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Full Length Research Paper

Handling Issues of Backlog: The Covenant University Library experience

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The study examined issues of backlogs and how Covenant University Library known as Centre for Learning Resources (CLR) responded to the challenge. Relevant literature was perused for causes of backlogs and how other libraries tackled the situation when they were confronted. CLR was quick to address the issue of backlog through the employment of more Librarians; acquisition of web-based Library Management Software; all Librarians were made to be involved in cataloguing with close supervision by the Technical Services Librarian and record of individual's work generated weekly. Further ways of handling backlogs were also suggested.

Key words: Backlog, information, catalogue/ Cataloguing, Library

INTRODUCTION

The hallmark of any academic library is the timely provision of information to their users. It is very essential that the public catalogue either manual or automated be modified daily to enable users get information they require with minimal stress. Cataloguing is a significant part of the technical services provided by a library. Catalogue records enable patrons to find the information they need quickly and efficiently. The need to catalogue and process backlogs in libraries is therefore so crucial. Backlogs are an accumulation of jobs not done or materials not processed that are yet to be dealt with. Reitz (2010) defined backlog as 'an accumulation of work that remains to be done, often the cause of delays and bottlenecks in workflow.'

Howarth et al. (2010) cited George Gordon who defined backlog as library materials which include books and non-books which have not been treated by the Technical

Services, and this treatment include cataloguing and classification, machine data inputting and other preparation which other materials acquired by the Library are prepared or transformed (that implies the process of adding value to a product) for the use of library patrons.

Charles and Jay (2002) specifically defined backlog as any item held more than 30 days after being purchased in the Technical Services before being processed.

Backlog can also be referred to as materials acquired waiting the processing of cataloguing and classification.

Rogers (1991) identifies two types of backlogs. These she referred to as Normal and Historic. According to her, "Normal" backlogs routinely develop whenever the volume of incoming materials is high and sometimes are used to stabilize the cataloguing workflow when the volume is low. They also might be created purposefully by libraries preferring to wait for cataloging copy or

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authority records to become available from the bibliographic networks. Whereas the "Historic" backlogs found in many libraries often consist of thousands of volumes that have been awaiting cataloging for years.

Covenant University was established in the year 2002. The University is a growing and dynamic institution committed to pioneering excellence at the cutting edge of learning. Hence the Library started operations at the take-off of the University.

The Library in Covenant University is known as "Centre for Learning Resources" (CLR). All routine activities at CLR are fully automated. The Library started its operations with in-house built software using Microsoft Access. When the collections exceeded 10,000 volumes, the software could no longer accommodate it; therefore, by 2004 CLR migrated to the use of Alice Software for library operations. In a bid to enhance the services of CLR and meet up with the demands of a world class University, in 2011 CLR migrated from the use of Alice Software to Millennium ILS, which is web-based. Hence the CLR catalogue can be viewed from anywhere in the world with access to the Internet. The migration from one software to another (among other reasons) led to the accumulation of backlogs in CLR. This study, therefore, seeks to discuss causes of backlogs and how Covenant University Library was able to tackle the challenge.

Causes of Backlogs

Backlogs are created when increase in Library materials resources expenditures outpace increases in the size of cataloguing and processing staff. The imbalance between acquisition growth and lack of growth in cataloguing staff can have negative impact on staff morale and this eventually will affect the cataloguing unit from handling backlogs.

Rogers (1991) stated that backlogs develop when more materials are acquired than can be processed. There are various reasons why this imbalance occurs. While citing White and Roos (1989), she listed materials budgets, staffing levels in cataloging departments, special projects such as retrospective conversion, collection-development policies, and cataloging priorities of a library as factors that could contribute to the growth of backlogs. The quality of record used for copy cataloging could also influence the increase in backlogs. In some cases, the cataloguer would have to edit the record to delete the unwanted fields and add the required ones which might have been omitted, this could take time.

The causes of backlogs can further be traced to the following

1. Technology
2. Human Resources

3. Staff skills

4. Assigning priority – Cataloguing verses other Library task

Technology: Technology with its several advantages also has its pitfalls. Howarth et al. (2010) stressed that in a survey carried out in some Libraries, it was discovered that automation contributed to backlogs, this is because more framing and skills are required of staff to create Machine-Readable Records that conform to National and International standards. An example of this is the Millennium ILS that requires Machine-Readable Records for data to be uploaded to it.

Human Resources: Backlogs in Libraries are usually attributed to imbalance between materials budgets and the budgets for human resources. Research has shown that administration of some University Libraries may raise the budgets for materials acquiring and human resource budgets may not be affected. Reitz (2010) affirmed that cataloging backlog may result when staffing is insufficient to meet the demands of acquisitions.

Ibrahim Abdul-Kadiri and Kofi Christian (2012) observed that one thing is common in Ghanaian University Libraries; all the Libraries have not been able to have the number of professionals and para-professionals to handle library operations and this has affected the performance of cataloguers as they are given other responsibilities apart from cataloguing thereby leading to backlogs.

Staff Skills: The skills and expertise of cataloguing staff is as important as the imbalance between increase in acquisition budgets and the size of cataloguing staff. There is a significant relationship between increase in cataloguing backlogs and lack of professional trained cataloguers, this variable can be traced to why there are backlogs in most academic libraries as they cannot hire and retain highly skilled cataloguers. In other words, there is inadequate wage structure to attract trained professional cataloguers. In the same vein, materials that are non-English Language require cataloguing staff with knowledge of the language of the work. Charlene (2007) noted that the main reason for the delay in cataloguing of materials in German-Language is that none of the professional cataloguers (Librarians) in the University of Colorado Library had sufficient knowledge of the language to provide adequate subject analysis of the materials.

Assigning priority – Cataloguing versus other Library tasks: Backlogs are left as backlogs because in some cases they lack the same urgency as other Library tasks.

To buttress this point, Howarth et al. (2010) cited Black

and Granskog (1997) who noted that cataloguers in charge of these processing at Michigan State University Library were reassigned other duties during the reorganization of the Library. This led to the suspension of cataloguing which resulted to an increase in the backlogs of these.

IMPLICATIONS FOR LIBRARIES

Backlogs usually take up valuable storage space that possibly could be put to better use. Many of the materials become obsolete and it might no longer be worthwhile adding them to the library's collections. Some volumes are unusable due to physical deterioration. Rogers (1991) noted that while "historic" backlogs can stabilize the cataloging workflow in times of severe financial exigency when materials budgets are drastically reduced, they are not desirable. They are evidence of a prolonged imbalance in the scheme of technical processing that should be addressed by library administrators.

THE COVENANT UNIVERSITY LIBRARY EXPERIENCE

The Library in Covenant University, also known as "Centre for Learning Resources" (CLR) has as part of its acquisition policies the purchase of 10,000 volumes per annum. This is planned for by the Covenant University Management along with other University budgets. The acquisition of 10,000 volumes per annum has ensured a steady growth in the Library's collection hence; cataloging is a continuous process at the CLR. The Cataloging Section enjoys the supervision of the Technical Services Librarian, while 7 Librarians engage in classification, 7 in cataloging of library books, 3 in the processing of serial materials while 1 person is responsible for theses and dissertations. The migration of data from one Integrated Library System (ILS) to the other over the years resulted in the accumulation of backlogs. In 2011, While Covenant University students were on long vacation break, a workforce, which consisted of all the librarians and para-professionals working in the various sections of the library was set up. These included those handling classification, cataloging, serials, reference, circulation and other units of the library. They were made to clear the backlog that was inexistence. This was achieved within 3 months.

STEPS TAKEN AT CLR TO ADDRESS BACKLOGS

In the bid to address the issue of backlogs in CLR, certain strategies were deployed. These strategies are discussed below.

The continuous acquisition of books as against the

number of professional librarians available to catalogue them was a major cause for the growth of the backlogs. The CLR Management therefore deemed it fit for the employment of more staff and this was made possible with the support of the Management of Covenant University.

A state of emergency was declared on the backlogs. Massive stamping and fixing of date due slips were done by the para-professionals while classification and cataloging were done by trained librarians.

All the librarians and para-professionals working in the various sections of the library were co-opted into the workforce that addressed the backlogs. These included those handling classification, cataloging, serials, reference, circulation and other units of the library. An intensive training that lasted two weeks was organized for them as well as the new staff that just came on board. This was to serve as refresher course on their previous knowledge of cataloguing/ classification and to get all the staff acquainted with the use of the new software, Millennium ILS.

Hitherto, CLR made use of an Online Public Access Catalogue (OPAC) which was accessible only within the premises of the university and not linked to another catalogue. In an attempt to speed up the cataloguing process, the need for a web based catalogue became expedient. Hence, the subscription to the Innovative Millennium ILS. Millennium is web-based and affords the users the opportunity for importation of data from other catalogues such as Library of Congress. Where the data is not available for importation, copy cataloguing was encouraged with the use of Library of Congress Online Catalog and COPAC with minimal editing.

When new edition of materials with existing records were acquired, they were separated for immediate attention. The record was replicated and necessary fields were edited to suit the new edition thereby making the bibliographic details available in the catalogue.

Targets were set for cataloguers with a periodic publication of expected turnout per person in a week, the record of work by cataloguers were collated and circulated.

FURTHER SUGGESTIONS FOR HANDLING BACKLOGS

A state of emergency should be declared on the backlogs. Massive stamping, fixing of date due slips, cataloging and classification of backlogs by outsourcing or redeploying librarians from other units of the library would ensure a rapid reduction of backlogs.

The Library should look at the possibility of organizing over time work for Library staff to handle the backlog issue with remuneration for them.

Targets for cataloguers: there should be a periodic publication of expected turnout per person in a week or month, the record of work by cataloguers should be

collated and circulated among colleagues. This will create motivation to work extra, as no one would want to be considered lazy or nonchalant by colleagues or superiors. When new edition of materials with existing records are acquired, the Library Officers who have knowledge of Library Science (may be a diploma in Librarianship - DLS) could be trained to handle the process of duplicating the record and just updating necessary fields such as edition and year of publication.

There should be refresher training session, in this case the best and faster ways of cataloguing should be discussed. Cataloguers should also to be sponsored by their organizations to attend International trainings on current trends in cataloguing.

Two university libraries could collaborate to tackle the issue of backlogs in their libraries by creating a joint taskforce of personnel from both libraries. Flanders (1991) revealed in his study that increase in chronic backlog in federal documents compelled Library Corporation and the International Archives Institute (InterArc) to join forces to tackle the problem because it had reached crisis proportions for federal depositories and other libraries that receive and need to provide access to significant collections of U.S. government documents.

During the 2005 fiscal year, a cataloging backlog reduction project was completed within Harvard College Library Technical Services. Materials eligible for the project had been awaiting cataloging for one year or more. Nearly 100,000 titles were processed by both permanent staff and temporary staff hired for the project (Cline 2006).

Rogers (1991) opines that backlog can be handled through special projects, integrating backlogged materials with the regular workflow, accepting more cataloging copy with less editing, providing temporary or abbreviated cataloging, expanding the role of paraprofessional staff, and improving the efficiency of workflows and procedures. According to her, these strategies are based on the assumption that everything in the backlog should be cataloged. She reaffirmed that uncataloged materials at OSUL are assigned control numbers and are included in the Libraries' online catalog, the Library Control System (LCS). While library patrons generally do not have physical access to these materials, author and title access is provided by LCS. Rush cataloging is done in response to any patron's request for an unprocessed item.

CONCLUSION

Backlog is not ideal for libraries because it hinders access to the relevant literature by library patrons. It is better to prevent backlogs but with the rapid production of

information resources, it becomes inevitable. It is therefore of uttermost essence that when backlogs begin to accumulate, that a 'state-of-emergency' be declared to ensure a rapid processing of the materials and make them available and accessible to library patrons.

Conflict of Interests

The author(s) have not declared any conflict of interests.

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Full Length Research Paper

Use of electronic information resources in university libraries of Tirupati (A.P): An analytical study

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Information is the pivot of which an endurance of any society rests. Information and its use are as old as man. Indeed, without information there cannot be communication. The technology embrace has led to the proliferation of electronically available information resources. The Internet which is the most prominent of this source has made possible access to electronic books and journals; various databases and search engines. All these resources constitute Electronic Information Sources. The present study has been undertaken with an attempt to evaluate the use of electronic resources made available in the Tirupati (A.P) University Libraries under the UGC- INFONET E-Journals / Digital Library Consortium of UGC/INFLIBNET amongst the P.G students of Science and Technology with special reference to Sri Venkateswara University, Sri Padmavathi Mahila Viswa Vidyalayam, Acharya N.G. Ranga Agricultural University and Rastriya Sanskrit Vidyapeeth which represent truly population. For that purpose, survey method has been adopted by the investigators, which comprises administration of questionnaire, observation of the participants, and interview of some of the participants for knowing the opinion of the respondents in respect of use of electronic resources (e-journals/e-books/databases) for their academic and research activities.

Key words: E-resources, nature of e-resources and electronic information resources and services.

INTRODUCTION

The significant developments in the field of Information and Communication Technology (ICT) have created revolutionary changes in all fields of knowledge. Libraries, being the reservoirs of knowledge, are no exception to this development. The society and environment around the libraries are changing and getting altered. As a result of information explosion users are getting access to vast amount of information. In this information explosion era, libraries play a pivotal role in preserving and serving the information requirements of the users. In the present

scenario, libraries are the main facilitators in the scholarly communication system. The communicated information has been selected, acquired, processed, stored and retrieved by the library for current use and for prosperity. Therefore, the library is a place where books and other sources of information are kept for teaching, learning, research and extension activities.

Electronic information resources are diminishing the central role of traditional libraries. Librarians need to accept their responsibilities as information specialists in

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the new paradigm. Due to information explosion, the traditional library services such as reference service and selective dissemination of information need to be supplemented by selective elimination of information and the evaluation of information to separate quality information from junk. This change has brought libraries and librarians to the threshold of a new era.

E-Resources

Electronic resources represent an increasingly important component of the collection building activities of libraries. "Electronic resources" refer to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device. They may either be accessed remotely via the Internet or locally. Some of the most frequently encountered types are:

1. E-journals
2. E-books
3. Full-text (aggregated) databases
4. Indexing and abstracting databases
5. Reference databases (biographies, dictionaries, directories, encyclopaedias, etc.)
6. Numeric and statistical databases
7. E-images
8. E-audio/visual resources

Electronic resources whether acquired via purchase or license, free from the web, born digital or multiple format materials (e.g., CD-ROM combined with a book). Electronic resources present a number of challenges not encountered with the selection and acquisition of traditional analog materials and it is advisable for the library to develop clear policies and processes for the selection and management of such resources. This will provide clarity to staff and ensure that electronic resources within the library are developed with due consideration of cost, technical feasibility, licensing, access and preservation requirements, and constraints.

Definitions

- a. *E-resources* are defined as those electronic information resources and services that users access electronically via a computing network from inside the library or remote to the library.
- b. *Use of E-resources* is defined as searching, browsing, examining, and visiting an e-resource and/or service by a user.
- c. *Satisfaction* refers to the feeling of being pleased with results.
- d. *Barriers* are obstacles that hinder users' access and/or use of e-resources and/or services.

Nature of e-resources

These electronic resources could be of varied nature. Broadly, we could categorise them as follows:

Primary Sources of Information: These include electronic conferences, electronic journals, electronic pre-prints and e-prints, electronic theses and dissertations, patents, standards, technical reports, project reports including status reports of current ongoing projects, news, software courseware, tutorials, manuals and the like.

Databases, Data sets and other Collections: These include abstracting and indexing databases; digital collections comprising images, audio, video; scientific data sets comprising numeric, properties, structural databases; library catalogues; virtual libraries; museums and archives, etc.

Electronic Books: Such as NetLibrary (<http://www.netlibrary.com/>); Ebrary (<http://www.ebrary.com/>), etc. Generally online book selling and print-on demand features also facilitated. For instance Net Library has entered into print-on-demand marketplace. Similarly Amazon.com (termed as the largest library-though not a library in true sense of the word) facilitates online book selling (<http://www.amazon.com/>)

Reference Sources: such as dictionaries; encyclopaedias; biographies; handbooks; thesauri and the like.

Organisations and People: Information about organisations and people ranging from funding agencies to libraries; information centres; research institutes; and experts; directories of people of varied nature (scientists; archaeologists, etc.)

Meta Resources: Resources that facilitate easier access to network based resources in a defined subject area and a plethora of such resources under various names available on the Internet, such as subject gateways; virtual libraries; clearing house; pathfinders and the like.

Electronic information services

The World Wide Web is a complex information medium. It is both a repository for information and a transmission vehicle. It provides free public access and increasingly fee-based access to an immense body of digital material. The Web also supports a wide range of interactive services including banking and securities trading. E-commerce has moved into many other areas and it is now possible to purchase a wide variety of goods and services on line. Over the last several years, countries such as the United Kingdom, Canada, Australia, the United States and Lithuania are using the Web to disseminate information and to provide online services from government to citizen, government to government and between agencies of the government.

The advent of electronic information services has created a new set of demands for information providers. These services include new reference models, new means for information discovery and delivery, and demands for user and personnel education in the uses of the new resources and technologies. It has also prompted a re-examination of the rights and responsibilities of information providers, intermediaries, and end users (American Library Association, 2000).

A number of services are now offered online that, heretofore, were provided in person or through other print means. Online includes electronic reference and electronic document delivery systems. These services have been expanded to include automated information delivery and built according to various interoperable standards. Electronic information services that have been created include interactive e-commerce and e-governance services as well as various organizational database management needs (including registrations, membership renewals) and other functions.

Objectives

The primary objective of the present study is to examine the use of electronic information resources in university libraries of Tirupati (Hadagali and Kumbar 2011).

The specific objectives are:

1. To study the present situation of the use of Electronic Information Resources (EIRs) available through the UGC-Infonet Programme in the Four University Libraries of Tirupati.
2. To determine the level of Postgraduate student's frequency of access to Electronic Information Sources
3. To study the different purposes of using EIRs.
4. To study the Methods of learning to use EIRs in university libraries.
5. To identify the challenges faced in the use of Electronic Information Sources
6. To suggest suitable recommendations to provide the EIRs and services for the benefit of users.

Scope and limitations of the study

The scope of the present study is limited to study the use of electronic information resources in the university libraries of Tirupati. The present study is limited to four Universities, viz. Sri Venkateswara University, Sri Padmavathi Mahila University, Acharya N.G. Ranga Agricultural University and Rastriya Sanskrit Vidyapeeth. The population of this study consists of P.G. Students of Science and Technology.

METHODOLOGY

This study is based on Survey (questionnaire) method. A structured

questionnaire was designed to collect data from the P.G. Students of Science and Technology in the Universities of Tirupati. The majority of the questions were objective type designed keeping the objective of the study in view.

The questionnaire was distributed to all the P.G. Students of Science and Technology. In total 837 questionnaires were distributed among the P.G. Students of Science and Technology and the response rate is 636 (75.99%), and asked of fill-up the same by allowing sufficient time.

Data analysis

A total of 636 out of 837 regular Postgraduate students selected from four universities were taken for the study of Tirupati; the response rate is 75.99%, which is presented in Table 1.

As already noted, the total sample of users covered in the study is 636, comprising 75.99% postgraduate students; university wise, 87.24% of the Sri Padmavathi Mahila Viswa Vidyalyam, 83.65% of the Rastriya Sanskrit Vidyapeeth, 73.94% of the Acharya N.G. Ranga Agricultural University and remaining 68.82% Sri Venkateswara University postgraduate members.

Hence, this result shows the sex wise distribution of respondents. Of the total 636 respondents surveyed, 303 (47.64%) are males and about 333 (52.36%) respondents are females. It can be inferred from Table 2 that female respondents dominate over male respondents.

It is obvious, that the total book collection of Sri Venkateswara University Library is the highest while University clearly sweeps its strength in Journal collection by subscribing 325 scientific journals and also 9,000 of online databases (e-Journal) are subscribed (Table 3).

Sri Venkateswara University Library has collected 3086 of theses and dissertations and 675 various Audio/Video Sources. It is pathetic found from the table that, the CD-ROM products are a major information storage and retrieval sources in the Internet era. Acharya N.G. Rang Agricultural University (11,536) and Sri Padmavathi Mahila Viswa Vidyalam (630) are the only libraries having CD-ROM Information Technology products. Microfilm/Microfiche readers are in Sri Venkateswara University (1500), Sri Padmavathi Mahila Viswa Vidyalam Library (276) and also Reports/Patents/Standards are collected in Sri Venkateswara University (251), Sri Padmavathi Mahila Viswa Vidyalam Library (126) and Rastriya Sanskrit Vidya Peetha Library (30).

Table 4 gives general understanding of the frequency of users' visit to library depends upon the resources. Organization maintenance and value added services are provided by the library. Table 4 shows that the majority of 209 (32.86%) respondents use electronic information resources everyday. Also 153 (24.06%) of the respondents use EIRs twice a week and 112 (17.61%) of the respondents use the EIRs once in a week, 81 (12.74%) use EIRs twice a month and 43 (6.76%) use it once in a month. Only 12 (1.89%) of the respondents respectively use it occasionally. It is interesting to note that 26 (4.09%) of the respondents never use electronic information resources.

Table 5 summarizes the situation for all the respondents. It is seen that 49.37% respondents have been using EIRs for more than 3 years and 25.16% respondents have between 2 and 3 years of experience in using EIRs. The table also depicts that only 19.50% of the respondents started using the EIRs since between 1 and 2 years and few respondents (5.97%) have less than a year of experience. Overall, respondents had good amount of experience to exploit optimally the electronic sources and services.

The different locations of access for EIRs are depicted in Table 6. About 84.91%, of the respondents indicated that they have access to the computer and use it for EIRs also from library. While 58.02% access the EIRs through the facility at campus computer centre. The respondents who chose 'other places' mainly referred to it as

Table 1. Distribution of questionnaires and responses.

S.No	Universities	PG students	Distributed	Received	Percentage
1	SVU	1856	372	256	68.82
2	RSVP	524	104	87	83.65
3	SPMVV	981	196	171	87.24
4	ANGRAU	827	165	122	73.94
Total		4188	837	636	75.99

Table 2. Classification of respondents by sex.

S.No	Universities	Male		Female		Total	
		No.	%	No.	%	No.	%
1	SVU	164	64.06	92	35.94	256	40.25
2	RSVP	56	64.37	31	35.63	87	13.68
3	SPMVV	0	0.00	171	100.0	171	26.89
4	ANGRAU	83	68.03	39	31.97	122	19.18
Total		303	47.64	333	52.36	636	100

Table 3. Library collection development of university libraries.

S.No	Library Collection	SVU	RSVP	SPMVV	ANGRAU	Total
1	Books	355000	88871	124896	90125	658892
2	Journals	325	175	256	276	1032
3	Thesis/Dissertations	3086	2000	1782	9064	15932
4	Reports/Patents/Standards	251	0	126	30	407
5	CD-ROM Databases	-	-	630	11536	12166
6	Microfilm/Microfiches	1500	100	276	-	1876
7	Audio/Video Sources	675	12	237	-	924
8	On-line Databases/E-Journals	9000	-	6000	2965	17965
Total		369837	91158	134203	113996	709194

Table 4. Frequency of use of EIRs.

S.No	Frequency	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Everyday	82	32.03	39	44.83	57	33.33	31	25.41	209	32.86
2	Twice a week	56	21.88	21	24.14	39	22.81	37	30.33	153	24.06
3	Once in a week	43	16.80	12	13.79	31	18.13	26	21.31	112	17.61
4	Twice a month	35	13.67	8	9.20	24	14.04	14	11.48	81	12.74
5	Once in a month	21	8.20	5	5.75	10	5.85	7	5.74	43	6.76
6	Occasionally	5	1.95	0	0	3	1.75	4	3.28	12	1.89
7	Never use	14	5.47	2	2.30	7	4.09	3	2.46	26	4.09
Total		256	100	87	100	171	100	122	100	636	100

their home and private cyber café (43.08%). Only 35.85% of the respondents indicated that they use it from their departments.

Majority of the respondents (93.24%) reported that they use electronic information sources for the purpose of preparation of

notes. About 63.99% of the respondents use electronic information sources for the purpose of "Ongoing study work". Also 49.37% of the respondents use electronic information sources for their "Project/Dissertation work" and 28.93% of the respondents are

Table 5. Experience in EIRs use.

S.No	Experience	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Less than year	18	7.03	6	6.90	9	5.26	5	4.10	38	5.97
2	Between 1 and 2 years	69	26.95	14	16.09	29	16.96	12	9.84	124	19.50
3	Between 2 and 3 years	56	21.88	22	25.29	44	25.73	38	31.15	160	25.16
4	More than 3 years	113	44.14	45	51.72	89	52.05	67	54.92	314	49.37
Total		256	100	87	100	171	100	122	100	636	100

Table 6. Location of computer use for EIRs.

S.No	Location	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Library	219	85.55	73	83.91	137	80.12	111	90.98	540	84.91
2	Computer centre in campus	176	68.75	43	49.43	89	52.05	61	50.00	369	58.02
3	Department	79	30.86	37	42.53	68	39.77	44	36.07	228	35.85
4	Other places	95	37.11	49	56.32	91	53.22	39	31.97	274	43.08

Table 7. Purpose of using EIRs.

S.No	Purpose of using EIRs	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Ongoing study work	162	63.28	56	64.37	121	70.76	68	55.74	407	63.99
2	Preparation of notes	243	94.92	79	90.80	162	94.74	109	89.34	593	93.24
3	Project/Dissertation	126	49.22	42	48.28	89	52.05	57	46.72	314	49.37
4	Writing a article for publication	46	17.97	17	19.54	45	26.32	59	48.36	167	26.26
5	For seminars	62	24.22	19	21.84	39	22.81	64	52.46	184	28.93
6	Curriculum design	58	22.66	16	18.39	19	11.11	21	17.21	114	17.92

Table 8. Methods of learning how to use EIRs.

S.No	Methods	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Self study (reading books/articles, tutorials)	209	81.64	69	79.31	132	77.19	68	55.74	478	75.16
2	With the assistance of colleagues/friends	221	86.33	65	74.71	126	73.68	87	71.31	499	78.46
3	Courses offered by institution/college	112	43.75	49	56.32	91	53.22	52	42.62	304	47.80
4	By attending formal courses (paid, official training)	98	38.28	41	47.13	72	42.11	63	51.64	274	43.08
5	Guidance from library staff	26	10.16	12	13.79	19	11.11	21	17.21	78	12.26

using electronic information sources for the purpose of "Attending seminars". About 26.26% of the respondents use electronic information sources for the purpose of "Writing article for publication" and only 17.92% of the respondents use the same for "Curriculum Design" (Table 7).

According to their responses, it was found that learning with the assistance of colleagues/friends (78.46%) and self study (75.16%) is the most popular method of electronic information sources learning among the respondents. It was followed by 47.80% of the

respondents who learnt to use electronic information sources through courses offered by their institutions Kaur and Rama (2008). Another 43.08% respondents learnt by attending formal course, either paid or through official training. Guidance or skills offered by the library (12.26%) play a minor role. That does not mean that support from the library is regarded as unimportant (Table 8).

It is clear that, a majority of respondents (78.14%) of the higher education institutions browse the internet for their "Subject specific information websites" followed by 75.16% for "International/Regional

Table 9. Use of specific types of subject and allied areas EIRs.

S.No	Use of specific types	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Subject specific information websites	219	85.55	65	74.71	126	73.68	87	71.31	497	78.14
2	International/Regional institution websites	209	81.64	69	79.31	132	77.19	68	55.74	478	75.16
3	E-Journals	164	64.06	56	64.37	121	70.76	68	55.74	409	64.31
4	E-Books	178	69.53	43	49.43	89	52.05	61	50.00	371	58.33
5	CD-ROM databases	115	44.92	47	54.02	91	53.22	69	56.56	322	50.63
6	Research project sites	112	43.75	49	56.32	91	53.22	52	42.62	304	47.80
7	Professional association websites	79	30.86	37	42.53	68	39.77	44	36.07	228	35.85
8	Online bibliographic databases	56	21.88	22	25.29	44	25.73	38	31.15	160	25.16

Table 10. Use of different EIRs by the respondents.

S.No	Different EIRs	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	E-mail	52	20.31	15	17.24	39	22.81	18	14.75	124	19.50
2	Web	111	43.36	39	44.83	79	46.20	62	50.82	291	45.75
3	CD-ROM	44	17.19	14	16.09	11	6.43	11	9.02	80	12.58
4	Professional groups	35	13.67	17	19.54	35	20.47	28	22.95	115	18.08
5	IRC	14	5.47	2	2.30	7	4.09	3	2.46	26	4.09
Total		256	100	87	100	171	100	122	100	636	100

Table 11. Problems encountered while using EIRs.

S.No	Items	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Too few computers with internet facilities	219	85.55	65	74.71	126	73.68	87	71.31	497	78.14
2	Incessant power outage	209	81.64	69	79.31	132	77.19	68	55.74	478	75.16
3	Slow internet connectivity	164	64.06	56	64.37	121	70.76	68	55.74	409	64.31
4	Non-connectivity	56	21.88	22	25.29	44	25.73	38	31.15	160	25.16
5	Inability to use computer	115	44.92	47	54.02	91	53.22	69	56.56	322	50.63
6	Selecting search terms	112	43.75	49	56.32	91	53.22	52	42.62	304	47.80
7	Finding relevant information	79	30.86	37	42.53	68	39.77	44	36.07	228	35.85
8	Lack of IT skills	178	69.53	43	49.43	89	52.05	61	50.00	371	58.33

institution websites" and 64.31% use the "E-Journals" similarly, 58.33% use the "E-books", while 50.63% use the "CD-ROM databases". 47.80% and 35.85% of the respondents use "Research project sites" and "Professional association websites" respectively. Only 25.16% of the respondents use "Online bibliographic databases" (Table 9).

Table 10 indicated that 45.75% of the respondents indicated that they have used the web. Also 19.50% of the respondents use e-mail. The respondents who chose 'Professional groups' mainly use EIRs. 12.58 and 4.09% of respondents used "CD-ROM" and "IRC" respectively.

Table 11 showed that few computers with internet facilities got 78.14% and also incessant power outage (75.16%) was highest among the problems encountered by the respondents. More than half of the respondents (64.31 and 58.33%) are indicated to have slow internet connectivity and lack of IT skills. This was followed by

incessant power outage which was ranked at 910 (41.61%); while lack of IT skill was ranked lowest at 77 (3.52%). Similarly, 50.63% of the respondents encounter the problem of inability to use computer, while 47.80% of the respondents encounter the problem of selecting search terms. 35.85 and 25.16% of the respondents are encountering the problem of "Finding relevant information" and "Non-connectivity of internet" respectively.

From the analysis it is evident that a large majority (83.33%) of the respondents got better access to information by using EIRs. Also 76.26% of the respondents got saved their time by using of EIRs. Again 75.16% of respondents are able to improve their professional activities due to the use of EIRs (Table 12). Large majority of the respondents agreed to have the benefit of better access to current up-to-date information. The decrease in the use of postal mail was reported by 63.99% of respondents. More than half of the respondents (61.95 and 58.02%) indicated to have

Table 12. Benefits of use of EIRs.

S.No	Benefits of use of EIS	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Better access to information	215	83.98	71	81.61	135	78.95	109	89.34	530	83.33
2	Time saving	207	80.86	65	74.71	126	73.68	87	71.31	485	76.26
3	Decrease in use of post mail	162	63.28	56	64.37	121	70.76	68	55.74	407	63.99
4	Access to current data/information	164	64.06	57	65.52	124	72.51	65	53.28	410	64.47
5	Improved professional competency	209	81.64	69	79.31	132	77.19	68	55.74	478	75.16
6	Increased professional collaboration with distant colleagues	155	60.55	54	62.07	119	69.59	66	54.10	394	61.95
7	Access to comprehensive information	176	68.75	43	49.43	89	52.05	61	50.00	369	58.02
8	Decrease in the use of printed sources	127	49.61	47	54.02	91	53.22	69	56.56	334	52.52
9	Decrease in use of telephone calls	113	44.14	45	51.72	87	50.88	64	52.46	309	48.58

Table 13. Satisfaction level of access to EIRs.

S.No	Satisfaction level of access to EIS	SVU		RSVP		SPMVV		ANGRAU		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Highly satisfied	42	16.41	9	10.34	21	12.28	12	9.84	84	13.21
2	Satisfied	57	22.27	16	18.39	37	21.64	32	26.23	142	22.33
3	Neutral	113	44.14	45	51.72	87	50.88	64	52.46	309	48.58
4	Dissatisfied	26	10.16	14	16.09	17	9.94	9	7.38	66	10.38
5	Highly dissatisfied	18	7.03	3	3.45	9	5.26	5	4.10	35	5.50
Total		256	100	87	100	171	100	122	100	636	100

increased professional collaboration with distant colleagues, and better access to comprehensive information, respectively due to the use of EIRs. And also 52.52 and 48.58% of the respondents stated that the use of EIRs decrease in the use of printed sources and decrease in use of telephone calls respectively.

The respondents were asked to rate their overall satisfaction with the level of access to EIRs use on a five-point scale from 1 (Highly satisfied) to 5 (Highly dissatisfied) (Table 13).

The respondents are overwhelmingly positive about the level of access to the use of electronic information sources. A majority of the (84.12%) indicated they are moderately to highly satisfied, whereas only 15.88% indicated dissatis-

faction. It can be seen from Table 13 that 13.21% of the respondents indicated that they highly satisfied with the access they have to EIRs. 22.33% of respondents were satisfied with the access to EIRs.

Further, nearly half of the respondents (48.58%) were moderately satisfied whereas only 10.38% were dissatisfied and 5.50% of respondents were highly dissatisfied with the access they are having in using EIRs in their universities.

FINDINGS

a) The total Book collection of Sri Venkateswara

University Library is the highest while University clearly sweeps its strength in Journal collection by subscribing 325 scientific journals and also 9,000 of online databases (e-Journal) are subscribed.

b) It is found that the majority of 209 (32.86%) respondents use electronic information resources everyday.

c) Majority (84.91%) of the respondents indicated that they have access to the computer and use it for EIRs also accessed from the library.

d) Majority of the respondents (93.24) reported that they use electronic information resources for

the purpose of preparing notes.

e) The survey found that learning with the assistance of colleagues/friends (78.46%) and Self study (75.16%) of the users are most popular methods of electronic information resources learning among the respondents.

f) The study found that 58.33% of respondents are using "E-books", while 50.63% use the "CD-ROM databases".

g) The different EIRs used by the respondents (45.75%) indicated that they have used the web.

h) It can be inferred from the data that the majority of users do face problems of few computers with internet facilities and incessant power outage.

DISCUSSION

The study had sought to investigate the use of electronic information resources on productivity of P.G. Students of Science and Technology in university libraries (Naidu et al., 2007) of Tirupati. The study revealed that majority of the respondents use electronic information resources everyday and have become familiar with electronic information resources.

The study also revealed that respondents used e-resources to access information available worldwide for preparation of notes and their ongoing study work. The study revealed the extent of experience in both access to and usage of electronic information resources (Sunil 2011). The respondents indicated that they have access to the computer and use it for EIRs also accessed from the library. They rather resorted to the trial and error techniques of usage (Ojo and Akande, 2005).

A high level of Subject specific information websites and International/Regional institution websites usage was recorded, giving an indication of users' preference to these Subject and allied areas EIRs services.

The study revealed that the respondents use different electronic information resources such as web, over 19.50 percent used them for e-mail. The study revealed that both lecturers and scholars acknowledged the usefulness and importance of e-resources to research and productivity.

Respondents do not get adequate guidance from the library staff in the use of electronic information resources. Also, the respondents faced problem of the internet connectivity while using electronic information resources (Chandran, 2000).

On the basis of the above analysis and observations, it was found that unfamiliarity with electronic information was the major reason that would discourage users from accessing electronic resources in the university libraries of Tirupati. A large number of users were using electronic information resources for preparing notes and ongoing study work and for keeping abreast with new developments in their areas of interest. Most of the users had become acquainted with their favourite electronic information resources through discussions with colleagues and from the internet.

A large number of electronic information resources users were however not satisfied with the infrastructure available in the Libraries. Most of the students indicated their dissatisfaction with IT infrastructure. This was attributed to inadequate provision of infrastructure occasioned by lack of adequate financial support for both hardware and software infrastructure.

Conclusion

The use of EIRs respondents varied according to their program of study; there is the need to carry out post-graduate students to excel in their academic endeavour and versatility in the use of information technologies to search for information. The current trends in electronic environment, suggest a complete revolution in the status of collection development. As Information Technology (IT) advances, the emphasis of academic libraries has focused upon the intrinsic excellence of collection development suitable to electronic information resources.

The present study reveals that electronic information resources have a positive impact on library users. The future of the library and information services at academic libraries depends upon major factors, like, availability of manpower in adequate proportion, which continuously keeps updating its IT skills and determination of higher authorities in allocating appropriate recurring grants to procure, update and maintain IT infrastructure and electronic information resources.

The present study presents the profile of all the selected universities of Tirupati. Further, the study also attempts to make an assessment of the use of electronic information resources on library users. It can be seen that users' attitudes towards library resources are changing, and have realized the importance of electronic information resources.


Conflict of Interests

The author have not declared any conflict of interests.

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