 39.58 % users responded for the good service of bankers brief.

16. Training for using e-resources:

It is seen that 219 (91.25%) users responded for training programme is required to use e-resources and 21 (8.75%) responded for training programme is not required.

Table-XIII

(Multiple answers)

Sr. No.	Information resources	No. of Respondents	Percentage
1.	Ebsco database	198	82.50
2.	ICFAI online publications	108	45.00
3.	Bankers Brief	103	42.92
4.	CMIE's Prowess	117	48.75
5.	CMIE's Industry Analysis Service	191	79.58

14. Usage of Information Resources:

Table XIII indicates that 198 (82.50%) respondents access the ebsco database, 191(79.58%) users access the CMIEs Industry analysis service, 117 (48.75%) users refer CMIE's Prowess and 108 (45.00%) respondents access the ICFAI online publications and Tulsient server followed by 103 (42.92%) respondents access the bankers brief.

17. Importance of Training programme:

Table XV show the importance of training programme. It was found that majority of the users stating that training programme is very important i.e. 176 (73.33%), 61 (25.42%) users responded for training programme in important and 3 (1.25%) users responded for training programme in not required.

Table-XIV

Sr. No.	Excellent		Good		Average		Poor	
	Respondents	%	Respondents	%	Respondents	%	Respondents	%
1.	156	65.00	059	24.58	025	10.42	000	00.00
2.	109	45.42	103	42.92	017	7.08	001	0.42
3.	095	39.58	101	42.08	041	17.08	003	01.25
4.	129	53.75	077	32.08	031	12.92	003	01.25
5.	149	62.08	65	27.08	026	10.83	000	00.00
6.	183	76.25	53	22.08	004	1.67	000	00.00

Table-XV

Sr. No.	Importance of training programme	No. of Respondents	Percentage
1.	Very important	176	73.33
2.	Important	061	25.42
3.	Not Required	003	01.25
	TOTAL	240	100.00

Hence, it can be concluded that the students have very strong opinions towards usage and efficiency of e-resources.

RESEARCH FINDINGS & SUGGESTIONS

The survey on user of e-resources & Information Seeking Behavior of the Post-graduate Students of CRKIMR has revealed that most of students i.e. 92.31 % visit library to use the library resources and 83.75 % of the users visit library to borrow books, 52.92 % of users visit library to access e-resources. About the adequacy of library collection, 95.83 % of users feel that the library book collection is adequate, 75 % of users feel that journals and magazines collection is adequate, 37.5 % of users feel that references sources are adequate and 83.75 % of users feel that e-resources are adequate.

However, the result of the study tells that most of the students prefer both printed as well as non print sources of information. So, it is suggested that the library should stock more number of books, periodicals and reference sources. Besides, the library must build up e-resources to satisfy the information needs of the students.

The study and analysis of data collected and discussed in depth and extent the investigation come to withstand following facts on the use of e-resources by the postgraduate students of CRKIMR. Some important observations are as follows.

- It is found that, most of the students at CRKIMR use several Information Technology tools and they posses required competency in accessing e-resources.
- 92.92% of users feel that library resources are adequate.
- 47.08% of users feel that e-resources are better than print version.
- 79.58% of users prefer e-resources for the preparing notes and 58.33 % for preparing project reports.
- It is encouraging to note that e-resources are highly used i.e. 82.5 % of users prefer Ebsco database, 79.08% CMIE's Industrial Analysis service, 48.75 % CMIE's Prowess, 45 % ICFAI online publications and 42 % Bankers brief for their required information.
- Majority of the students feel that information services available in the library are excellent.

- 73.73 % of students pointed out that training program is very important to maximize the utilization of e-resources.

Therefore, it is suggest that the library should conduct orientation programs frequently to make use of the e-resources. The library should actively participate in the library consortia to give optimum information services and fulfill the ever increasing and complex needs of the users.

DISCUSSION

In our study, the data revels that there is more use of e-resources (52.92 %) as compare to print resources (44.58 %), which is similar to the study conducted by Sharma (2009) wherein e-resources were much more in use than printed resources. The usual expectations from any authorities are that once e-versions are introduced the use of resources available only in print would decrease. Nowadays even the publishers are also transforming towards this trend of print to electronic, because only e-resources allow timelier literature searching, provide quick access to a greater number of resources from remote locations and require fewer trips to the library than print collection.

A 2010 study by Maharana, Sethi & Mallick examining the use of electronic information resources by the IIT Kharagpur, library, they noted the reasons for using electronic information resources and services. Reasons for users using the electronic resources included browsing journals, checking references, printing articles, reading articles and reading tables of contents. The above finding contrasted with a 2009 study by Haridasan and Khan who examined the use of e-resources by social scientists in NASSDOC. A 2010 study by Kacherki and Thombare examined the use of print Vs e-journals by the management students. Kacherki and Thombare noted that e-journals are highly used.

CONCLUSION

E-resources opened up many exciting opportunities and potentials for management libraries. E-resources have both advantages and disadvantages. Librarians need to be able to identify and balance the factor that would make e-resources success in their libraries. Looking at the present situation of information explosion and competency in acquiring it, it is on the part of the library staff to create more awareness about the e-resources availability among the users and provide them a friendly environment so that they can make a better use of the facility. The staff in the library requires training in handling the e-resources and users need an orientation for using them. Library staff should be provided

proper training, which will help them acquiring more sophisticated searching and retrieval skills. The librarians' role has to be redefined in view of technological developments keeping in mind the best interest of users and retrieval efficiency.

The study indicates that majority of the students seek information from different sources of information for the day to day activity. However, the e-resources have been ranked very high for obtaining specific information and keeping up to date. It may concluded that the working environment of the individual needed information, the importance placed on getting it, the tools available for seeking information, the knowledge and value about these tools, the probability of getting what is wanted are the factors that may affect information seeking behavior.

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Licensing The E-journals: Taming The Subscription And Usage In Academic Environment

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ABSTRACT

The paper discusses about e- journals, there usage in the academic environment in the light of licensing. It highlights the challenges for Libraries for the e-journals access and management. It discusses clauses and terms basic to every license. It highlights the general guidelines with respect to access and uses of e- Resources and a European Approach to Licensing E- Resources. It highlights Access Management Requirements and Guidelines for shifting journals from Print to Electronic- only Access it reflex E-journals and Library Services, Pricing policy. It concludes with the idea of distributed Publishing.

Keywords: e- journals, academic environment, licensing, access management.

INTRODUCTION

Libraries face challenges with the licensing of e-resources especially for e-journals. Libraries create new workflows to review and negotiate licenses. The inefficient system leads to higher costs, bottlenecks, and delayed or unfulfilled access. Under such conditions the users may not well serve, the financial resources are not maximized, and it leads to further chaos. The way of approaching online subscriptions can work because publishers and libraries have a decade of shared experience with e-resource licensing. A high level of trust is required based on amicable resolution of problems, and there is strong motivation to find an alternative (1).

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Challenges for Libraries

The proliferation of e-journals has raised new access & management challenges for libraries. These are as following:

- **Handling process -**
  - **Subscription**
  - **Licensing**
  - **Evaluation**
  - **Content**
  - **Technical data**
- **Delivery -**
  - **Awareness**
  - **Access**
  - **Linking**
  - **Search**

Electronic journals offer enormous benefits. They provide users faster, more convenient, 24-hour desktop access from home or campus, as well as special features such as alerts. These e-journals also offer benefits to libraries such as saving the valuable space on library shelves, relieving the fear of being stolen or destroyed, and, depending

on the license agreement, allowing many users to access information at the same time. Licensing resources in electronic format allows libraries to provide access to many more titles than they could afford to purchase and shelve in paper format (2).

CLAUSES AND TERMS BASIC TO EVERY LICENSE

Most digital information licenses include detailed language that specifies the right to access the information, the way information may be used, stored, and transmitted, liabilities for violations or misuse of the information by library users, accessibility, and the charges for accessing. Although each license is unique, common restrictions found in licenses for digital information products include the following:

- The content may be used only for non-commercial educational, clinical, or research purposes.
- Individuals who are not affiliated with the library that has licensed the product may not use the content, or may use content only when physically at the library.
- Printing and downloading of e-resources are generally subject to copyright restrictions.
- Altering, recompiling, systematic or programmatic copying, reselling, redistributing or republishing of electronic content are typically prohibited.

It must be kept in mind that license terms do not permit copying or downloading entire issues of a journal. This is also a violation of basic copyright principles. As a general rule, user may not e-mail full-text articles to unauthorized users. Distributors of electronic content use various tools to monitor types of usage but not individual usage. They look for large-scale violations, such as systematic downloading of substantial portions of an electronic title. In these cases, whether the violations occur knowingly or unknowingly, the vendor will contact the library that holds the license and may suspend the university's access to the resource. As users may be aware, online access to licensed e-Resources (e-books, e-journals, bibliographic databases and other digital resources) are governed by the Terms of Use as per the Institutional license agreement between the library and the respective publishers (3).

(please see http://www.library.iisc.ernet.in/e-Resourcesaccess.html)

The e-Resources are licensed for the non-profit educational use of the Institute. Copyright law in addition to individual license agreements also governs use of the see-Resources. It may be noted that publishers do watch pattern of use (particularly downloads) of these resources. Any misuse is identified by the publisher precisely as to from which local system (its IP and Mac Address), the date & time and the number of articles / records viewed / downloaded etc. Any breach to the License agreement (misuse) would result in denying of online access to the resource by the publisher. Therefore users are suggested to adhere to the following general guidelines with respect to access and use of e-Resources (4);

ALLOWED

- Viewing / downloading of a small number (one or two) articles from an

o e-journal / one or two chapters from an e-Book is allowed.

• Downloading and electronically forwarding of articles.

• For precaution, the outsiders / visitors are allowed only with prior permission to access e-Resources from system in library.

TOWARDS A EUROPEAN APPROACH TO LICENSING E-RESOURCES

International licensing agreements moved a step nearer today with the announcement that Knowledge Exchange - an umbrella organization of four national ICT bodies - begun a multinational tender process to explore with publishers the possibility of cross-border licensing arrangements. With national licensing agreements for online resources well established in the four countries - the UK, Denmark, Germany and the Netherlands - the aim of the initiative was to explore whether further economies of scale can be secured and new and innovative business models developed through an international approach. The proposal was published under European Union competition rules as a 'Request for Information' which invited publishers to submit initial proposals concerning possible business models. Following this stage, representatives of the four organisations - JISC, Denmark's Electronic Research Library (DEFF), the German Research Foundation (DFG) and the SURF Foundation in the Netherlands - met with chosen publishers to develop proposals further. The announcement marked an important milestone for Knowledge Exchange, one of whose goals is to explore new and innovative licensing models and platforms for research. With the European Commission debating the future of scientific publishing last week, the announcement also marks an important development for Europe-wide approaches to making vital online resources more widely available (5).

ACCESS MANAGEMENT REQUIREMENTS

All libraries rely usually on authentication and access management systems that are external to the systems and tools. These external systems may be as straightforward as simple reliance on the remote authorization mechanism of an online provider (via ip addresses or usernames and passwords), or as complex as a locally-developed access management service. The system assigns persistent identifiers to resources, passes connection requests to a system that validates users according to a local authentication scheme, and routes valid users through a proxy server. Institutions with complex local environments can be expected to have customized systems and tools in place with which to perform these functions, with which an e-journal system must interoperate.

The e-journal management systems are needed to accommodate both simple and complex environments with a varied range of needs. To accomplish this, the following set of generalized requirements is outlined below (6):

• Management of basic access-related information such as Uniform Resource Identifiers (URIs), User IDs and passwords, and lists of institutional IP addresses;

• Support for the creation of persistent URIs and for additional data elements required to support complex local access management services, such as proxy servers; and

• A set of export functions by which an e-journal management system can communicate its information to a local system or service.

Specifically, it should be possible to:

1. Store and maintain access URIs (uniform resource identifiers) and make these actionable for end users according to local requirements

1.1. Store vendor-supplied primary and secondary URIs (e.g. for mirror sites) used for access to the resource.

1.2. Support the creation, storage, and updating of persistent URIs and/or integration with external systems for managing persistent identifiers

1.3. Support authentication and access systems (such as proxy servers, or statistics generating scripts), allowing for URIs to be constructed on the fly based on stored data elements

1.4. Generate notifications and/or exports of URI information to appropriate linked or external systems according to local requirements

1.5. Alternatively, provide seamless functional integration with external systems that record this information

2. Integrate Proxy server / access management such as proxy server access for all or selected users and all or selected resources

3. Store lists of IP addresses used to register access to specific resources and provide automated email notification to online providers when IP addresses are updated

3.1. Support the creation and maintenance of multiple lists of IP addresses that can be associated (or disassociated) with one or more licensed locations and linked to one or more bibliographic entities

3.2. For a given resource or online provider, indicate whether IP addresses are/were registered online, and record the registration URI

3.3. Send automated email notifications to vendors and providers when IP addresses are updated, and record the date on which notifications are sent. Include the ability to also record an acknowledgement date. This implies the ability to designate a vendor or provider contact address for IP address notification purposes

4. Store one or more user IDs and passwords and provide the ability to generate secure screen displays of this information for authorized users and/or staff, with associated text or for java-script auto-submission.

5. Implement access restrictions

5.1. Record authorized user categories and authorized sites, including the ability to associate specific actions with those elements, such as

5.1.1. Generating staff and user displays

5.1.2. Implementing access controls

5.1.3. Exporting information to a local access management system (technical system in use at your institution such as an authentication system and/or proxy server

GUIDELINES FOR SHIFTING JOURNALS FROM PRINT TO ELECTRONIC-ONLY ACCESS

These guidelines may be used when deciding to move from reliance on a print journal subscription to electronic-only access. Librarians may also find useful guidance by reviewing the International Coalition of Library Consortia (ICOLC) Statement of Current Perspective and Preferred Practices for the Selection and Purchase of Electronic Information (7).

1. Content

- Determine if the print and electronic versions have equivalent content. It is not unusual for the electronic version to lack some

material commonly found in the print version, such as advertisements and employment listings. Consider print usage, user (reader) expectations, and alternatives to the missing print content among other criteria in making a decision.

2. Scholarly Sharing

- The e-journal's license should allow for fair use and scholarly sharing of content.

3. Presentation & Printing

- The e-journal should provide access to digitally-generated print page images, preferably using Adobe Portable Document Format (PDF).
- The e-journal should support printer-friendly formats.
- Journals printed in color should provide high-quality color images for the electronic version.

4. Archiving & Ownership

- The e-journal's license should provide for permanent access to the content purchased under the subscription.
- Publisher or e-journal licensor should hold appropriate rights for permanent online display of content.
- Online access via a journal aggregator should not be considered a substitute for either print or online subscription.

5. Access Management

- Institutional site license should allow networked access via Internet Protocol (IP) Recognition, or some improved successor authentication options, for all authorized institutional users.
- The license should allow e-journal access within the library for members of the public.

6. Reliability & Availability

- Publisher or e-journal licensor should provide prompt technical support (as needed) and maintain a reliable, stable interface with performance clauses in the license to compensate institution in the event of extended downtime.
- Online content should be available before or no later than publication of the print version.
- Each separate e-journal title should have its own unique, durable URL for access to the publication.

7. User expectations and usage statistics

- Evaluate journal collections and communicate with primary journal user groups to receive feedback about e-only plans, and educate users regarding the benefits and challenges of moving to e-only access.
- Consider the characteristics and usage of each print title when deciding on e-only access, for example, some titles because of format and/ or usage may lend themselves to being browsed in print.
- Publisher or e-journal licensor should provide timely, accurate and usable usage statistics for each e-journal under subscription or trial.
- Consider the journal's prominence within its discipline before cutting print subscription.

E-JOURNALS AND LIBRARY SERVICES

We are living in an information world which has unbelievable scientific and technological progress and the accompanying stresses and strains of society. 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. One uses information sources either to acquire or to retrieve specific information or browse to discover new facts. Information itself is used to support or disprove a theory; describe and/ or predict; development; modify an existing material entity or phenomenon; recreate and; or get psychological satisfaction.

A network system should be designed for use and that the principal user is the seeker of information, but the system must also be designed for librarians' use in carrying out their various duties. 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.

PRICING POLICY

Recognition and validation of an authorized user can be realized in three ways a) IP (Internet Protocol) address, b) user name of login and password) combination of a and b. Therefore in most of the cases the downloading of articles to the PC of the authorized user is permitted but as a rule the creation of a digital archive of electronic journals in the local environment of the library is prohibited. For the moment most of the publishers do not permit the systematic delivery of digital articles via ILL (interlibrary loan) systems.

Pricing policy for the electronic journals is different from publisher to publisher and several times within the same publisher it differs from journal to journal. For the majority of the electronic journals the access to the electronic version is not changed with any additional cost. In some journals, publisher charge an additional subscription to the price of the printed edition. This surcharges rises generally from 5% to 25% of the price of the printed edition.

Of course there are a small number of journals of which the electronic subscription in double or even triple of the price of the printed one. However in the final budget of a library collection the annual surcharge for access to the electronic editions is less than 10% of the budget for the printed collection. This means 100 cost units for the printed edition + 10 cost units for the electronic one = 110 cost units as the final price. For the moment, it is not permitted the subscription to the electronic only edition. The only publisher permitting such an arrangements (Academic Press) charges its electronic only editions the same as the printed only editions, granting a discount (sic) of 75% of the price of the printed edition to the subscriber of the electronic edition that purchases also the printed one. This means 100 cost units for one of the two editions or 125 cost units for both of them. Generally the final 10% of the surcharges for the cost of access to electronic journals can be more reduced as a result of a reasonable exploitation of special prices and offers of journal packages.

LINKS AND DISTRIBUTED PUBLISHING

Links have the power to alter the character of journals fundamentally, most obviously in the development of "distributed publishing" in which users can find items of interest irrespective of the publisher. Ultimately, distributed publishing may transform the way in which individual documents are compiled by sharing components or "objects" figures say, from different sources, and by using network-based software processes,

or services, to enhance presentation. Links are important for a number of reasons:

—For users, links provide faster, more direct access to more information.

—For librarians, links support more effective information retrieval, especially from large archives, and can help with identified user phenomena such as "successive search episodes."

—For publishers, links add value to works, but in this context links need to be applied in particular ways to make it easier to maintain and mange large numbers of documents. It is already clear from a number of publishing arrangements that the electronic scholarly literature will be dominated by cross-linking on citations between different journals and services. ISI links has been announced as its means of mediating citation linking between Web of Science, collaborating publishers, and subscribing institutions. Linking application where links are applied between different journals and documents directly managed by a single publisher have been described for the BioMedNed service, HighWire Press and the Institute of Physics. There is an accumulation of experience and research findings on the difficulties faced and errors committed by users and on the inadequacies of online systems and services. These provide useful ideas for improvements to the systems as well as on the factors to be emphasized in user orientation to interactive online search.

CONCLUSION

The information technology controls the problem of information explosion quite conveniently. There is a great change in the man's hunger for information. The emphasis of information seeking behavior is laid on information storage, information processing, information handling, information transfer and information retrieval technique. There have also been changes in the user education form those of the past. Earlier information agencies were mostly interested in issuing and returning of books and other reading material. But now, the information agencies are interested in producing information in various (documentary and non- documentary) forms and disseminating it by giving proper education to their users. Information systems are intended to provide each potential user with timely and relevant information, presented in a convenient form at minimum cost and effort. Creating an awareness of relevant information sources, enhancing users' abilities to select the more appropriate information sources and systems for a given information need, and developing users' knowledge and skills to retrieve or access the information required, and, if necessary, for post-retrieval processing and repackaging for effective use, all form integral parts of the interface between the user and the information system.

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Digital Libraries: Concepts and Issues

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ABSTRACT

The libraries are adopting the changes from time to time. From the days of papyrus to the digital libraries, libraries are undergoing tremendous developments. During the last part of 20th century the emergence of new technologies such as computer, CD-ROM, DVD-ROM, e-mail, e-commerce, e book, INTERNET, bar coding, fiber optics, RFID, etc have taken place. Now a days, there are various types of libraries like: traditional, automated, electronic, digital, and virtual libraries. There is a difference of opinion among library and information professionals about the meaning of the above said libraries at the outset. As the Internet expands, particularly the World Wide Web (WWW), more people are recognizing the need to search indexed collections. The major objectives of digital libraries are: to collect, store, organize and retrieve digital information; to provide effective and efficient digital information services; to minimize massive storage and space problem in libraries; to share the networked information; and to perform the various library activities economically.

INTRODUCTION

The term "Library" invokes in one's mind a storehouse of information in the form of paper publication like books, conference proceedings, annual reports, monographs, journals, etc. and also of documents in other forms like films, filmstrips, audio and video cassettes, CDs, etc. The term "digital" is actually somewhat of a misnomer. Digital libraries basically store materials in electronic format and manipulate large collections of those materials effectively. The key technological issues are how to search and display desired selections from and across large collections. In this era of the Internet and the World Wide Web, the long-time topic of digital libraries has suddenly become quite hot. As the Internet expands, particularly the World Wide Web (WWW), more people are recognizing the need to search indexed collections. The Internet and WWW technologies are providing the technological environment and intellectual impetus for the development of 'digital libraries'. The Internet has enabled global connectivity of computers and the development of various tools and techniques for networked information provision and access. Any information is just a click ahead to the user as he/she can access the required information on Internet on just a click of mouse. The fantastic tools like messaging (email), ftp, and telnet provide user-friendly tools like Gopher, WAIS and the WWW for information access.

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DIGITAL LIBRARY DEFINITIONS

The meaning of term "digital library" is less transparent than one might expect. The words conjure up images of cutting-edge computer and information science research. They are invoked to describe what some assert to be radically new kinds of practices for the management and use of information. Digital library is an evolving area of

research, development and application. Workers in this area have offered multiple definitions.

Edward Fox has defined the digital library as "the new way of carrying out the functions of libraries encompassing new types of information resources, new approaches to acquisition, new methods of storage and preservation, new approaches to classification and cataloguing, intensive use of electronic systems and networks and dramatic shifts in intellectual, organizational and electronic processes." [1]

In ODLIS (Online Dictionary of Library and Information Science) digital library has been defined as "A library in which a significant proportion of the resources are available in Machine-Readable format, as opposed to print or microform." [2] William T Arms defined the term digital library as "a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network".[3] According to C L Borgman, the term digital library has various meanings and these cluster around two themes: 1. From a research perspective, digital libraries are content collected and organized on behalf of user communities. 2. From a library-practice perspective, digital libraries are institutions or organizations that provide information services in digital forms.[4]

Digital Library Federation crafted the following definition:

"Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities."[5]

This is a full definition by any measure and a good working definition because it is broad enough to comprehend other uses of term. Therefore, operationally digital libraries will be network based distributed systems with individual servers responsible for maintaining local collections of digital documents ranging from sets of electronic texts to video-on-demand services. Any given digital library system should provide a coherent, consistent view of as many as of these repositories as possible and allow users to seamlessly connect and interact with information with no regard to geographic location or time.

COMPONENTS OF DIGITAL LIBRARIES

The key components of digital libraries are:

- Geographically distributed digital information collections
- Geographically distributed users
- Information represented by a variety of digital objects
- Large and diverse collections
- Seamless access

OBJECTIVES

The major objectives of a digital library are listed as under:

1. To collect store, organize and retrieve digital information
2. To provide effective and efficient digital information services
3. To minimize massive storage and space problem in libraries
4. To share the networked information
5. To save the time of library staff as well as

users

6. To perform various library activities economically

7. Ultimately to satisfy the users' requirement

DIGITAL LIBRARY SOFTWARES:

A number of digital library softwares that aim to offer stand-alone catalogues or complete digital library solutions are available. Each of these has its different functionality. Some of important digital library softwares are discussed below.

1. Greenstone Digital Library Software:

Roger McNab and Stefan Boddie developed this software for the New Zealand Digital Library Project at the University of Waikato. This programme was a research project aiming to develop the underlying technology for digital libraries and make it available publicly so that others can use it to create their own digital collections. Greenstone is a suite of software for building and distributing the digital library collection. The software organizes the information digitally for publishing it in digital form i.e. on the INTERNET or on CD-ROM. Greenstone is developed and distributed in cooperation with UNESCO and an NGO namely Human Info. The software is an open source software available at http://greenstone.org under the term of the GNU General Public License. The software is easy to install. Various versions of greenstone are available for Windows 3.X, 9.X, Unix as well as Linux also. Documentation of the software is also available online and the same can be downloaded in PDF format from the website. However some other associative softwares: like Apache Web Server, Perl, GCC, GDBM, etc are also required with greenstone. The software can be used to construct and present the digital collections of thousands of documents, texts, images, audio and video information. Greenstone also provides facility of searching these collections for particular words or combination of words using Boolean operators. The software has plug-ins that will automatically transfer word, PDF, and other plain text files into the HTML. Greenstone is multilingual as the Unicode character set is used throughout and is converted on-the-fly to an encoding supported by the user's web browser.

2. Ganesha Digital Library (GDL)

Software: Ganesha Digital Library Software is developed by the Indonesian Digital Library Network (the first digital library network in Indonesia). The development of GDL was pioneered and driven by the Knowledge Management Research Group at the Institut Teknologi Bandung, Indonesia. The software was developed in collaboration with other librarians and information engineers. GDL can be downloaded free of cost from its website (http://gdl.itb.ac.id/download/). Currently GDL is the most widely used application by Indonesia Digital Library Network Partners. GDL runs on Apache web server that support PHP version 4.04 and above. The software uses MySQL database server. For full-featured installation GDL should be installed on Linux/ Unix machine. The minimum requirement for GDL is Windows 95 or higher version.

3. iVia Open Source Digital Library System:

National Leadership grant program of the U. S. Institute of Museum and Library Services, the Fund for the Improvement of Post-Secondary Education (US Department of Education), and the University of California Library, Riverside funded the iVia project. The software is an open source Internet subject portal or virtual library system. The software enables institutions to work cooperatively or individually to provide

well-organized, virtual library collections of metadata descriptions of Internet and other resources. As well as rich full-text harvested from these resources. The software is a fast, reliable and robust system, which can be scaled to millions of records and users. It has an array of web Crawlers, which are capable of fully to semi automating the identification of significant Internet resources. It support various standards like: Open Archive Protocol for Metadata Harvesting, Dublin Core System, MARC format for bibliographic data, LC Subject Headings, and LC classifications.

4. GNU E-prints Archiving Software:

E-prints software has been developed as part of the digital library project at University of Southampton, U K. The software is available free of cost under the terms of GNU General Public License. The software runs under Linux and creates online archive libraries of electronic prints. The default configuration creates a research paper archive, but could be modified and used for other purposes. It is easy to install. The latest version of the software is 2.2.1. The software can be downloaded from its website (http://www.eprints.org). The additional software required are GNU Linux, Apache Web Server, Perl Programming language, mod_perl module for Apache server which significantly increase the performance of Perl scripts and MySQL database.

5. CONTENTdm Software: CONTENTdm:

is the commercialized version of the Content Software developed at the university of Washington. Digital Media Management Inc distributes this software. The software is flexible and multifunction package, which provides tools for all aspects of digital collection management. It can handle virtually all media types and meets the needs of a wide range of users. The software is a priced one and the complete CONTENTdm Software Suite is available at the entry-level price of $6000/-. Separate pricing information for libraries museums and nonprofit archive association can be sought from Online Computer Library Center Inc. (http://www.ocloc.org). The functionality of the software allows creating collections quickly and easily using a simple point and click interface. The "LC Thesaurus for Graphical Materials I" is supplied as controlled vocabulary or users can import or develop their own controlled vocabulary.

6. University of Michigan DLXS-XPAT Software:

The University of Michigan Library under Digital Library eXtension Service (DLXS) provides the foundation and framework for educational and non-profit institutions to fully develop their digital library collections. It offers free access to its "Set of Classes" with associated middleware (software), which communicates with the commercially available search engine X-PAT. The source code of various classes and middleware is open and can be downloaded from the website (URL: http://lib.umich.edu/newnow/freesoftware.html). The search engine XPAT is a powerful, SGML/XML-aware search engine, and an ultra-versatile tool for the development of digital libraries. XPAT provides excellent support for word and phrase searching, indexing of SGML elements and attributes, a baseline of support for XML, fast retrieval, and open systems integration.

7. Ages Digital Library Software:

The Ages Software Inc. supplies the Ages Digital Library Software. The Incorporation supplies the digital library collections or a particular e-book(s) from those collections either online or supplied on CD-ROM. Ages Digital Library Software is for ready to use digital collections from the Ages software. The software

is actually an accompanying software, which is supplied with e-books and other material supplied by the Ages software Inc. The software is useful for viewing or reading and searching the e-material supplied by Ages Software Inc.

8. Libronix Digital Library System:

Libronix Digital Library System is the refined version of Logos Library System from Logos Research Systems. This is a modular technology used to deliver the digital libraries of books and interactive study tools. The software has modular structure and it is Internet integrated. It is more like a toolkit for delivering the digital libraries than a single software package. The software is multilingual and support Arabic and Asian languages. According to Libronix DL System "For the first time data in multiple formats can be catalogued, browsed, searched and annotated from a common software interface. Libronix represents the logical next step beyond digital books by elegantly addressing all five key functions of a digital library system". The software can be downloaded from the website (http://www.logos.com/products).

A variety of Digital Library softwares are available now-a-days. These ranges from the outputs of Digital Library Projects to specific purpose custom applications. Some of these are available free of cost, whereas other are priced one. Keeping in view their functionality, these can be categorized in three different categories. First category consists of those, which are General Purpose but powerful, multi platform, multifunctional, multilingual and suitable for the requirement of the medium to large organizations such as Greenstone DLS, CONTENTdm, Ganesha DLS, and UM DLXS-XPAT DLS. The second category includes those software, which are specific purpose packages like: E-prints, iVia. The softwares suitable for small Individual's DL collection and e-book software form the third category. [6]

DIGITAL LIBRARY INITIATIVES IN INDIA:

National Task Force in Information Technology and Software Development submitted "IT Action Plan" to Govt. of India on July 4, 1998. The report contains 131 sections. The IT Policy of India is a comprehensive framework required for creating an ambience for the accelerated flow of investment into IT sector, with specific orientation towards the Software Industry to make India a global IT super power by ensuring the export of software of billions of dollars and IT for all by 2008. This is really an encouraging development for the "info-poor" India. [7]

A few relevant sections of the Chapter 5 entitled "Content Creation and Content Industry" of the IT Action Plan (Part III) Long Term National IT Policy of India read as under:

81. It will be made mandatory for all the universities or deemed universities in the country to host every dissertation/ thesis submitted for research degrees on a designated Website.

83. The national, regional and other public libraries will be required to develop databases of their holdings, which will be hosted on a designated Website for free access to users.

84. The Government in association with the industry will evolve appropriate guidelines, codes and systems to ensure those materials anti-social, unsuitable, illegal or posing a threat to national security are not put on the Websites.

85. The Indian Language based systems are crucial for the growth of the content industry and for spreading the impact of IT to the grass root level. All Government funded software tools developed, for handling information in Indian languages, will be actively promoted for

widespread use and made available at nominal cost.

90. There is a need to promote and encourage hosting of non-commercial materials related to linguistic, social and cultural aspects of people by the public or private organizations. The Government will take initiative for providing web sites, free of cost, for such purposes.

91. Government will encourage and promote Indian companies and organizations to host their contents only on web servers located in India with Indian domain addresses and these will be made available at internationally competitive prices. Any information hosted on these sites will follow the guidelines evolved by the Government in association with the industry.

92. For enabling Inter-operability between equipment, data, practices and procedures, Standards will be evolved to integrate hardware, software and communication systems and to exchange information across boundaries of different systems.

93. Creation of knowledge bases requires trained manpower for collection, compilation, analysis and production of value added information products and services. Specialized training programmes, through existing institutions, will be initiated to meet the requirement of trained professionals in these areas. Traditional curriculum being offered by the universities and educational institutions in various fields related to content industry will be suitably modified, such as library science, journalism and mass communication.

99. A pilot project on digital library development, based on indigenous software, will be initiated. The project will be time-bound and implemented at one of the suitable existing libraries to serve as a model. The software so developed can be distributed to other organizations to accelerate the development of digital libraries in the country.

100. Virtual libraries provide extensive information and instant access to users through information networks. The Government will promote a pilot project for creation of a model virtual library. The virtual library will be enabled to work out suitable copyright arrangements with the relevant publishers for providing the service.

101. A National Internet Center of Excellence (NICE) will be established in an existing institution to promote standards, assist digital content development in India, devise standards for content building and delivery, and research new technologies.

It is a matter of fact that the development of digital libraries in India is not up to the mark. Although the provisions for the development of digital libraries are clearly mentioned in the IT Action Plan, but the implementation of this plan at war footing is required. A number of digital libraries have already been established in India such as Health Education Library for People (HELP), Mumbai; Indian Institute of Technology, Kharagpur; National Centre for Science Information (NCSI), Banglore; SSPL Digital Library; National Institute of Technology (formerly Regional Engineering College), Warangal; etc. Still a lot of work is being carried out to create digital libraries. Numerous institutions like: University of Hyderabad, Hyderabad; National Institute of Mental Health and Neuroscience, Banglore; All India Institute of Medical Sciences (AIIMS) New Delhi; National Informatics Center (NIC), New Delhi, etc are in the process of creating digital libraries.

ADVANTAGES OF DIGITAL LIBRARIES

In the era of information technology Digital Libraries have certainly numerous advantages. Some of these are described as under.

1. Use of computer power: Nowadays computers are available which can process the data at very high speed. These computers are also capable of storing a huge amount of data. Due to development in computer technology, it is feasible to digitize, process and retrieve information in the form of text, high quality graphics, images, voice and vedio at a low cost. Furthermore this digital information can also be shared to other users through a network. The invention of Hyper Text Markup Language and emergence of advanced web browsers have provided users friendly interface. On a mouse click a user can access to vast amount of information stored on millions of web servers spread all over the world. One stop shopping centers such as BUBL (Bulletin Board for Libraries [http://bulbl.ac.uk]) and SOSIG (Social Science Information Gateway [http://www.sosig.ac.uk]) provide massive access to quality information. With the emergence of the Internet, globalization of information is taking place and we are moving from just-in-case to just-in-time model of access to information. No doubt we can take advantages of computer power through the digital librarie

2. Information sharing: In case of traditional libraries, there are printed documents and users have to scan a number of documents to get the desired piece of information. For this purpose he/ she has to visit the library for consulting or getting the document issued. On the other hand until that user uses that particular document, no other user can make use of that document. But contrary to this, digital information can be shared on a Local Area Network or even on Internet. More than one user can access the same information on their desktop. Hence information can be shared through the digital libraries.

3. Remote access: To consult the traditional libraries, the users have to visit the libraries. But digital libraries brought the libraries to the doorstep of users. A digital library can be accessed from the computer terminal lying on the desktop of a user. The users can access the digital library from hostel or residence or shop, etc. In the era of digital libraries no longer users are required to visit the library. A user by sitting in one corner of the world can access a digital library in the other corner of world without wasting time. For this he only needs a computer connected to that digital library though the Internet.

4. Up-to-date Information: One of the characteristics of information is its currency. Information is useful until it loses its currency. The outdated information solves no problem. In the printed versions of information the revisions of information takes huge time and it is a tedious job also. To revise some portion of the document, it needs thoroughly revision. On contrary, if information is stored in digital format we can update this as soon as we notice the latest development without much labour and time. The information in digital form can be kept more updated as compared to the printed.

5. Seamless access: In the mode of traditional libraries, users can access information as longer as the library is open. With some exceptions, each and every library has a limited period of operation. Only a few libraries in India function round the clock and round the year. But digital libraries can be accessed round the clock and round the year. The users of digital libraries have no need to note the time of operation of their library. In digital libraries, materials are never borrowed by the user, nor wrongly shelved, nor

stolen. In other words we can say that each piece of information is available at the disposal of the user waiting for his mouse click.

6. Preservation of rare material: In libraries some material is available which is very rare in nature. For example if a library has a good collection of manuscripts. The manuscripts are so old that if some one uses these the same get broken. Further these are very difficult to preserve for future use. The only way of preserving this rare material is to digitize such type of collection and store the digitized material permanently for future use. The digitization of rare material not only preserves the material but also facilitate its use. The same rare material (which was not in usable condition) in digital form can be used as much times as the users wish.

Apart from the above-mentioned advantages of digital libraries there are numerous advantages of digital libraries which can't be covered in this article due to limited space.

CONCLUSION

The semantics of the synergy between information and the technology associated with it lie in the real needs of the society. This synergy will continue sine die. It is for us to decide how we are to take advantages of this synergy. An opportunity is available to us for enhancing our access to global information. The only way is to digitize the information and integrate the same through the networks. This will create a global virtual community with a vast storehouse of knowledge and a continuous dialogue among its members.

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Business Planning, Information Preference And Use As Predictors Of Banking Operations In Nigeria

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ABSTRACT

This study employed survey method to investigate the impact of business planning, Information preference and use as predicting the performance of Banks in Nigeria. 300 copies of questionnaire used for the study were administered on the managers in all the twenty-four banks operating in Nigeria. Those managers at the banks headquarters and major branches were used for the study. Analyses of data collected revealed that planning and provision of relevant information sources on bank and banking are crucial to good performances of banks in Nigeria. The study also identified the information source preference of the bankers which are information sources in electronic format. The study in conclusion recommends among others, the need for managers in each of the banks in Nigeria to take into consideration proper planning of their business activities, and provision of efficient information system to enhance their operations and productivity.

Keywords:
Business Planning, Information Preference, Information Use, Banks, Nigeria

INTRODUCTION

Banking industry in Nigeria in the last few years is faced with enormous challenges that boarders on performance, management, and reliability. The financial industry in Nigeria is no doubt promising and good enough judging by the buoyancy in the economy and the degree of patronage of the sector. For example, FirstBank which is one of the consolidated and re-licensed banks in Nigeria has been arguably established as Nigeria's most diversified full-suite financial services group, providing over a century of dependable services, with over five million customers, ten financial subsidiaries, and presence in the UK, France, South Africa and China (FirstBank of Nigeria, 2010). The recent ugly scenario that appeared almost embarrassing to the financial sector and even the government of Nigeria call for a study of this nature in order to look at certain variables such as Business planning, Information preference and use as predicting the banking operations in Nigeria.

There are twenty-four(24) banks in Nigeria as at today. These banks are referred to as consolidated banks; they emerged after the recapitalisation initiative of the central bank of Nigeria in the year 2005. Specifically, the central bank of Nigeria (CBN) raised the minimum capital requirement for each bank in Nigeria to N 25billion. This study is not unmindful of the recent efforts by the federal government of Nigeria to recapitalise and reconsolidate banking operations which may reduce the number of licensed banks in Nigeria by ten. Banks constitutes an important vehicle for economic growth and sustainable development in Nigeria. Banks

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are conceived as a necessary tool for enhancing economic activities and promoting national economic growth and development. They are saddled with the objectives of providing financial services such as acceptance of savings and provision of credits and loan advances. Essay and Olaiya (1974) define a bank as:

A monetary institution owned by either government or private businessmen for the purpose of profit making. In pursuit of this profit, the commercial banks perform a number of functions, one of which is the acceptance of deposit from the public which are in turn given as credit to organisations and individuals that apply for them.

Ekanem (2003) take a look at the banking industry in Nigeria and concluded that the industry has been closely associated with changes in the economy. His paper provides estimates of total factor productivity of banking industry in Nigeria for the period of 1986 – 2000. He concludes that the banking industry in Nigeria has expanded rapidly in the recent years with total factor productivity rising sharply since 1996. Nnanna (2001) observe that bank credit is important for the take-off and efficient performance of any enterprise, be it small or large because it requires provision of funds for its capitalization, working capital and rehabilitation needs, as well as for the creation of new investments. Apart from the entrepreneur, funds are required to bring together the other factors of production – Land, Labour, and Capital before production can take place, and this is why credit is very important in any economy.

Nzotta (1999) reiterate that bank credits influence positively the level of economic activities in any country. It influences what is to be produced, who produces it, and how much is to be produced. This, he further argues, is derived from the intermediate role of banks, i.e link between surplus and deficit units in the economic system. Dauda (2007) assesses the role, size and contribution of the community banking system in Nigeria's development process from 1992 to date she looks into evaluation of the extent to which community banks have been efficient in performing their development roles at the grassroots level using the following criteria viz:

- Inculcation of good banking habits,
- Deposit generation and savings mobilization
- Granting of loans and advances
- Development of real sector
- Development of non productive activities.

She concludes that the Nigerian community banking system is growing in terms of size, it is still unable to create sustainable livelihood that are productive enough to afford poor households an escape route from poverty.

In an earlier study conducted by Aiyegbusi and Soetan (2003), they examine the impact of community banks now Microfinance Banks (MFB) on the credit habits of women, and seeks to amplify the importance of the banks for improved quality of life of marginalised groups like women. Their funding show that there has been an upsurge in the credit habits of all respondents since the banks have been introduced. This was attributed to community banks' related and flexible requirements for loan procurement.

SIGNIFICANCE OF THE STUDY

This study will be of importance to the banking industry in the following areas.

1. It will proffer some recommendations on ways of achieving enhanced productivity in the banking industry;
2. It will enable the banks to formulate and implement programmes that will be geared towards effective utilization of information.
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3. it will be a meaningful addition to the literature on proper planning in the banking sector in order to enhance productivity and banking industry in Nigeria.

SCOPE OF THE STUDY

This study focuses on business planning, information preference and use among the twenty four recapitalised banks in Nigeria. Managers and Senior Staff members of these twenty-four(24) banks were used as respondents which specifically have their headquarters in Lagos and Abuja. After the recapitalisation and consolidation exercise, the following twenty-four (24) banks emerged:

1. Access Bank Plc
2. Skye Bank Plc
3. Stanbic IBTC Bank Plc
4. United Bank For Africa Plc
5. Union Bank Nigeria Plc
6. Unity Bank Plc
7. Wema Bank Plc
8. Zenith Bank Plc
9. Equatorial Trust Bank Plc
10. Universal Trust Bank
11. Spring Bank Plc
12. Sterling Bank Plc
13. Standard Chartered Bank
14. Platinum Habib Bank Plc
15. Afribank Nigeria plc
16. Diamond Bank Plc
17. Ecobank Nigeria Plc
18. Fidelity Bank Plc
19. First Bank of Nigeria Plc
20. First City Monument Bank Plc
21. First Inland Bank Plc
22. Guaranty Trust Bank Plc
23. Intercontinental Bank Plc
24. Oceanic Bank International

LIMITATION OF THE STUDY

This study is expected to cover all the above listed banks and their branches in Nigeria, which has been conservatively put at about 2000. The geographical locations of these branches and largeness of the country have made it difficult for the researchers to administer questionnaire on all the branches of the twenty-four (24) banks. However, Headquarters and major branches of these banks are located in Lagos and Abuja, which constitute the focus of the research.

HYPOTHESES

1. There is on significant difference in the business planning and bank productivity in Nigeria;
2. There is no significant difference in information preference and use of bank workers and productivity in Nigeria;
3. There is no significant difference in in the application of ICT and bank activities in Nigeria;
4. There is no significant difference in the information format used by bank workers and performance in Nigeria.

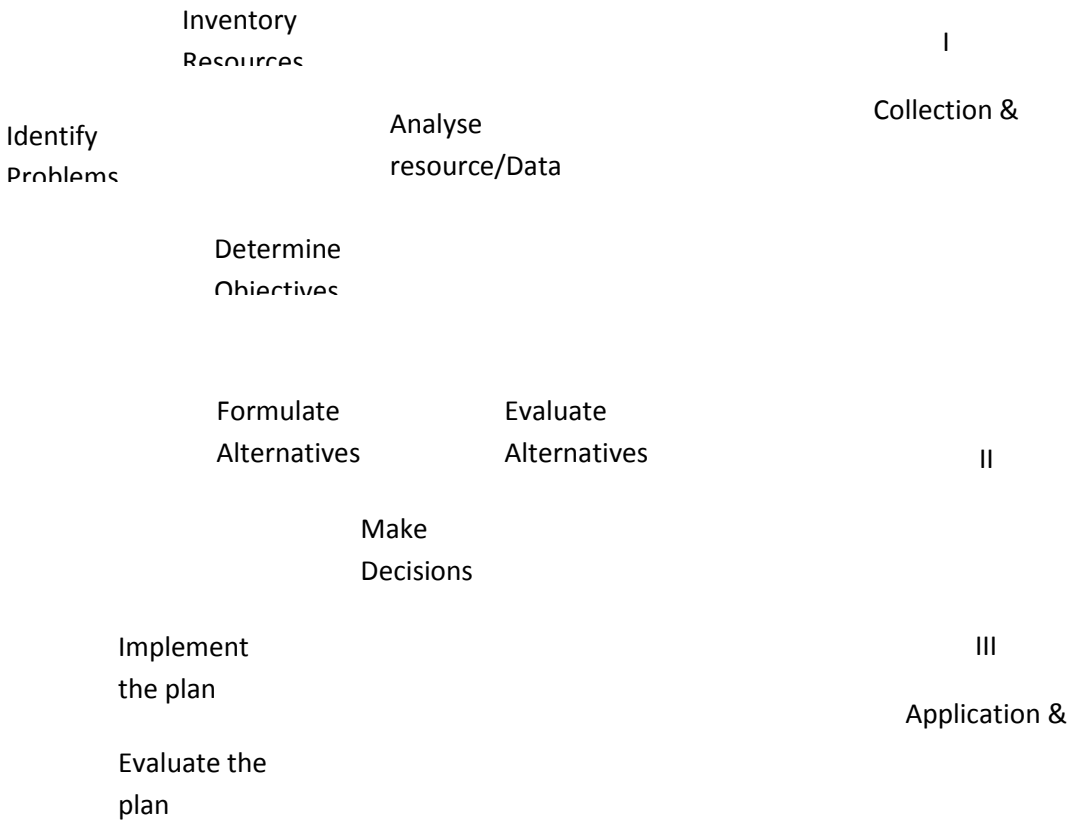
CONCEPTUAL ISSUES

Planning is a management function which is essentially for the survival of any business. It is the process of determining the future direction of an organisation, the formulation and implementation of strategy that will enhance its overall competitiveness. Enzine (2004) describes planning as "a blue print of business growth and a road map that tells you and the world how you expect your company to achieve its stated objectives".

Planning involves deciding on what the objective of an organisation will be, both quantitatively and qualitatively, while keeping in view the resources available to the organisation, simply put, planning involves setting up goals and objectives to be achieved. It also involves the selection from alternative courses of action and available resources the best option suitable for the achievement of these objectives. Planning is regarded as a vital step in business without which success cannot be achieved it enables a firm to decide on how to balance resources, supply and demand. Planning reduces the likelihood of a venture collapsing, and essential to the success of any venture.

Planning can be short term or long term or both. Wikipedia (2004) states that a business plan can be "long, range, intermediate range and short range policies carefully formulated to ensure that an organisation succeeds in the face of stiff competition. It ensures that an organisation is constantly looking ahead, help to avoid mistakes and in recognizing hidden opportu-

Diagram 1. Business Planning Conceptual Model



nities. Planning requires a high level of inauguration ability to analyze create and having the capacity to choose and be committed to a course of action. Planning is not done offhand; it is a result of careful and extensive research. Planning is pervasive and encompassing at all management levels. This means that all other levels / units within the organisation are involved in planning its own activities in line with the goals and objectives of the organisation and the objective of each unit. Even, individual manager must plan at his/her own level. Since planning is a major step in a new venture, writing of business plan is essential as a component of planning. It contains the detailed plans and budgets showing how the objectives are to be realised. Ezine (2004) considers a business plan as an internal document that is considered as useful tool in business. It is a comprehensive document that clearly describes how the entrepreneur intends to operate its business as follows:

(a). A detailed outline of resources needed to realise the developmental objectives of the business.

(b). Sources of resources

(c).How resources are to be utilized

(d). Method of periodic evaluation of the plan

PURPOSE OF PLANNING

It is important to determine the purpose of any business in order to have a clear reason for its existence. Without a clear knowledge of its purpose, a business will destabilize, falter and may eventually fail. Planning helps managers to clarify focus of their business or project development and prospect. It equally provides a logical framework within which a business can develop. And it helps to determine the business focus and strategy over the next few years. There are different levels of planning and strategy in decision making in business. A number of researcher have tried to distinguish between these different levels. The levels are: strategic level, business level, operational level, and functional level. All the levels are interrelated and can be represented as diagrammatically done below. These levels also constitute models for planning.

SOURCE: SELF-GENERATED

The banking industry usually identities goals and objectives through a clear planning, and mission statement about the business they are involved in. this are usually encapsulated in the long term vision of what the organisation tends to achieve, e.g. to be the Nigeria leading provider of financial services. Banks in Nigeria have subsidiaries through which to further achieve their broad objective, such subsidiaries can be involved in capital market, retail and commercial banking, corporate financing, leasing e.t.c.

INFORMATION PREFERENCE AND USE

Making use of information is an important part of coping with challenges faced by employees on their jobs. This include communicative and cognitive activities like seeking, avoiding, providing, appraising and interpreting information. It is also complex in that employees information preference and use vary over the course of their jobs along with the availability and quality of information.

Preference is a basic concept in information studies but one which is difficult to define. Essentially it implies the type of information and the form of which an individual wants his/her information delivered. Information preference of bank managers may differ from that of other fields of human endeavour. Their information preference can also be influenced by the source of the information content, medium and lan-

Table 4.1: Distribution of Respondents by Sex

Sex	Frequency	%
Male	178	59.3
Female	122	40.7
Total	300	100.0

guage of communication, time and nature of information. Interest in the information sought, authenticity of the source, motives and past experiences in similar content do affect information preference (Vickery and Vickery, 1987) Being very busy group of workers, it has been observed that bank managers at times send their subordinates to gather information for them; this subordinates oftentimes, even interprets the information for them. Consequently, information preference and use by banks can be determined by the content; medium and format; and time schedule.

Table 4.2: Distribution of Respondents by Marital Status

Marital Status	Frequency	%
Single	92	30.7
Married	208	69.3
Total	300	100.0

ICT AND PRODUCTIVITY IN THE BANKING INDUSTRY

The internet offers an incredible and unprecedented communication and transactions to the banks connected to the Web. Most banks in Nigeria are now internet connected, advancing their objectives of creating new ideas, new product lines and expanding markets. Starting as a new medium for communications and information, the internet has quickly metamorphosed into a lace of learning and transactions. Accordingly, its initial impact in the banking industry in Nigeria has been on increasing productivity. (Ekanem, 2003).

Ishaq (2002) states that the full promise of the digital revolution lies in the blossoming of a creativity revolution world wide". The development of new creative capacities should be the challenge of all personnel and banking organisations. With universal access and an internet – literate work force, the digital revolution can be the engine of growth in the banking industry and the economy as a whole. In the industry, the efficiency and ingenuity that separate them from their counterparts in the advanced nations of the world are being bridged. It is advisable that all banks should be Internet Connected. This vital link results in a new and potent avenue for exchange of ideas, expedition of transaction and foster world-wide collaboration in the industry.

Table 4.3: Distribution of Respondents by Age Group

Age	Frequency	%
Less than 36 years	74	24.7
36-40 years	104	34.7
41-45 years	95	31.7
46-50 years	18	6.0
Above 50 years	9	3.0
Total	300	100.0

RESEARCH DESIGN

Survey design is used to provide data for a study from respondents spread over a large geographical area, and numerous. In this case the respondents are managers in banks operating all over Nigeria. There are twenty-four (24) of such banks (commercial and consolidated ones). The banks have about 2000 branches scattered all over the country.

STUDY POPULATION

The study population is limited to the banks found at their respective headquarters and branches in Lagos and Abuja. Twelve (12) bank managers were randomly selected from each of the twenty four (24) banks' headquarters and branches, except FirstBank, Intercontinental Bank, Guaranty Trust Bank ,and UBA where thirteen (13) bank managers and senior personnel were selected from each of these four banks because of the higher number of staff found, making a total of three hundred (300) Bank Managers and Senior Staff.

SAMPLING AND SAMPLE SIZE

As stated above, all the banks found in Nigeria constitute the population for this study. However, the twelve (12) copies of the questionnaire earmarked for each of the banks were randomly given to the various managers found in the banks, and other senior personnel of the banks. The respondents were given a copy each of the questionnaire with a plea to complete and return them.

RESEARCH INSTRUMENT

Questionnaire is the main instrument employed to gather data for this study. This has been proved effective in gathering reliable, valid, and usable data in survey research. The questionnaire used for this study is divided into six (6) sections. The sections are;

A) Demographic data / information
B) Business planning
C) Information preference and use

DATA ANALYSIS AND INTERPRETATION

These aspects deals with the result of the analysis and interpretation in line with the objectives, research question/hypothesis postulated for the study.

The table above presents the distribution of respondents by sex. According to the result of the analysis, 178(59.3%) of the respondents were male while 122(40.7%) were female. This shows that majority of the respondents who constitute the target population were male.

The table above presents the distribution of respondents by marital status. According to the result of the analysis, 92(30.7%) of the respondents were single while 208(69.3%) were married. This shows that majority of the respondents who constitute the target population were married.

The table above presents the distribution of respondents by age group. According to the result of the analysis, 74(24.7%) of the respondents were below 36 years, 104(34.7%) of the respondents were between 36-40 years, 95(31.7%) were between 41-45 years and 18(6.0%) were between 46-50 years while 9(3.0%) were above 50 years. This shows that majority of the respondents were between 36-45 years of age.

Table 4.4: Distribution of Respondents by Rank in the service

Rank	Frequency	%
Manager	92	30.7
Accountant	9	3.0
Supervisor	162	54.0
Cashier	28	9.3
Auditor	9	3.0
Total	**300**	**100.0**

The table above presents the distribution of respondents by rank in the service. According to the result of the analysis, 92(30.7%) of the respondents were manager, 9(3.0%) of the respondents were accountant, 162(54.0%) were Supervisor and 28(9.3%) were cashier while 9(3.0%) were auditor. This shows that majority of the respondents were supervisor.

The table above presents the distribution of respondents by working experience. According to the result of the analysis, 92(30.7%) of the respondents had between 6-10 years of working experience and 141(47.0%) had between 11-15 years of working experience while 67(22.3%) had between 16-20 years of working experience. This shows that majority of the respondents had between 11-15 years of working experience.

Table 4.5: Distribution of Respondents by Working Experience

Experience	Frequency	%
6-10 years	92	30.7
11-15 years	141	47.0
16-20 years	67	22.3
Total	**300**	**100.0**

The table above presents the distribution of respondents by educational qualifications. According to the result of the analysis, 50(16.7%) of the respondents had first degree qualification, 72(24.0%) had second degree qualification, 9(3.0%) had third educational qualification 49(16.3%) had professional qualification and 66(22.0%) had professional and first degree qualification while 54(18.0%) had professional and second degree qualification. This shows that majority of the respondents were had second

Table 4.6: Distribution of respondents by educational qualification

Qualification	Frequency	%
First Degree	50	16.7
Second Degree	72	24.0
Third Degree	9	3.0
Professional	49	16.3
Professional + First Degree	66	22.0
Professional + Second Degree	54	18.0
Total	**300**	**100.0**

Table 4.7: Regression Analysis Showing Significant Influence of Business Planning and Self Management on Bank Performance

Variable	Coefficient	Standard error	T-Statistic	Probability
Constant	6.53	2.21	2.953	0.003
Business Planning	0.428	0.058	7.415	0.000
Information Preference and Use	0.044	0.050	0.877	0.381
R^2	0.160			
Adjusted R^2	0.154			
F- Statistics	28.206			

to the result of the analysis, 92(30.7%) of the respondents had between 6-10 years of working experience and 141(47.0%) had between 11-15 years of working experience while 67(22.3%)

degree qualification.

Mathematically,

BKP = αo + β1BP + β1SMUn ----------i

Where:

BKP = Bank Performance

BP = Business Planning

Therefore,

BKP = 6.533 + 0.428BP + 0.044SM + Un ----------ii

(7.415)* (0.877)

DISCUSSION

Evaluation of the result presented above showed that the observed t-ratios were significant at the 5% two-tail test, for business planning that is, [tc α/2] > [tT α/2]. The observed F-ratio, which measured the joint effect of all the explanatory variables on the dependent variable, was significant at both the 5 % and 1 % level. The R2 of 16.0% reveal the total explanatory power of the model. Put differently, the model explains 16% of the total variation in bank performance as explained by business planning and self management. The low goodness of fit is as a result of the fact that there are some other important variable that are not included in the model.

The sign of the co-efficient of the explanatory variable followed a prior expectation. Thus, an increase in business planning and self management of the staff in the banking sector will lead to an increase in bank profitability. The implication of this is that for an organization like banking sector to survive, business planning and self management is very important.

Table 4.8: Chi-square analysis showing the impact of educational training on development

Parameter	Observed N	Expected N	Chi-Square	Probability	Remark
Averagely Related	75	150	75.00	0.00	Significant
Highly Related	225	150			
Total	**300**	**300**			

The table above present a chi-square analysis showing the impact of educational training on career development in banking sector. The result of the analysis presented above shows that 75 respondents were of the opinion that educational training were averagely related to career development while 225 respondents were of the opinion that educational training were highly related to career development in the banking sector.

Nevertheless, the chi-square value of 75.00 whose probability close to zero percents shows statistically that educational training were highly related to career development in the banking sector.

Table 4.9: Chi-square analysis showing the impact of ICT on career development in the banking sector

Parameter	Observed N	Expected N	Chi-Square	Probability	Remark
Very Significant	165	75.0	172.66	0.00	Significant
Fairly Significant	40	75.0			
Significant	80	75.0			
Not at all	15	75.0			
Total	**300**	**300**			

The table above presents a chi-square analysis showing the impact of ICT on career development in banking sector. The result of the analysis presented above shows that 165 respondents were of the opinion that ICT has very significant effect on career development, 40 respondents opined that ICT has a fairly significant effect on career development and 80 respondents opined that ICT has a significant effect on career development while 15 respondents were of the opinion that ICT has no effect on career development.

Nevertheless, the chi-square value of 172.66 whose probability close to zero percents shows statistically that ICT has very significant effect on career development.

DISCUSSIONS OF THE FINDINGS

The study dealt extensively on business planning, information preference and use among managers in Nigeria banking industry. The study reveals among others that for any financial institution to thrive well, they must plan ahead in order to determine the future direction of the organization. Planning is not a waste of time but an important pre-requisite for any successful organization. Planning reduces the likelihood of a venture collapsing which is essential to the success of the venture. The study also reveals that increase in business planning will lead to increase in profitability. And this is the ultimate goals and objective of any organization. It also reveals that making use of digitalised information in banking sector is an important part of coping with challenges faced by employee on their jobs, this will enhance the performance and productivity of the sector. The 172.66 value with the zero percents probability of ICT applicability in the activities of banks in Nigeria is an indication that, the device has significant effect on bank workers performance

CONCLUSION

Banks in Nigeria must take into account proper adequate planning, information preference and use for better performance and to be in line with the ultimate mission, aim and objective of the organization. To this regard, the efficiency and ingenuity that separate banking sector in Nigeria from their counterpart in the developed nation need to be join together through stable internet connectivity, planning ahead of major and minor activities and genuine consolidation of e-banking system that has come to stay.

RECOMMENDATIONS

1. Management of each of the banks in Nigeria must take into consideration proper provision and maintenance of efficient information system in order to achieve maximum profit. They should provide this information by establishing and maintaining libraries and information services.

2. Proper planning must be carried out before the establishment of any financial institution.

3. The bank management should recognize the rights of their managers and other personnel to necessary specialized information services

such as automated reference services, current awareness services, and selective dissemination of information can be provided to further enhance their productivities and self-development.

4. Information technology application to banking activities, and services of the banks should be improved upon to further enhance effectiveness.

5. The existing banks in Nigeria should be made to carry out overhauling of the operations by ensuring appraisal of the strategies and approach to information use and preference

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Source of agricultural information among the paddy growers in Nagapattinam district: A study

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ABSTRACT

India is a land of farmers and their socio economic development depends to a larger extent on the education of the farmers and their information level. They need information to become enlightened and rational so as to take quick and correct decisions to improve rural life. This paper deals with the socio economic status of paddy growers in Nagapattinam District Tamil Nadu, and tries to find out the knowledge level of the paddy growers and also the mass media sources adopted by the farmers to seek the required agricultural information.

Keywords: Mass media, agricultural information, knowledge level, paddy growers

INTRODUCTION

India is a land of farmers and their socio economic development depends to a larger extent on the education of the farmers and their information level. They need information to become enlightened and rational so as to take quick and correct decisions to improve rural life. The realisation among the various nations that information is power and is an indispensable resource for the development of all types of industries. For the continuous improvement of every facet of agriculture and farming information remains an essential input.

A perfectly appropriate, timely useful and accessible technology will be of no use if it does not have a systematic and effective dissemination strategy. This study is aimed to find out the source of agricultural information seeking behaviour among the paddy growers in Nagapattinam District, Tamil Nadu.

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OBJECTIVES

The main objectives of the study are

1. To study the socio economic status of the paddy growers in Nagapattinam district.

2. To find out the frequency of mass media sources adopted by the paddy farmers for seeking information.

3. To examine the level of knowledge about paddy cultivation practices in Nagapattinam district.

METHODOLOGY

To achieve the objectives a well structured questionnaire was prepared by the investigator and interview method has been used to collect the data. The investigator personally visited the farmers and got the responses from

the farmers directly and the farmers were classified according to their farm size.

SAMPLE FOR THE STUDY

Nagapattinam district consists of 11 agricultural blocks and stratified random sampling method has been adopted to select 40 respondents from each block, therefore the sample totals to 440.

ANALYSIS AND INTERPRETATION

Table 1 indicates distribution of respondents according to their farm size and are classified into three categories such as small, medium and large farmers. It is found that the district highly consist of the farmers who have possessed small cultivation lands. They are accounted to 155 (33.23%). They have owned 2.5 acres.

The next category found is medium scale farmers. They have owned the farming lands upto 5 acres. They are calculated to 143 (32.50%). Whereas the large scale farmers have been observed more or less same in number of medium scale. They are accounted to 142(32.27%).

From the analysis it is found in the Nagapattinam District that small scale farmers are high in numbers compared to others.

Table 2 indicates the socio economic status of farmers in Nagapattinam district. In which the age wise analysis, Income wise analysis and education wise analysis have been made.

Table 1

Distribution of respondents according to farm size

Sl. No	Category of paddy growers	Wet land (Acre)	No. of respondents	%
1	Small scale	2.5	155	35.23
2	Medium scale	2.5-5	143	32.50
3	Large scale	above 5	142	32.27
	Total		440	100

Table – 2

Socio Economic status of farmers in Nagapattinam district

Categories of paddy growers	AGE			ANNUAL INCOME			EDUCATION			Total
	Upto 35 years	36 -45 years	above 45 years	Below 50,000	51,000-2 lakhs	Above2 lakhs	Illiterate	Upto school	Graduate	
Small scale	40 (25.81)	58 (37.42)	57 (36.77)	60 (38.71)	75 (48.39)	20 (12.90)	25 (16.13)	84 (54.90)	46 (29.68)	155
Medium scale	30 (20.98)	58 (40.56)	55 (38.46)	18 (12.59)	72 (50.35)	53 (37.06)	10 (6.99)	78 (54.54)	55 (38.46)	143
Large scale	28 (19.72)	51 (35.91)	63 (44.37)	-	52 (36.62)	90 (63.38)	-	62 (43.66)	80 (56.34)	142
Total	98 (22.27)	167 (37.95)	175 (39.77)	78 (17.73)	199 (45.23)	163 (37.04)	35 (7.95)	224 (50.91)	181 (41.14)	440

While analyzing the age of farmers among the three categories, the age group above 45 years stands first in numbers. Out of 440 farmers they are accounted to 175(39.77%) followed by the age group of between 36-45 years 167 (37.95) and upto 35 years 98(22.27).

While analyzing the annual income of farmers among three categories, the annual income group 51, 000 – 2 lakhs stands first in numbers. Out of 440 farmers they are accounted to 199 (45.23%) followed by above 2 lakhs income group 163 (37.04%) and below 50,000 income group 78(17.73%).

While analyzing the education of farmers among three categories, the education group upto School stands first in numbers. Out of 440 farmers they are accounted to 224(50.91%) followed by graduate 181(41.14%) and illiterate 35(7.95%).

Table-3 shows that frequency of information utilization through the various mass media sources by paddy growers. The mass media sources include Posters, Charts, Newspapers, Radio and Television.

Among 440 farmers, 215 (48.86%) of farmers highly make use of the information displayed by poster. 183 (41.59%) of farmers observed with the frequency of sometimes. Yet 9.54 percent of farmers are noted that they are never benefited by posters.

While analyzing the information displayed through charts it is observed that 49.77 percentage of farmers are informed through

Table -3

Frequency of information utilization through various media sources

Categories of paddy Growers	Poster			Total
	Always	Sometimes	Never	
Small scale	70 (45.16)	68 (43.87)	17 (10.97)	155
Medium scale	85 (59.44)	50 (34.96)	8 (5.59)	143
Large scale	60 (42.25)	65(45.77)	17 (11.97)	142
Total	215 (48.86)	183 (41.59)	42 (9.54)	440
Categories of paddy Growers	**Chart**			
	Always	**Sometimes**	**Never**	**Total**
Small scale	65 (41.93)	63 (40.64)	27 (17.42)	155
Medium scale	83 ((58.04)	46 (32.17)	14 (9.79)	143
Large scale	71 (50.00)	56(39.44)	15 (10.56)	142
Total	219(49.77)	165 (37.50)	56 (12.73)	440
Categories of paddy Growers	**Newspaper**			
	Always	**Sometimes**	**Never**	**Total**
Small scale	63 (40.64)	65 (41.93)	27 (17.42)	155
Medium scale	82 (57.34)	52 (36.36)	9 (6.29)	143
Large scale	68 (47.89)	60 (42.25)	14 (9.86)	142
Total	213 (48.41)	177(40.23)	50 (11.36)	440
Categories of paddy Growers	**Radio**			
	Always	**Sometimes**	**Never**	**Total**
Small scale	65 (41.93)	55 (35.48)	35 (22.58)	155
Medium scale	48 (33.57)	74 (51.75)	21 (14.68)	143
Large scale	57 (40.14)	70 (49.29)	15 (10.56)	142
Total	170 (38.64)	199 (45.23)	71 (16.14)	440
Categories of paddy Growers	**Television**			
	Always	**Sometimes**	**Never**	**Total**
Small scale	**75 (48.39)**	**68 (43.87)**	**12 (7.44)**	**155**
Medium scale	**73 (51.05)**	**62 (43.36)**	**8(5.59)**	**143**
Large scale	**66 (46.48)**	**67 (47.18)**	**9 (6.34)**	**142**
Total	**214 (48.64)**	**197 (44.77)**	**29 (6.59)**	**440**

charts whereas 12.73 percentage of farmers are not femiliar with charts and they have never been benefited by charts.

In general newspaper stand the main source of information dissemination. In this study majority of farmers are found with the habit of reading newspapers and they are calculated to 48.41 percentage whereas 11.36 percentage of farmers are not disseminated the information through newspapers as they may not be able to read them.

Radio is one of the media through the information can be broadcast. The study has revealed that the source of radio becomes out moded nowadays that's why they are highly found in the second frequency of sometimes 45.23 percentage.

Television the main source of information dissemination is observed high in usage witnessing 48.64 percentage. Even the second frequency studied also proved 44.77 percentage only 6.59 percentage of farmers are not informed through television.

Table 4 indicates distribution of respondents about the knowledge of cultivation practice of different seasons and varieties. Out of

Table - 4

Distribution of respondents on to knowledge about season and varieties

Categories of paddy Growers	**Kuruvai season**		
	Right response	Wrong response	Total
Small scale	**139 (89.68)**	**16 (10.32)**	**155**
Medium scale	**136 (95.10)**	**7(4.89)**	**143**
Large scale	**137(96.48)**	**5(3.52)**	**142**
Total	**412 (93.64)**	**28(6.36)**	**440**
Categories of paddy Growers	**Samba season**		
	Right response	Wrong response	Total
Small scale	145 (93.55)	10 (6.45)	155
Medium scale	134 (93.71)	9(6.29)	143
Large scale	135(95.07)	7(4.93)	142
Total	414 (94.09)	28(6.36)	440
Categories of paddy Growers	**Late samba**		
	Right response	Wrong response	Total
Small scale	135 (87.10)	20 (12.90)	155
Medium scale	130 (90.91)	13(9.09)	143
Large scale	137(96.48)	5(3.52)	142
Total	402 (91.36)	38(8.64)	440
Categories of paddy Growers	**Suitable variety for samba season**		
	Right response	Wrong response	Total
Small scale	140 (90.32)	15 (9.68)	155
Medium scale	132 (92.31)	11(7.69)	143
Large scale	136(95.77)	6(4.22)	142
Total	408 (92.73)	32(7.27)	440
Categories of paddy Growers	**Suitable variety for Kururvai season**		
	Right response	Wrong response	Total
Small scale	143 (92.26)	12 (7.74)	155
Medium scale	137 (96.48)	6 (4.19)	143
Large scale	138 (97.18)	4(2.82)	142
Total	418 (95.00)	22(5.00)	440
Categories of paddy Growers	**Suitable variety for thaladi season**		
	Right response	Wrong response	Total
Small scale	142 (91.61)	12 (7.74)	155
Medium scale	137(96.48)	6(4.19)	143
Large scale	138(97.18)	4(2.82)	142
Total	418 (95.00)	22(5.00)	440
Categories of paddy Growers	**Hybrid rice variety**		
	Right response	Wrong response	Total
Small scale	135(87.10)	20 (12.90)	155
Medium scale	137(95.80)	6(4.19)	143
Large scale	138(97.18)	4(2.82)	142
Total	410 (93.18)	30(6.82)	440

440 farmers, majority of the farmers have samba season which are account to 93.64 and 94.09 respectively yet 6.36 percentage of users are not aware of these season. Same 91.36 percentage of users are observed with the knowledge of late samba season.

Among 440 farmers, 408 (92.73%) gave right response about the knowledge of suitable variety to be sown and 32(7.27%) of farmers do not have knowledge about suitable variety of samba season to be sown.

With regard 440 farmers, 418(95%) gave right response and 22 (5%) have given wrong response towards the knowledge of suitable variety for kuruvai and thaladi season.

Out of 440 farmers, 410(93.18%) have given right response towards the knowledge of hybrid rice and 30(6.82%) of farmers do not have knowledge about hybrid rice variety.

FINDINGS OF THE STUDY

The study reveals the following findings.

- The finding shows that majority of the farmers belongs to small scale farmers.
- The finding shows that majority of the paddy growers belongs to the age group of "above 45 years".
- The finding shows that majority of the farmer annual incomes comes under 54000 to 2 lakhs and it is also shows that most of them completed upto school level education.
- The findings of frequency of information utilization through various media sources shows that posters, charts, newspaper and television are the most frequently used information sources for their cultivation practice.
- The finding of the knowledge of the farmer about season and variety selection shows that majority of them have a good knowledge in the same

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Use of Information Sources by the Bachelor of Technology Students: A Case Study of the Shobhit University

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Akhtar Hussain**

ABSTRACT

This study examines the use of information sources by the Bachelor of Technology Students of the Shobhit University, Meerut. A well structure questionnaire was used for collecting opinions of the B.Tech. students about information use. Out of 175 questionnaires, only 141(80.57%) questionnaires were selected for analysis of data and 34(19.42%) questionnaires were rejected because of incomplete response from the respondents. The present study demonstrates and elaborates the various aspects of library collections uses within the available resources, frequency and purposes of visit, utilization of library services, and utility of various primary and secondary sources of information. Conclusion

INTRODUCTION

Information is regarded as a critical resource, ranking just after air, water, food, and shelter (Kemp, 1976). People need information for making decisions. They may acquire information through the research process, which is the process of finding ideas, facts, and new information by systematic study. The new facts and ideas will be based on existing ones, which are found in the existing literature. Information is acquired, processed, and disseminated through the university library, "a place, where books and users interact together for the transmission of civilization and cultivation of human beings" and "the most important resource in the pursuit of the general goals and objectives of the institution of higher learning" (Nwosu 2000). For the library manager, it is necessary to understand how resources are being used, the changing needs of users, and their levels of satisfaction. The present study looks at the use of information by the Bachelor of Technology (B.Tech.) Students at Shobhit University.

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ABOUT UNIVERSITY

The Shobhit University was founded on 8th February, 2007 on the birthday of Babu Vijendra Kumar. It has been granted Deemed-to-be University status by the Government of India, Ministry of Human Resource Development, Department of Higher Education of the University Grants Commission Act 1956. It offers undergraduate, graduate and professional programs to the national and international student community adopting best practices. It is also engaged in research on the issues that are relevant to industries and global community at large.

The Shobhit University aims to create a conducive, enabling academic climate to facilitate integration of the younger generation into the logic of the present system and to develop educational means by which men and women

deal critically and creatively with reality and discover how to participate in the transformation of their world.

OBJECTIVES OF THE STUDY

- To discover how frequently B.Tech. students visit the library.
- To discover the purpose of visits to the library.
- To discover users' opinions about the use of library collections.
- To know the use of library services by the B.Tech. students.
- To know the uses of primary and secondary sources of information according to sex and class-wise of the B.Tech. students.

3. Hypothesis

- The Bachelor of Technology Students of the Shobhit University visit the library for study and research purposes.
- Need based collection of the library may fulfill information requirements of the society in a better way.
- Better services of the libraries may contribute in scientific growth and development.

REVIEW OF RELATED LITERATURE

A number of few studies have been abided on use of information sources by the Bachelor of Technology students. Siddiqui (2001) conducted a study on the use of library collection of Jawaharlal Nehru University Library. A questionnaire was used to collect the data, which covered 99 scholars. The study found that 69 percent visit the library daily, and 31 percent found the library collection adequate to meet their information needs. Kawatra (1988) undertook a study on attitudes of research scholars towards use of resources and services. A sample of 109 research scholar drawn from three universities of Rajasthan found that a majority of scholars visit the library one to four times a week and scholars at all the three universities are not adequately involved in using the sources. Mallaiah and Badami (1993) studied the use of services and facilities of Mangalore University Library, covering 60 scholars. The majority of the research scholars visited the library for borrowing books, consulting periodicals, and more than half complained about the non-availability of current issues.

METHODOLOGY

A questionnaire was used for collecting opinions of the B.Tech. students about information use. There are 405 B.Tech. students. A total of 175 questionnaires were administered and 141 filled in questionnaires were obtained from the Shobhit University which belonged to different trade of B. Tech. Out of 175 questionnaires, only 141(80.57%) questionnaires were selected for analysis of data and 34(19.42%) questionnaires were rejected because of incomplete response from the respondents.

DATA ANALYSIS AND RESULTS

Data collected from the questionnaires were analyzed using in tabular form, along with brief descriptions. Statistical analysis of the data for the present study was done by applying

1. Simple percentage
2. Chi-square test

Chi-square was used to compare an observed group of frequencies with an expected group of frequencies. This allowed expected frequencies to be deduced from the null hypothesis.

χ^2 is calculated as follows:

$$\chi^2_{ob} = \sum_{i-1}^{n} \frac{(o_i - e_i)^2}{e_i}$$

where: i = 1, 2, ..., n

o_i is the obtained frequency

e_i is the expected frequency calculated as:

e_i = (Total items observed/number of items)

χ^2 represents the obtained /calculated chi-square value

χ^2_{cv} represents the critical chi-square value obtained from chi-square tables

df. Represents the degree of freedom calculated as: (c--1) (r--1), [c=columns, r=rows]

The probability (P) indicates the level of statistical significance. The significance level is P equal to 0.05 and 0.01 or less than 0.01. The lesser then P, the higher the significance. The results of the analyses are presented under the different heading:

Table 1 contains the information relating to the sex of the students. The analysis shows that majority of the student's belonged to male category i.e. 78.7% from the selected sample and only 21.3% belonged to the female category.

is calculated as follows:

Table 1: Sex of the Students

Sex	Response	%age	Valid %	Cumulative %
Male	111	78.7	78.7	78.7
Female	30	21.3	21.3	100.0
Total	141	100.0	100.0	

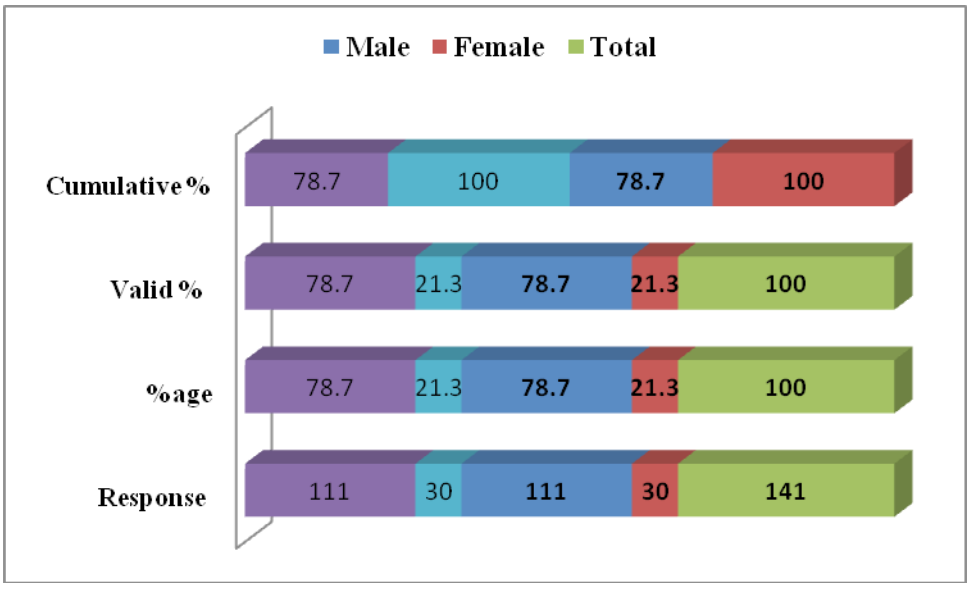

Fig.1 Sex of the Students

Table 2: Class of the Students

Class of the students	Response	%age	Valid %	Cumulative %
B.Tech. 1st Year	30	21.3	21.3	21.3
B.Tech. 2nd Year	65	46.1	46.1	67.4
B.Tech. 3rd Year	38	27.0	27.0	94.3
B.Tech. 4th Year	8	5.7	5.7	100.0
Total 141	100.0	100.0		

Table 2 shows the class of the students according to their years of B.Tech. It is found that the maximum students belonged to 2^{nd} year i.e. 4^{th} 46.1%, followed by 3^{rd} year, 1^{st} year and year that are 27.0%, 21.3% and 5.7% of the sample.

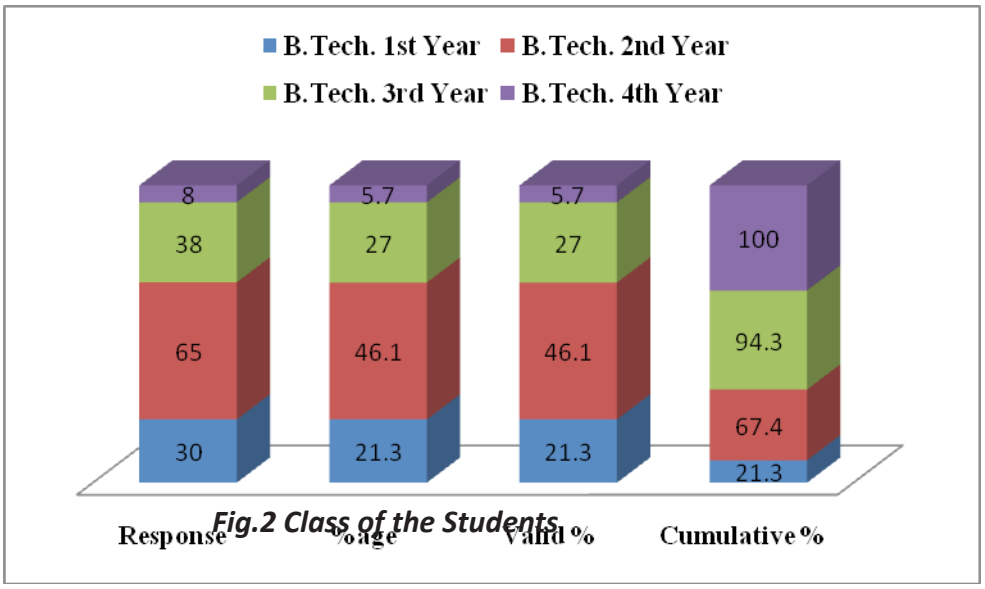

Fig.2 Class of the Students

Table 3 shows that the 39% of the students visit the library twice a week, while 25.50% visit it in weekly. Followed by 20.60% visits their library daily, while 9.90% visit the library monthly. Only 5.0 % students visit the library fortnightly.

The purpose of user's visit to the library was ascertained to find out whether they come to satisfy their information needs for study of the concerned trade. The above table focuses the 13(9.2%) of users visit the library for issued the books as a very frequently as well as rarely while 32(22.7%) users visit to sometimes for issued the books. Followed by 39(27.7%) users visit the library for use of periodicals as frequently, whereas 25.(17.7%) are using periodicals,28(19.9%) reference books and 31(22%) users read newspaper/magazines as sometimes, 45(31.9%) users use audio-visual

Table 3: Frequency of Visit to the Library

Frequency	Response	%age	Valid %	Cumulative %
Daily	29	20.6	20.6	20.6
Twice a week	55	39.0	39.0	59.6
Weekly	36	25.5	25.5	85.1
Fortnightly	7	5.0	5.0	90.1
Monthly	14	9.9	9.9	100.0
Total	141	100.0	100.0	

materials as a very frequently and 22(15.6%) users are using others documents as a frequently.

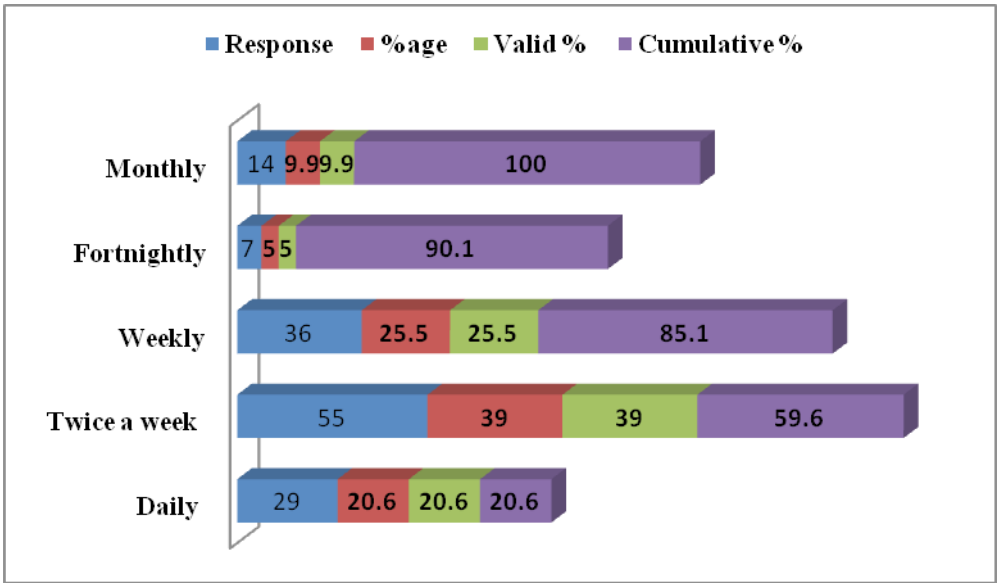

Fig.3 Frequency of Visit to the

Table 4: Purpose of visit to the Library

Purpose of visit	Very Frequently	Frequently	Sometimes	Rarely	Never	Total
To get books issued	13(9.2)	17(12.1)	32(22.7)	13(9.2)	66(46.8)	141(100)
To use periodicals	14(9.9)	39(27.7)	25(17.7)	20(14.2)	43(30.5)	141(100)
To use reference materials	8(5.7)	20(14.2)	28(19.9)	13(9.2)	72(51.1)	141(100)
To read newspaper/ magazines	3(2.1)	17(12.1)	31(22.0)	16(11.3)	74(52.5)	141(100)
To use audio-visual materials	45(31.9)	42(29.8)	15(10.6)	6(4.3)	33(23.4)	141(100)
Any others	16(11.3)	28(19.9)	22(15.6)	10(7.1)	65(46.1)	141(100)

Table 5: Use of Information Sources

Documentary Sources	Very Frequently	Frequently	Sometimes	Rarely	Never	Total
Books	52(36.9)	47(33.3)	26(18.4)	16(11.3)	-	141(100)
Reference books	25(17.7)	36(25.5)	33(23.4)	14(9.9)	33(23.4)	141(100)
Thesis/ Dissertations	7(5.0)	5(3.5)	19(13.5)	20(14.2)	90(63.8)	141(100)
Statistical Tables	5(3.5)	5(3.5)	22(15.6)	16(11.3)	93(66.0)	141(100)
Periodical	8(5.7)	13(9.2)	23(16.3)	24(17.0)	73(51.8)	141(100)
a. Current Journals						
b. Back Volume to the Journals	3(2.1)	14(9.9)	25(17.7)	25(17.7)	74(52.2)	141(100)
c. General Magazines	8(5.7)	20(14.2)	37(26.2)	20(14.2)	56(39.7)	141(100)
Abstracting Journals	3(2.1)	8(5.7)	20(14.2)	29(20.6)	81(57.4)	141(100)
Indexing Journals	2(1.4)	13(9.2)	21(14.9)	20(14.2)	85(60.3)	141(100)
Survey Articles	8(5.7)	2(1.4)	23(16.3)	17(12.1)	91(64.5)	141(100)
Pamphlets	3(2.1)	7(5.0)	20(14.2)	22(15.6)	89(63.1)	141(100)
Newspapers and its clipping	10(7.1)	15(10.6)	32(22.7)	25(17.7)	59(41.8)	141(100)
Proceeding of Seminars/ Conference	4(2.8)	3(2.1)	19(13.5)	18(12.8)	97(68.8)	141(100)
Official documents	4(2.8)	5(3.5)	15(10.6)	20(14.2)	97(68.8)	141(100)
Monographs and treatises	1(0.7)	3(2.1)	19(13.5)	18(12.8)	100(70.9)	141(100)
Library acquisition list	3(2.1)	8(5.7)	14(9.9)	17(12.1)	99(70.2)	141(100)
Library Catalogue	2(1.4)	8(5.7)	17(12.1)	18(2.8)	96(68.8)	141(100)

The above table indicates that the majority of users are using books 52(36.9%), Reference books 36(25.50%), Thesis/ Dissertations 20(14.20%), Statistical Tables 22(15.60%), Current Journals 24(17%), and Back Volume Journals 25(17.70%) as a very frequently, frequently, rarely, and sometimes. Followed by the majority of users are using information sources i.e. Abstracting Journals 29(20.6), Indexing Journals 21(14.9), Newspapers and its clipping 32(22.7), Proceeding of Seminars/ Conference 19(13.5), Official documents 20(14.2), Monographs and treatises 19(13.5) etc. are using as a sometimes and rarely basis.

circulation services as a frequently. Followed by most of the users are using reference services that are 39(27.7%) as a frequently, whereas 25(17.1%) users are using reference services as a sometimes. Further followed by majority of users are using Indexing service 28(19.9), Abstracting service 31(22.0), Photocopying service 42(29.8) and current awareness service 22(15.6) that is sometimes and frequently basis.

Table 6: Library Services

Library services	Very Frequently	Frequently	Sometimes	Rarely	Never	Total
Circulation service	13(9.2)	17(12.1)	32(22.7)	13(9.2)	66(46.8)	141(100)
Reference service	14(9.9)	39(27.7)	25(17.7)	20(14.2)	43(30.5)	141(100)
Indexing service	8(5.7)	20(14.2)	28(19.9)	13(9.2)	72(51.1)	41(100)
Abstracting service	3(2.1)	17(12.1)	31(22.0)	16(11.3)	74(52.5)	141(100)
Photocopying services	45(31.9)	42(29.8)	15(10.6)	6(4.3)	33(23.4)	141(100)
Current awareness service	16(11.3)	28(19.9)	22(15.6)	10(7.1)	65(46.1)	141(100)

(Note: Figure given in the brackets is percentage)

The table value of Chi-square at 5% probability level for 4 degree of freedom is = 9.49. The calculated value of Chi-square (12.508) is higher than the table value of Chi-square (9.49). Thus the null hypothesis is rejected and

A. Data Analysis According to Sex of the Students

Table 7: Use of Books

Sex of the student		Use of Books					
		Very Frequently	Frequently	Sometimes	Rarely	Never	Total
Male	O	23	29	25	14	20	111
	E	19.7	28.3	26.0	11.0	26.0	111.0
	%	20.7%	26.1%	22.5%	12.6%	18.0%	100.0%
Female	O	2	7	8	0	13	30
	E	5.3	7.7	7.0	3.0	7.0	30.0
	%	6.7%	23.3%	26.7%	0.%	43.3%	100.0%
Total	O	25	36	33	14	33	141
	E	25.0	36.0	33.0	14.0	33.0	141.0
	%	17.7%	25.5%	23.4%	9.9%	23.4%	100.0%
Chi-Square Tests		Valve	Df	Asymp.Sig (2-sided)		Table Value(0.5)	
Pearson Chi-Square		13.127(a)	4	.011		9.49	

The above table indicates that the majority of users are using circulation services as an at times i.e. 32(22.7%), while 17(12.1%) users are using

the difference between sex of the students and their visit to the library to use of documents is significant. Male students go to the library very frequently, frequently and rarely to consult Book

on the other hands female students go the library sometimes and maximum of them never go to the library to consult the books.

The table value of Chi-square at 5% probability level for 4 degree of freedom is = 9.49. The calculated value of Chi-square (16.330) is higher than the table value of Chi-square (9.49). Thus the null hypothesis is rejected and the difference between sex of the students and their visit to the library to use of reference sources is significant. Male students go to the library very frequently, frequently and rarely to use reference sources. Some female students also go to the library sometimes but maximum numbers of user never go to the use reference materials.

Table 8: Use of Reference Sources

Sex of the student		Use of reference materials					
		Very Frequently	Frequently	Sometimes	Rarely	Never	Total
Male	O	15	16	30	22	28	111
	E	11.8	15.7	31.5	17.3	34.6	111.0
	%	13.5%	14.4%	27.0%	19.8%	25.2%	100.0%
Female	O	0	4	10	0	16	30
	E	3.2	4.3	8.5	4.7	9.4	30.0
	%	.0%	13.3%	33.3%	.0%	53.3%	100.0%
Total	O	15	20	40	22	44	141
	E	15.0	20.0	40.0	22.0	44.0	141.0
	%	10.6%	14.2%	28.4%	15.6%	31.2%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	16.330(a)	4	.003	9.49

The table value of Chi-square at 5% probability level for 4 degree of freedom is = (11.07). The calculated value of Chi-square (16.346) is higher than the table value of Chi-square (11.07). Thus the null hypothesis is rejected and the difference between sex of the students and to use of journals/periodicals as a source is significant. Female students use periodicals to updating their knowledge and prepare their notes whereas male students use this service to improve their general awareness and research work. The study indicated that sex of the students and to use of indexing service is also significant. Male students use indexing service as a source of information at under graduation level. It is observed in the survey that sex of the students and to use abstracting

Table 9: Use of Journals/Periodicals

Sex of the student		Use of Journals/Periodicals						
		Updating Knowledge	To Prepare Notes	General Awareness	Research	Any Other	No Use	Total
Male	O	22	9	35	8	1	36	111
	E	25.2	11.8	31.5	7.1	3.1	32.3	111.0
	%	19.8%	8.1%	31.5%	7.2%	.9%	32.4%	100.0%
Female	O	10	6	5	1	3	5	30
	E	6.8	3.2	8.5	1.9	.9	8.7	30.0
	%	33.3%	20.0%	16.7%	3.3%	10.0%	16.7%	100.0%
Total	O	32	15	40	9	4	41	141
	E	32.0	15.0	40.0	9.0	4.0	41.0	141.0
	%	22.7%	10.6%	28.4%	6.4%	2.8%	29.1%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	16.346(a)	5	.006	11.07

service as a source of information is significant. Male students are using abstracting service very frequently, sometimes and rarely as source of information, whereas female students never use abstracting service as a source of information.

The table value of Chi-square at 5% probability level for 4 degree of freedom is = 9.49. The calculated value of Chi-square (6.659) is lower than the table value of Chi-square (9.49). Thus the null hypothesis is accepted and the difference between theory and observation is no significant and there is no significant relationship between sex of the students and their views about to use of conference seminar proceeding as a source of information. It is indicated in the study that there is no significant relationship between sex of the students and their views about to use of conferences seminar proceeding as a source of information. It is also found in the survey that there is no significant relationship between sex of the students and their views about to use education and training course as a source of information.

The table value of Chi-square at 5% probability level for 4 degree of freedom is = 9.49. The calculated value of Chi-square (10.542) is higher than the table value of Chi-square (9.49). Thus the null hypothesis is rejected and the difference between sex of the students and their visit to the library to use reference material is significant. It is observed in the study that male students significantly use abstracting/

Table 10: Use of Conference Proceeding/Seminars

Sex of the student		Use of Conference Proceeding/Seminars					
		Very Frequently	Frequently	Sometimes	Rarely	Never	Total
Male	O	4	3	16	17	71	111
	E	3.1	2.4	15.0	14.2	76.4	111.0
	%	3.6%	2.7%	14.4%	15.3%	64.0%	100.0%
Female	O	0	0	3	1	26	30
	E	.9	.6	4.0	3.8	20.6	30.0
	%	0.0%	0.0%	10.0	3.3%	86.7%	100.0%
Total	O	4	3	19	18	97	141
	E	4.0	3.0	19.0	18.0	97.0	141.0
	%	2.8%	2.1%	13.5%	12.8%	68.8%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	6.659(a)	4	.155	9.49

Table 11: Use of Abstracting/Indexing Periodicals

Sex of the student		Use of Abstracting/Indexing Periodicals					
		Very Frequently	Frequently	Sometimes	Rarely	Never	Total
Male	O	2	8	15	28	58	111
	E	2.4	6.3	15.7	22.8	63.8	111.0
	%	1.8%	7.2%	13.5%	25.2%	62.3%	100.0%
Female	O	1	0	5	1	23	30
	E	6	1.7	4.3	6.2	17.2	30.0
	%	3.3%	0.0%	16.7%	3.3%	76.7%	100.0%
Total	O	3	8	20	29	81	141
	E	3.0	8.0	20.0	29.0	81.0	141.0
	%	2.1%	5.7%	14.2%	20.6%	57.4%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	10.542(a)	4	.032	9.49

indexing journals as a source of information. But is observed in the study that a small portion of female students use abstracting/indexing journals significantly sometimes as a source of information. It is also observed in the study that sex of the students and their visit to the library to use of abstracting and indexing periodical is significant. Male students use of abstracting and indexing periodical as a source of information significantly very frequently. Frequently and rarely but female students never used of abstracting and indexing periodical as a source of information. It is found in the survey that sex of the students and their visit to the library to use of abstracting and indexing periodical is significant. Male students used of abstracting and indexing periodical as a source of information sometimes and rarely but maximum female students did not use these facilities as a source of information.

B. Data Analysis According to Class-Wise

The table value of Chi-square at 5% probability level for 12 degree of freedom is= 21.03. The calculated value of Chi-square (23.299) is higher than the table value of Chi-square (21.03). Thus the null hypothesis is rejected and difference between class of the students and their consideration about library collection is significant. B.Tech.1st year and students considered library collection adequate and fair but B.Tech.2nd year students looked it fair and inadequate. B.Tech. 3rd and 4th year students considered it excellent an adequate.

The table value of Chi-square at 5% probability level for 12 degree of freedom is = 21.03. The calculated value of Chi-square (34.000) is higher than the table value of Chi-square (21.03). Thus the null hypothesis is rejected and the difference between class of the students and use Statistical Tables as a source of information is significantly not used by the B.Tech students as a source of information is significant. B.Tech. 1st Year students never use general magazines as a source of information but B.Tech. 2nd Year (near about 31%), B.Tech. 3rd Year and B.Tech.4th year students used general magazines as a source of information very frequently, frequently, sometimes and rarely.

Table 12: Use of Books

Class of the students		Use of Books					Total
		Excellent	Adequate	Fair	Inadequate	Poor	
B.Tech. 1st	O	1	11	15	2	1	30
	E	2.6	11.3	12.1	3.6	.4	30.0
	%	3.3%	36.7%	50.0%	6.7%	3.3%	100.0%
B.Tech. 2nd year	O	5	17	31	12	0	65
	E	5.5	24.4	26.3	7.8	.9	65.0
	%	7.7%	26.2%	47.7%	18.5%	.0%	100.0%
B.Tech. 3rd year	O	5	18	11	3	1	38
	E	3.2	14.3	15.4	4.6	.5	38.0
	%	13.2%	47.4%	28.9%	7.9%	2.6%	100.0%
B.Tech. 4th	O	1	7	0	0	0	8
	E	7	3.0	3.2	1.0	.1	8.0
	%	12.5%	87.5%	.0%	.0%	.0%	100.0%
Total	O	12	53	57	17	2	141
	E	12.0	53.0	57.0	17.0	2.0	141.0
	%	8.5%	37.6%	40.4%	12.1%	1.4%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	23.299(a)	12	.025	21.03

Table 14: Use of Informal Sources of Information

Class of the students		Use of Informal Sources of Information					Total
		Very frequently	Frequently	Sometimes	Rarely	Never	
B.Tech. 1st year	O	1	0	6	3	20	30
	E	.6	1.5	4.3	4.7	18.9	30.0
	%	3.3%	.0%	20.0%	10.0%	66.7%	100.0%
B.Tech. 2nd year	O	1	2	7	15	40	65
	E	1.4	3.2	9.2	10.1	41.0	65.0
	%	1.5%	3.1%	10.8%	23.1%	61.5%	100.0%
B.Tech. 3rd year	O	0	3	7	4	24	38
	E	.8	1.9	5.4	5.9	24.0	38.0
	%	.0%	7.9%	18.4%	10.5%	63.2%	100.0%
B.Tech. 4th year	O	1	2	0	0	5	8
	E	.2	.4	1.1	1.2	5.0	8.0
	%	12.5%	25.0%	.0%	.0%	62.5%	100.0%
Total	O	3	7	20	22	89	141
	E	3.0	7.0	20.0	22.0	89.0	141.0
	%	21.1%	5.0%	14.2%	15.6%	63.1%	100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	22.004(a)	12	.037	21.03

The table value of Chi-square at 5% probability level for 12 degree of freedom is = 21.03. The calculated value of Chi-square (22.004) is higher than the table value of Chi-square (21.03). Thus the null hypothesis is rejected and the difference between class of the student and users view to never used informal sources of Information. The class of the student and used proceeding of seminars/conference as a source of information is significant. Students of B.Tech. 1st year used proceeding of seminars/conference as a source of information sometimes and rarely, but maximum of them never used these facilities as a source of information. B.Tech. 2nd year students never used this facilities and B.Tech. 3rd year students used this facilities frequently.

The table value of Chi-square at 5% probability level for 12 degree of freedom is = 21.03. The calculated value of Chi-square (23.265) is higher than the table value of Chi-square (21.03). The study found that class of the students and use of abstracting/indexing periodicals as a source of information is significant. Students of B.Tech. 1st Year used abstracting journals as a source of information sometimes and B.Tech. 2nd Year students used this facilities yearly. B.Tech 3rd year and B.Tech. 4th year students used abstracting journals very frequently. Frequently and sometimes. The study found that class of the students of B.Tech. 1st year used survey articles as a source of information is significant. Students of B.Tech.2nd year students used this facilities rarely and maximum of them never used it.B.Tech.3rd year students used this facilities very frequently but it is also observed in the survey that maximum of them never used it . B.Tech. 4th year students used survey articles very frequently and frequently as a source of information.

CONCLUSION AND RECOMMENDATIONS

Most of users visit the library to borrow books, study and do research, locate information

from books and journals, and do light reading. The purpose of visits depends on time available and the need to keep up-to-date.

Library use patterns are an effective method of understanding information requirements. The majority of users are using reference and text books, thesis/ dissertations, statistical tables, current journals and back volume journals. The B.Tech students of the Shobhit University both sex and class-wise are using primary and secondary sources of the information

Librarians who were interviewed want to develop their collections, improve their services, and stand out in this competitive age. Due to the rapid growth of information, varied application of information technology, and financial constraints, it has become a big challenge for library professionals, especially in academic libraries. Improving quality does not just mean the adoption new and expensive technologies. It is also possible to work continuously on improving service as budgets permit. Users attach maximum importance to the relevancy of the needed material for research and teaching, more than to any other aspect of the library.

Table 15: Use of Abstracting/Indexing Periodicals

	Use of Abstracting/Indexing Periodicals					Total
	Very frequently	Frequently	Sometimes	Rarely	Never	
O	0	1	6	3	17.2	30
E	.6	1.7	4.3	6.2	66.7%	30.0
%	.0%	3.3%	20.0%	10.0%	37	100.0%
O	1	1	6	20	37.3	65
E	1.4	3.7	9.2	13.4	56.9%	65.0
%	1.5%	1.5%	9.2%	30.8%	20	100.0%
O	1	5	8	4	21.8	38
E	.8	2.2	5.4	7.8	52.6%	38.0
%	2.6%	13.2%	21.1%	10.5%	4	100.0%
O	1	1	0	2	4.6	8
E	.2	.5	1.1	1.6	50.0%	8.0
%	12.5%	12.5%	.0%	25.0%	81	100.0%
O	3	8	20	29	81.0	141
E	3.0	8.0	20.0	29.0	57.4%	141.0
%	2.1%	5.7%	14.2%	20.6%		100.0%

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)	Table value (.05)
Pearson Chi-Square	23.265(a)	12	.026	21.03

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