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e- journal
of Library Science

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Emerging Technological Innovations in Library Management and Services: Dynamic ways of Collaboration

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ABSTRACT :

Applications of new technologies in different areas of libraries has changed in library systems. Emerging technology is being implemented in the library management and services and being updated regularly to compete in the fast changing environment. Current libraries are quickly adjusting to the new advancements. With the assistance of web advancements, these can be accessed from anyplace, anytime. And yet, libraries are not appropriately working and embracing these, because of numerous issues like cash, incompetent staff and so on. New advances have come in the field of library science and are being executed in the distinctive areas of the libraries. In any case, because of a few issues these advancements are not being adopted in most libraries. This paper describes how emerging technology has improved the information management and library services.

Keywords :

Emerging Technologies, Networking of Libraries, ICT, RFID, Web OPAC

1. Introduction :

The speedy growth of Information communication Technology has positioned a remarkable impact on libraries. with the impact of it the people have changed the way of assume, behave and talk. Firstly, the thought and the service idea of the library management have converted from the traditional library to the contemporary library, progressively concerning the reader as the priority. ICT and globalization has changed the libraries from traditional to virtual libraries wherein every work is completed by way of computer (Gunjal, 2017). The competition of the libraries is very irritating, so introducing the talented man or woman massively, in conjunction with spouse's running arrangement, is first attention of the university leader, which reasons abnormal lifestyle degree of the library workforce, the unreasonable specialized shape, few employees with the specialized library science (Mittal, 2017). This type of unreasonable structure of the library control causes problem to the college. few development possibilities reasons that the college library employees is not as good as the coaching unit's personnel within the examiner, the similarly training, the research possibilities and the working condition.

So, running of library has definitely changed from carrier oriented to consumer orientated, wherein libraries are maintained according to the need of user. New technologies have been merged in the library technology. So, libraries were changed to virtual libraries, virtual libraries, hybrid libraries, library without partitions, library 2.0 and so forth. even the running and designation of librarians have also been modified to information officer, facts scientist, documentation officer and so forth (Suryawanshi, 2015). We are able to see that the libraries have come to our doorsteps. We are able to use libraries at any time in line with our convenience. Due to the new techniques many new traits may be seen within the discipline of libraries which might be as follow.

2. Information Communication Technology (ICT) :

ICT includes it in addition to telecommunication, broadcast media, all types of audio and video processing and transmission and network based totally manage and monitoring functions. It involve storage, retrieval, manipulation, transmission or receiving of any records electronically in a digital shape, e.g., television, electronic mail service, library databases and many others. In overdue 20th century there has been an incredible improvement in the science and technology (Waghmare and Salve, 2014). ICT has significantly put the impact of all fields of economic system. within the discipline of library verities of latest software program come into the market, it has totally modified the running of library. These days there are range of software program to be had within the market that's efficiently handling the home tasks operations in addition to other reference services very correctly. ICT is the aggregate of two technology first one is facts technology which deals with the hardware and software that permit get entry to, save, organize and manipulate the information. Second is communication technology which deals with the equipments, infrastructure and software through which records can be acquired, get entry to, and disseminate.

3. Emerging Technologies in the Libraries :

Application of ICT offers a delivery to many new technologies. with the software of these new technology in the libraries the working of libraries has absolutely been changed. It has been determined out that now a day's libraries are providing the unrestricted get right of entry to of information in many approaches and from many assets (Jange, 2015). Libraries have additionally started to provide the offerings of professionals who're professional within the fields of statistics and conversation. emerging technologies has affected the libraries inside the following manner :

Housekeeping Operations :

With the use of ICT the housekeeping responsibilities of the library has absolutely changed. Now many new library software have come inside the market even fee software is also available on the internet which may be effortlessly download and set up at the pc and can be use for the library. The software program may be used for library automated. It has modified the operation of library very conveniently. The accessioning of material, serial manage, circulate and many others also make smooth. We also can take any kind of reports any time. This changes the traditional technique running in early libraries.

Web Based Services :

Contemporary libraries have also started the net based services to provide the extra at--ease services to the

library customers. These offerings include web access of e-substances like e-books, e-journals, e-thesis and so forth. Users can get the personal identification and password from the library and might get right of entry to the fabric at the library website via filling the person identification and password. Even the users can make queries, see any notification from the librarian, and make talking to the librarian etc on the web by using the usage of the Web2.0 services. Web 2.0 has make a revolution inside the field of library and made the conventional Libraries to Library Web 2.0. Web 2.0 is a two way web technology wherein user can study and even write any records at the web (Emezie and Nwaohiri, 2017). It offerings encompass: Folksonomies and social tagging, Video Sharing, image Sharing, instant Messaging, Social Networking, Blogs and Wikis, Sceencasting, RSS Feeds, net Mashups, Podcasting With the help of above stated services person can study and write the critical records anytime and at everywhere without the constraint of time and vicinity. Those services have challenged the operating of librarians due to the fact now librarians ought to be very plenty regarded to those technologies otherwise they are able to provide the ultra-modern services to the users (Emezie, 2018).

Intelligent Return and Sorter System :

In conventional Library system the entire library functions which include take a look at in/ checkout of items and shelving of objects is achieved manually. That is time consuming challenge and additionally misplacement of books and other items is pretty commonplace. With the automation, a lot of these issues may be prevented. There's an intelligent return and sorter device that's utilized in libraries for automating their test-in and sorting process (Cross and Tucci, 2017). Users can speedy self return their issued gadgets with "real-time take a look at-in". Users may be assured that items have been back by receiving go back slips from the machine. these systems are designed especially for libraries with restrained area. The technology utilized by the sorter for guiding items into the bins decreasing harm to items. It is simple to apply and can also perform administrative responsibilities together with configuring receipts, generating facts and gadget diagnostics. The shrewd go back and sorter device helps in lowering the time, supporting to growth of workers groups productivity even as improving consumer satisfaction.

Web OPAC :

Web OPAC (Online Public Access Catalogue) has also changed the running of libraries to much enlarge. Now with the assist of web OPAC customers can access of any library available information sources at the web without leaving the region. Web OPAC is a catalogue of library material which tells us that the required materials is availability or not. Users can fill the Username and Password at the Library internet site and might use the OPAC.

Networking of Libraries :

ICT has made possible of networking of libraries inside the nation or even at some stage in the arena. Networking of libraries has expanded the services of libraries for the customers. With the help of networking, users can use the study materials of different libraries with whom the present library is connected. With the assist of it libraries' Inter Library loan service, resource sharing, etc make easy and convenient. Networked libraries can take many benefits like they can use the Union web OPAC, document shipping and get entry to digital materials and so on.

They also can arrange the combine Tutorials, Workshops, Lectures, and training packages etc (Barathi et al., 2017). There's lots professional news which can be share with the aid of the librarian. there are many greater advantages of networking additionally like libraries can take the advantage of Library Consortia, in which libraries could make collective purchasing of library material and can avail higher discounts on bulk buying. So, networking of libraries additionally help in saving the cash. here are many Indian library networks are gift e.g., INFLIBNET, DELNET, CALIBNET, ADINET, SIRNET and so forth.

Library Security Systems :

As the libraries' collection is developing there's want to protection system. They're going through big quantity of protection drawbacks which includes robbery and mutilations of library substances. Maximum of the libraries round the sector are dealing with the problems concerning protection but because of technological advances there may be a best shift from paper material to electronic databases. So it's miles viable to put in digital security structures to overcome the security threats to a point. Current library management structures use barcode technology and security strips (Jana and Bhattacharya, 2017). Using barcodes, a library control machine can preserve records of lending, borrowing and shelving popularity of items together with books, audio or video tapes, CDs, DVDs, etc. safety strips on library items tag their actions. However barcodes and safety strips are slow to read and are liable to sabotaging via thieves. Most of these lead to irreparable loss to a library and its precious stock inventory. That is wherein RFID generation can come to the useful resource of library managers and customers.

RFID (Radio Frequency Identification) :

RFID (Radio Frequency identification) is the state-of-the-art wireless generation to be used in library theft detection systems. They provide monitoring systems that integrate protection with extra efficient tracking of materials for the duration of the library. besides protection they provide easier and quicker fee and discharge, inventorying, and materials coping with. RFID in India changed into developed inside the 1940's for protection packages (Krishnamurthy, 2015). Fist time it become used for commercial cause in 1980 for livestock monitoring programs. current interest is in making RFID generation extra ubiquitous within the worldwide fee chain. the primary Library suppliers began to market their structures in the mid 1990's. RFID has robotically checkout, anti theft and stock manipulate system. It includes two elements one is incorporated circuit for storing and processing information. every other is antenna for receiving and transmitting the alerts. In RFID device, RFID tags are positioned on the library items when these items comes below the variety of antenna without requiring a line of sight, it transmits data to computers, if it isn't always issued then a siren is sounded.

4. Conclusion :

This take a look at appears at the new technology that come into existence with the use of various libraries. It has mentioned the emerging technologies which can be use in the library fields, but these rising technologies have given a project to the library professional's i.e., they have to have proper know-how of those technology and have to be well certified so that they might use it easily. However these new technology does not reach to the every library due to the fact one hassle is the budget and second different trouble is that the specialists are

not a whole lot aware of these new developments. Library organization is that sort of field which is always a good deal of development and there is a need to make a special area within the society. According to our opinion each library professional ought to cross the traditional level where he/she could learn something new. There must be associate with professional's lectures, workshops, seminars and so on. These items can help the library career to research something new.

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Use of Resources and Services of the MET Polytechnic Library, Adgaon Nashik : A Case Study

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ABSTRACT :

User satisfaction is most of the importance in any Library. A Library resources and services are the most important factors that contribution to user's satisfaction. This paper discussion about Use of Resources and Services of the MET Polytechnic Library users. Questionnaire method was used for data collection in polytechnic library users. Total 50 Questionnaire was distributed to the student and faculties out of 41(82%) Questionnaire were received users come to the library for knowledge development and some visit daily, users are satisfied with reference services, some users are satisfied with resources and very good services provide from library. The data have been presented in five tables with their interpretation .The findings are interpreted and conclusion has been drawn in the light of objectives of the study.

Keywords :

Library Resources, Services, Facilities, Users, MET Polytechnic Library.

Introduction :

Libraries play a vital role in the formal work of the organization and the formal work of the community. Libraries are becoming valuable homes for digital communication these days. Further libraries have a fundamental role to play in the development of a lifelong study strategy. In addition to serving as a service space, libraries are active partners in providing technical guidance and training to global information resources as a whole. The proper utilization of library resources can be optimally used only by attracting the users to the library. The library user's satisfactions play a vital role in the development and provisions of the library. The potential users feedback regarding the library resources, services and facilities should be considered for developing necessary resources and amenities in the library .That is why, Dr. S.R. Ranganathan, father of library science development in India has famously said that the library is the trinity of library Learning reading materials ,Library users and the staff. The Library is a Hart of the College.

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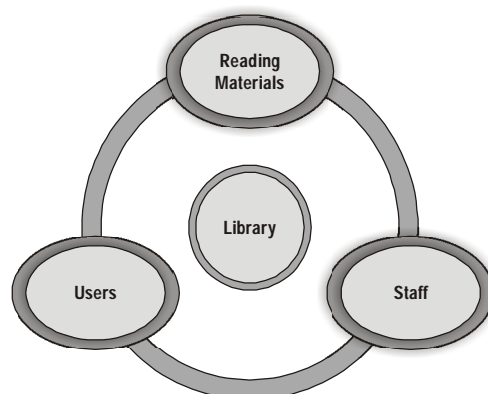
About MET's Institute of Technology Polytechnic :

Institute Building
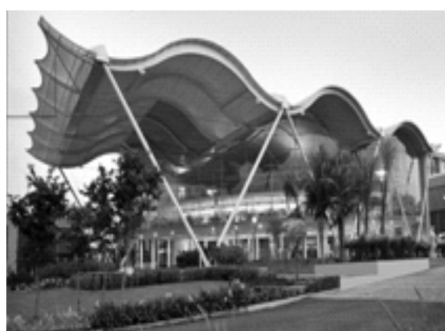
Library Building

Library Collection

Mumbai Educational Trust Bhujbal Knowledge City is ISO 9001:2015 Certified. MET is an NGO in special consultative with the UN (ECOSOC). MET's Institute of Technology polytechnic has come a long way since its inception in 2006. The campus of MET's Institute of Technology polytechnic situated in Adgaon Nashik. The Bhujbal Knowledge City is spread over 34 acres, and the Institute prides itself on having state of the art infrastructure for being eco-friendly energy-efficient and naturally lush green the perfect place for learning. The Campus available services are Central Library, Digital library, Musical Library, canteen, Hi-Tech Gymkhana, sports room, Play Ground, amphitheater, conference/seminar hall, placement rooms, Guest Room, Hostel (Boys & Girls) LAN Network, Wi-Fi, and bus facility.

Institute Vision :

To give emphasis and focus on development of competent technical personalities in the Institute through scientific and technical education to accept need based challenges with a sense of social responsibilities.

Institute Mission :

1. To implement the educational program in Institute from fundamental engineering to recent technology as per the emerging trends.

2. To bench mark the standards of quality education in the Institute.

3. To take continuous efforts to meet the technological challenges in collaboration with Industries.

4.   To take continuous efforts by faculty, staff and students of the Institute, to develop the sense of social responsibilities.

This Institute offers six courses that are Mechanical Engineering, Civil Engineering, Electronics and Telecommunication Engineering, Computer Engineering, Information Technology and Electrical Engineering. These courses are affiliated to the MSBTE and recognized by AICTE, New Delhi and Directorate of Technical Education, Government of Maharashtra.

Library Collection :

The library is required to provide varied authoritative and up to date resources that support its mission and fulfill the need of its users. Resources may be provided in a variety of formats including print and hard copy online electronic resources. A college library needs to have the quality of resources as prescribed by MSBTE, UGC, AICTE and other governing bodies. The Collection is available as follows in the library. Books-20051,Current journals Indian 35 Foreign 10, Educational CD's and DVD's 825, Social welfare Book Bank Books2046, Institutional Membership 02 and Area of the Library750 Sq.mtr

Library Services and Facility :

The following services and facility are provided in the Polytechnic library.

1.   Book Bank Service

2.   Open Access service

3.   Reference Service

4.   News paper clipping Service

5.   Counseling and Guidance

6.   All Previous Question Papers set available

7.   Resource Sharing inter library lone service available

8.   User orientation and information seeking for library

9.   Institute level book bank scheme available

10.   CD's & Magazines are also issued on Identity Card for student and staff

11.   All Branches Syllabus service

12.   Tide-up British council Library online membership Book, journals facility

13.   NDL - National Digital Library- E-journals, E-Books, Thesis is Audio & Video Lecturers etc facility

14.   NPTEL Video's - E-journals, E-Books, and Audio & Video Lecturers etc. facility

15.   Digital Library service Available

Literature Review :

Umesh K Y (2012) made a study on "Best practices adopted in academic libraries and information resource center.'

The study focuses on the current challenges faced by academic libraries and increase the users. How it can be overcome by using the best practices followed in libraries includes book display programme, orientation programme, user study, staff users meet, developing virtual presence, exhibition, information brochures and web based services etc.

Jotwani (2008) conducted case study on 'Best Practices adopted in Central Library, IIT Bombay. They stress on application of best practices includes book bank ,library portal, Web-OPAC, e resources, electronic theses and dissertation ,institutional archive consortium ,orientation programmes library tour, information alert services, news groups , FAQ SERVICES, e-mail services, training seminars and workshops, institute newsletters etc.

Chopra and Singh (2010) study on resources and services of the government polytechnic college library Amritsar. They focused on their collection, newspaper services, Audio-video collection, library staff arrangement of books library infrastructure library timing library services.

Baskaran (2014) found that 29.16% respondents visit the library daily. Majority respondents visit library for refer journal articles, Majority respondents satisfied with book lending services quality. Krishorekumar & Kaliammal (2011) conducted a study on Utilization of library services among the students of academic Institutions in Pudukkottai District,Tamilnadu.69.50% the respondent visit the library once a week .39.71% of library users visit for reading the books.

Objectives :

1.   To know the purpose for visit to the library.

2.   To know the frequency of visit to the library users.

3.   To get knowledge about the library services.

4.   To know the use of library resources.

Scope & Limitation of Study :

The scope of the present study is limited to 50 users of MET Institute of Technology polytechnic, Adgaon Nashik (Maharashtra). Out of 50(100%) respondents 41 (82%) has given response.

Statement of the Research Problem :

The Problem under investigation is "Use of Resources and Services of the MET Polytechnic Library, Adgaon, Nashik (Maharashtra)".

Methodology :

This study is using the Questionnaire and observation technique.

Data Collection :

During the study, an attempt has made to collect the necessary data and information from available library resources. A questionnaire was personally distributed to the student and faculties. The random sampling method was used for data collection. Total 50 Questionnaire was distributed to the students and a faculty Out of this 41 Questionnaire was

received.

Data Analysis :

Table No.1, Purpose for Visit to the Library

Purpose	No of Response	%
Knowledge	35	85.36
Borrow and return the books	30	73.17
Research	6	14.63
Journal Reading	15	36.58
Access E Book, journal	18	43.90
Newspaper reading	21	51.21

Graph No. 1 :
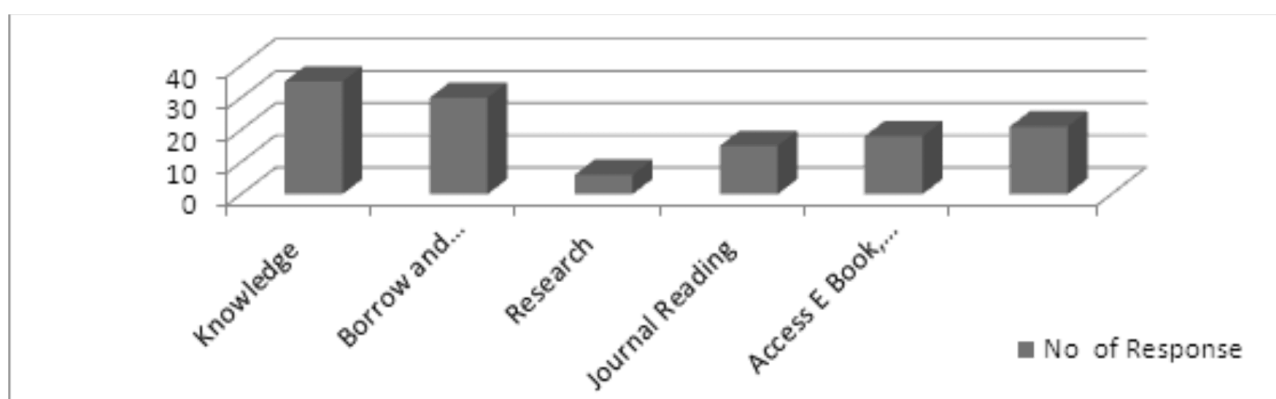
Table and Graph No.1 Purpose for visit to the library response shows that 85.36% users come knowledge base, 73.17% users come for Borrow and return the books, 14.63 % use for research purpose, 36.58% use for journal reading, 43.90% use for access e books and e journals, 51.21% use for newspaper reading.

Table No.2, Frequency of visit to the library

Frequency	No. of Respondents
Daily	29
Two three days in a week	5
Weekly	3
15 Days	2
Monthly	1
Occasionally	1
Total	**41**
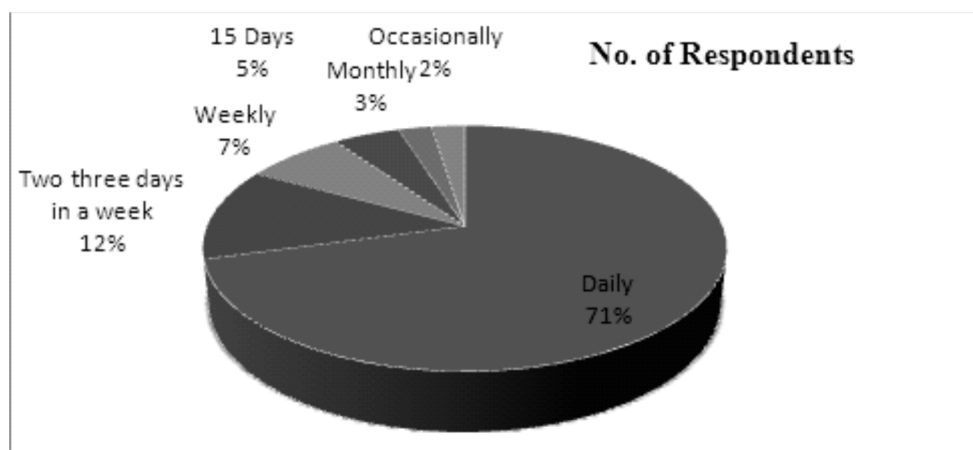
Graph No. 2 :

Table and Graph No.2 shows that Frequency of visit to the library resources. In this table about 71% students come daily visit to the library,12 %users come for two three days in a week ,7%Weekly visit,5%come for 15 days to the library,3% monthly and 2% Occasionally visit to the library.

Table No.3, Use of Library Resources

Resources	No of Users	%
Books	37	90.24
Journals and Magazines	28	68.29
Reference Book	25	60.97
Daily News Papers	31	75.60
E- Book and E-Journals	22	53.65
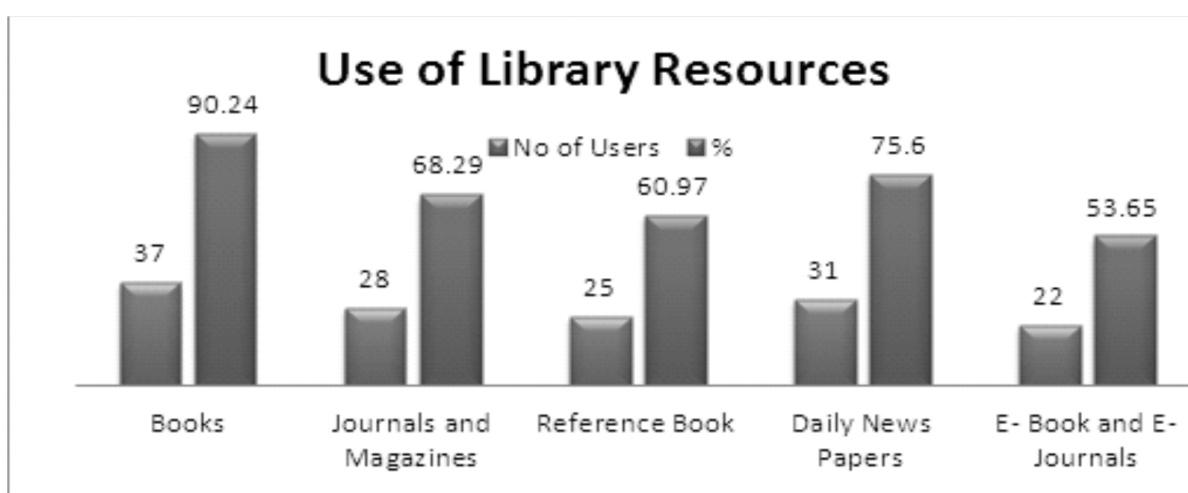
Graph No. 3

Table and Graph No.3, Use of library resources show that 90.24 % users come for reading of books, 68.29% for journals and magazines, 60.97% reference books, 75.6% for Daily News papers and 53.65% E-books and journals.

Table No.4, Library Services :

Lib. Services	Satisfied No	%	Unsatisfied No	%	Total No	%
Reference Services	39	95.12	2	4.87	41	100
Digital Library service	30	73.17	11	26.82	41	100
OPAC	37	90.24	4	9.75	41	100
Reprography	31	75.60	10	24.39	41	100
Inter library loan	29	70.73	12	29.26	41	100
New Arrivals	32	78.04	9	21.95	41	100
Library Event	33	80.48	8	19.51	41	100

It is observed from Table No.4 that 95.12% respondents are satisfied with reference services, 90% OPAC, 80.48% Library Event, 78.04 % New arrivals, 73.17%Digital library services and 70.73% Inter library loan services.

Table No .5, Opinion about the Library Facility :

Facility	Excellent	%	Very Good	%	Good	%	None	%	Total	
Infrastructure	34	82.92	4	9.75	2	4.87	1	2.43	41	100
Cleaning	25	60.97	9	21.95	5	12.19	2	4.87	41	100
Peacefulness	28	68.29	8	19.51	4	9.75	1	2.43	41	100
Resource Arrangement	30	73.17	5	12.19	4	9.75	2	4.87	41	100
Collection	32	78.04	5	12.19	3	7.31	1	2.43	41	100
Lighting and Ventilation	29	70.73	7	17.07	3	7.31	2	4.87	41	100
Co-Operation of Staff	35	85.36	3	7.31	1	2.43	2	4.87	41	100
Furniture	25	60.97	10	24.39	5	12.19	1	2.43	41	100

A question was asked regarding performance of library facilities. Table No-5 observe that 85.36% student gave first preferences for good facility of student and staff , second for 82.92% infrastructure, third for 78.04% collection of books, fourth for 73.17% arrangement of resources, fifth for 70.73% light and ventilation , 68.29% peacefulness, lastly 60.97% Cleaning and furniture of the library.

Finding and Conclusion :

1. Majority of users as coming under library purpose ability to gain knowledge 85.36 % upgrade.

2. Regular user's daily (71%) visited the library.

3. Majority of users satisfied with 95.12% reference services.

4. Majority of users come for books Issue Retunes and library services.

5. It was found that the 85% users were given good facilities and services.

6. Mumbai Educational Trust BKC Institute of Technology Polytechnic College library is maintaining a separate library Building.

7. Libraries are providing automated services to the users and necessarily information is furnished.

8. Marvelous green library structure.

9. Trustee and Administrative Staff Support to Library collection Development.

10. Staff full supports to maintain the library environment peaceful and utilizable.

11. Musical and Digital Library are available in college.

12. MET BKC world class infrastructure, centralized library, conference rooms, seminar halls and amphitheatre and well qualified faculty member.

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Cloud computing and Libraries: A theoretical study

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ABSTRACT :

This paper is based on theoretical aspects of libraries moving towards digital services. Most libraries prefer e-learning and digital learning platforms, rather than print resources, based on reader preferences. They keep their resources on the cloud and users can access from anywhere, anytime. Most of the developing digital libraries are providing their resources through the cloud service, IP, VPN based services. These resources (i.e. e-Books, e-journals, Magazines, Periodicals etc.) can be made available by the help of cloud computing. Cloud computing is changing the scene of libraries towards a paperless and virtual version.

Keywords :

Cloud computing; Digital Library; Cloud Library; Cloud model; Cloud services; Cloud Security

Introduction :

Cloud computing technology is providing a platform to store the data or information in a cloud server, called data or information center respectively and distribute the same to all users via web. From the figure I. it represents user request for information and cloud server retrieve the desired information as per user need from information center and send back to user.
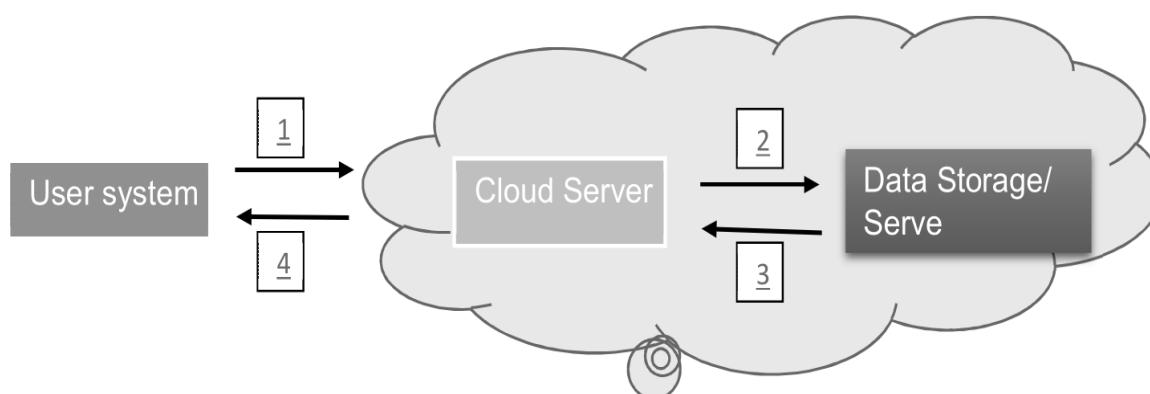
Fig. I. Cloud computing: Information retrieval process

Today most libraries are a resource center, where all information is available at a single place and can be accessible throughout the world. These things can be possible only through cloud computing and Virtual Libraries.

"Cloud computing allows users and enterprises with various computing capabilities to store and process data either in a privately-owned cloud, or on a third-party server located in a data center - that's make data-accessing mechanisms more efficient and reliable. Cloud computing relies on sharing of resources to achieve coherence and economy of scale, similar to a utility." (Source Wikipedia)

Some of the cloud-based services are online payment apps, data storage and accounting software. A major transformation is that Cloud computing enables us to turn our data center into a IT-as-a-service platform, without physical   infrastructure it transfers data to users faster than before, it allows an organization to communicate with users in a new and affordable way. Accessibility via Internet, only authorized users can directly retrieve and access documents and applications from any computer over any internet connection for more information.

Cloud computing is an emerging technology in the field of library industry. It is the combination of different server, network connections with web applications that help access of information resources from any connected device over the internet. Cloud computing systems make a platform over the internet or web called cloud, where with the help of network, server connection and applications we store or house our resources and through the computer system these resources can be accessed over the internet these are commonly known as "cloud Library" or "Library on Cloud".

Feature :

1. Access to Information: Data is easily accessible and convenient to use. Users need just a computer system and internet connection to access the information required.

2. Central remote servers to maintain data and different applications. Users can easily access the different services as and when needed, as many data centers are located at multiple locations for data storage. Users can retrieve data from any nearby location at high speed depending on its architecture

3. Without installation of any application user can access the information with internet access.

4. Reduction in cost of buying and maintenance of hardware and software licenses. With cloud no need to build a physical structure to provide the services to the users. It reduces the cost of hardware and software and reduces storage problems.

5. Provides backup and disaster-recovery capability, and data archiving: The provider is providing the backup, recovery and storage data at a single platform. It can be accessed by the staff form various location.

6. Multiple sharing: Cloud helps us in sharing resources at multiple levels and platforms; it gives us the common platform for sharing and distribution of resources.

Disadvantage :

One of the biggest disadvantages/limitations is that Cloud computing sometimes affects the privacy of the cloud users, whenever personal information is used or retained by the cloud service provider by the outside of the country,

government, domestic or foreign agencies can access such information.

Literature Review :

Khan[5] on the basis of some live examples like OCLC, Elsevier, amazon and google search etc. explains the benefits of cloud technology.

Pandey[6] investigated the issues involved with cloud computing in libraries based on SWOT analysis that include strength, weakness, opportunities and threats.

Narrottam[7] define the concept of cloud computing and its application and also discuss the present situation of libraries and give suggestion to resolve the risk factors in cloud system before clubbing libraries services with cloud technology.

Rittu[10] stated that cloud computing is very appropriate for libraries, which have fewer funds, less space and less equipment. The library can serve more services with minimum resource and risk factor can resolved in few year as we discuss on it.

Srivastava[11] point out the some issues of involved in application of cloud computing with feature of cloud computing which helps in implementing in libraries.

Cloud Computing Service Model :

Platform as a service : This is also termed as Cloud platform services. Such type of service provided by some cloud vendors, in which a platform provides by service provider to maintain and support their IT infrastructure over the internet without spending huge amounts for purchasing. Google app engine, Windows Azure, Heroku, force.com, Open Shift etc.

Infrastructure as a Service : IAAS provide entire infrastructure as a service that include hardware like processor, memory, network, etc. on demand basis for specific duration and price. Amazon web service, Google compute engine, Microsoft Azure, Cisco meta cloud etc.

Software as a Service : Also termed as cloud application services. Some of the software and application providers as a service to customers who can access the program from any electronic gadgets having internet connection. Some of the web based applications like; Skype, Google apps, Cisco webEx, Dropbox, GoTo meeting, Hotmail etc. can be used only by registration, it is not necessary to purchase the software and some business oriented applications are on subscription basics such as, Sales force. However, subscribers have 24*7 access support services and need not worry about installing, hosting, maintaining the software.

For e.g.; IRINS stands for Indian Research information Management System. It is developed by INFLIBNET (Information and Library Network) center in collaboration with Central University with of Panjab. This is available as free software as service for the academic institution and Research and development organization in India. This helps in representing the academics institution, faculties and others research profile including research grading tools; like H-index, citation, co-authors etc.

Cloud Storage Models :

On the basis of University/Institution or Organization demand the Storage Service Provider (SSP) provide different

type of cloud model with user access control. Such models are ;

1. **Public Cloud :**

Sell services to anyone on the internet. E.g. Amazon Public cloud Web services provide a multi-tenant storage environment that is suitable for unstructured data. Public clouds are relatively less customizable and are not as secure as private clouds. Cloud Service Provider (CSP) possesses and manages the infrastructure of cloud. The open cloud are also called as external cloud, in which resources are self provisionally powered. When a service provider uses public cloud resources to create their private cloud is called a Virtual Private cloud.

2. **Private Cloud :**

Private Data is a kind of "own data center" that is a proprietary network or a data center that supplies hosted services to a limited number of people. Services and infrastructure are maintained on a private network, appropriate for user needs customization and more control over data. Less cost saving. The organization manages cloud resources owned by them which offers more security, reliability and productivity as comparing with open or Hybrid cloud models. Private cloud gives corporate cloud and exclusive environment for work to the predetermined numbers of persons working in an organization.

3. **Hybrid Cloud :**

Hybrid cloud is a combination of two different models cloud i.e. private cloud and public cloud, it also allows customizable options depending on the type of applications and computational resources they are using. Both cloud work is based on their activity structure as more sensitive and critical activities are operated and accomplished by the private cloud and non-critical activities and less sensitive are accomplished by public cloud.

4. **Community Cloud :**

As the name indicate community some groups of Community of specific groups comes together and created with similar infrastructure having common requirements, values and concerns. Community cloud infrastructure can be provided by a third party or through one of the members of the community which is economical. It is extra secured than the open/public cloud.

5. **Personal Cloud :**

This model of cloud is just like a personal computer on cloud.

6. **Distributed Cloud** :

It is provided by distributed sets of machines or systems that are running at different locations, while still connected to a single network or hub services. E.g., Platform like BOINC and Folding@Home.

Role of Cloud Computing in Library :

• To make resources digital: Today most of the libraries are moving towards digital libraries therefore, they transfer their resources on the web through cloud computing for easy use and are more accessible from any place over the network. Dspace is widely used as digital repository software in libraries.

- Resource sharing: Nowadays most of the institute make a community and share their digital resources over the internet. That increases the collection of community and institutional repositories. OCLC, is the product of world cat that share their services via web share management system.

- Hosting library websites: Nowadays most of the libraries develop their own library website with the help of cloud computing without spending more amount.

- Global community strength: The great opportunity of cloud technology to make a global network among the library and information science professionals as well as information seekers. Nowadays, social networking sites also play a key role in building global communities via Facebook, twitter, WhatsApp etc., that system provides a platform for innovation and sharing the new idea, and knowledge.

Implementation of Cloud Computing In Libraries Overview :

Library are shifting from physical space to the virtual, with the help of the cloud and its network libraries can provide easy access to the services at any time at any place. When clubbing Library based services on the cloud, we create a web-based environment. Cloud computing includes features of different technologies. Cloud helps the organization to move towards the cutting edge/ innovative technology in information explosion era. Cloud is the combination of various servers and network connection to all the available resources and applications. It pools out the resources with the help of technology to access infinite services as per demand.

1. **Data Storage :**

   Cloud computing gives a number of services and application such as Dropbox, Google Doc, Sky drive, Flickers and many more to store the data and then later access it anywhere with the help of internet. Users have to simple upload and save the file on the mentioned above application and later on can access it any time anywhere. For serving the users, Cloud Computing is capable of collecting, integrating and disseminating a large quantity of information and resources stored at a single place to other place.

2. **Digital repository** :

   In this era of technology every kind of library needed a digital platform to provide services to its users. Repository is a platform through which various kind of resources as such thesis, projects, Question papers, media news etc.) Information can be passed to many at one time. In market there are various kind of software are available (open and propriety) can choice as per facility, Dspace is widely used in many libraries for creating repository.

3. **Collaborative network** :

   With the help of cloud various kind of data can be searched in one place, "OCLC world cat" is using cloud computing to create information for all to have a (same data) union way (available to all). "Web share management system" it a collaborative open platform to all so that Libraries can share their resources, services with community on the cloud.

4. **Library Community :**

   Cloud technology allow us to build community network using various networking tools such as Facebook,

Instagram, Twitter and Blogs or pages. With community, libraries with cooperative network have a platform for sharing valuable resources that will save cost, will increase efficiency and brings various brilliant minds at a single platform for better innovation and intellectual ideas and knowledge.

5. Searching Scholarly Content : IRINS :

It stands for Indian Research information Management System. It is developed by INFLIBNET (Information and Library Network) center in collaboration with Central University with of Panjab. This helps in representing the academics institution, faculties and others research profile including research grading tools; like H-index, citation, co-authors etc.

6. Kindle services via Amazon :

It is a wireless connection in which one can read the book online or can borrow the material without any geographical bounding.

Benefits/ limitation of Cloud Computing :

• Cost Efficiency : Cloud computing technique users can easily save the extra charges as cost of data storage, software updates, management etc. It is available at much cheaper rates than traditional approaches and can significantly lower the overall IT expenses.

• Low Maintenance Cost : Less hardware and less physical resources and there is less hardware to power and maintain with an outsourced cloud-by-cloud providers.

• Ease to backup and recovery : Users can easily take backups and recovery for information. The cost of using resources is cheaper so it is easy and cost effective to take backups and recovery for future use and for data security.

• Speed, Scalability and Performance of Cloud Services : Users can easily access the different services as and when needed as many data centers are located at multiple locations for data storage. Users can retrieve data from any near locations at high speed depending on its architecture. Access to Information- Data is easily accessible and convenient to use.

• Redundancy : Users can get the duplicate copy of the data, if lost there.

• Unlimited Storage : The cloud helps in storing more data as compared to Personal systems, offers unlimited storage

• Pay-as-you-use : In cloud computing, the user has to pay only for that service or the space they have utilized or worked on. The service is economically feasible and most of the time some space is allotted free, and there are no hidden or extra charges which have to be pay.

Cloud Computing Security challenges

• **Data Protection :**

When implementing a cloud computing and placing critical data into third party hands. Data can be protected

through data encryption techniques by providing authentication to the users with data encryption keys.

- **User Authentication :**

    Cloud needs to be accessible only by those who are authorized to do so, it enables to see data access logs and audit trails to verify the authorized users accessing the data.

- **Contingency Planning** :

    It should have plans if the cloud provider fails or goes crash then data is easily retrieved or accessed. Ensuring that our data is secured/protected both at rest and in transit, access. Data breaches or natural disasters are key security challenges.

- **Security** :

    Issues such as data loss, Phishing, running remotely while using other hard disks can pose/cause serious threat to Data and organization.

- **Costing Model :**

    It depends on the model of cloud computing an institute adopts, Cloud reduces the infrastructure cost, but cost of data communication as cost of transferring data from one to other model is high.

- **Service Level Agreement :**

    Is terms and condition between the Cloud service provider and the user/customer.

Present Scenario in Libraries :

Cloud computing literally transform the service delivery (dissemination of information), and it is in developing stage. Cloud libraries are like a virtual library that are serving the users sitting at different places. It act as a connector/ Mediator between the resources and the services. Now a day's library are shifting towards cloud computing to attract the users towards the resources availability and adding more value to it.

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Need For Education & Training Of Lis Professionals In Electronnc Era

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ABSTRACT :

Contains the growing importance of Electronics information in the present IT era. Emphasizes the changing role of library and information professionals. Discusses the education and training of LIS professionals offered by various institutions and organizations.

The advancement in computer and telecommunication technologies has resulted in the emergence of a global village, which is characterised by the availability of electronic publication all over the world. IT has ushered in a variety of media that can help library and informational professionals in efficient and effective acquisition, organization &, dissemination of information. computers and CD-ROM's have found increasing acceptance in library and information centers (LICS); Multimedia has shown much potential for LICs; and information networks have broken both time and space barriers to a great deal.

Keywords :

Training-Library professionals, Electronic information. HTML, Networking, Library Automation.

Introduction :

In the last century, the librarian's dug was mainly to preserve the holdings of the library and make them available whenever requested' Today the advancement of technology has influenced each and every field including the libraries attached to higher educational institutes. The conventional tools available in the libraries and information centers are found inadequate in providing quick access to the existing information. As a result, the gap between what is available and what is being communicated is increasing. which seriously affects the quality of research and decision making. Techniques and processes of information Management shall have to be re-oriental to enable an information seeker to access to information more conveniently and comprehensively. computer Computer and telecommunication technologies have joined hands in locating, organizing, storing, retrieving and disseminating of information to meet the needs of users. Information Technology (IT) is developing at a rapid pace and forcing a change in structure and dynamics of information society. The management of these changes indicates a pressing need to develop new and improved strategies to cope with these changes and introduce various innovative methods in library services.

Electronic information Era :

At the sometime, library and information professionals are deluged with advice as on how to use theseis media to acquire and organize various learning resources and satisfy the complex and ever-increasing information needs to of their users.

The electronic media is helping libraries to increase their efficiency and effectiveness by providing information in all dimensions'. The libraries need not own publications accessible. Many to be readily of the sources available in electronic be made availability form can to the user community by developing electronic access (EIA) facilities.

The library as a primary institution for storing and disseminating information has, therefore, to take advantage of information technology and facilitate access to whatever information is needed and wherever it may be. For this purpose, information it must modernize its operations and services with the help of information technology, and have internet connectivity and on-line information retrieval facilities.

The internet has emerged as the most powerful medium for storage and retrieval of information. With an unprecedented growth in the quantum of knowledge worldwide and their easy accessibility, Internet has become an unavoidable necessity for every library and information centers. It is a global network of computer networks which has opened unimaginable opportunities for storing, manipulating and disseminating of textual data as well as the multimedia.

The fundamental concept of the classroom learning is gradually changing to telelerning. Computer and electronic resources have come to play a central role in education. These resources have proved to be of immense value in teaching of the subjects. The use of electronic media is wide- spread all over the world. As a result of digital revolution, internet web page, email is the normal form of communication between the teachers and the students. Electronic tools make the classes more efficient, ILectures more informative, and reading assignment more extensive and accessible. The lectures are presented via slides, statistical charts and tables, images, power point slides, graphics and video clips, etc. virtual Virtual librariesy, are available on the net to cater to the needs of the students. They can visit any virtual library and acquire any kind of intonation they want from around the world with the click of a button. This is the emerging scenario of the educational environment and hence, library professionals have to keep their skills up-dated.

The rapid development in information technology as well as economic changes have made it clear that the familiar role of librarians as information intermediaries must undergo significant change, if librarians are to avoid being displaced by a variety of competitors. More and more, they are under pressure to evaluate their roles and functions like to business, examining the competition and carving out their 'market niches'. That means libraries and librarians must demonstrate that they are relevant to the information needs of their client base, or they risk going out of existence.

Changing Role of Library Professional :

In accordance with the above mentioned emerging scenario, the library and information science professionals' role is also subject to dramatic changes. Library and information professionals cannot run away from this change. Instead, they have to accept the challenge they face in the new millennium. It is hence absolutely necessary that the skills and professional ethics of LIS professionals have to be continuously up-dated so as to adopt changes. The role of librarian

in changing environment has not altogether changed from traditional role, but information technology is continuing to add several new dimensions to his role. Today, librarian is perceived as a manager of electronic information services. The new terms are being coined for librarian such as,

- Information scientist,

- computation,

- cybrarian,

- digital librarian,

- Internet librarian

If the users are to make best use of the networked and electronic information services, they will need training in the selection, evaluation and use of information.

Information technology has made significant impact on the mission of the library. Use of computer is predominant in the Libraries at least for their house keeping activities. The progress in computer technology together, with the advances in communication technology opened up new products and services in libraries and information centers. The knowledge of computer working is essential and should be made compulsory for the future requirement.

Today, the librarians will have to shoulder the responsibility for institutional reorganization and in addition, but not under value works such as :

- Evaluating services and certifying the quality of websites;

- Providing adequate support and proper training for people using networked e-services;

- Continuing the higher-value paid-for reference and search services that are not replaced by the new offerings;

- Finding new resources for the network;

- Understanding the search process and the improved quality their intervention can provide;

- Adding meta data to site links and e-documents so that retrieval becomes easier and hits are more relevant; and

- Making the e-services easier to use than the suppliers have done.

This will not happen without adequate training. Skills in IT can be gained only when one gets hands on-training and experience in laboratories under simulated conditions or in real- life situations. Serious training and continuous professional development ensure that, the staffs are more than one step ahead of the customer. They are a vital part of creating a successful electronic information service.

Education & Training of LIS Professionals :

Education and training of library professionals help an organization to improve the functions and activities of its library and information centers; It has been accepted as a vital input to improve the standards and considered as an investment in human resources. Education helps to develop of the general and special abilities of the mind, enhances the level of

theoretical knowledge in one's mind. Training, on the other hand, requires practical education, which involves a process of learning to enhance the practical knowledge of a person. Training, therefore, is a planned process to modify attitude, knowledge, skills through learning to acquire effective performance in a range of activities" It is, therefore, said that training actually begins where education ends. But now training goes hand-in-hand with education. Most of the universities today are offering internet-based courses in their library and information science course at Master level (leading to MLISc.)

Training programs should be an essential part of an overall program of library development and continuing education for librarians rt all levels. It is a process in which personnel in an organization are deliberately offered, so as to enable them to absorb some new perspectives to cope with the emerging trends and techniques. Training process may take place at a number of levels within a team or group or individuals.

Even though in automation or mechanical era, human resources are indispensable as they are mandatory to run any system. The library professionals are to be trained for high quality specialized talents and to revitalize the library services. Human resource planning and development address the issues of formal training, skill acquisition, constant up-gradation of the skills with the changing environments. Technological changes warrant updating skills on the job apart from attending the continuing education programs to acquire new qualifications. The library professionals can be deputed outside institutions such as INFLIBNET, Ahmedabad, DRTC, NCSI, etc. for academic studies' and to upgrade their skills training through continuing education/ programmes in dealing various hi-end technologies.

In India' the frontier institutions in coordinating training and development programs for library professionals chiefly include institutions of national importance like the National Institute of Science communication and Information Resources (NISCAIR) Documentation Research and Training center (DRTC), National Informatics center (NIC), DELNET, and other professional organizations like- ILA, India, Association of Special Libraries and information Centers (IASLIC), Society for Information science (SIS)' etc' Regularly refresher courses are organized through various university, departments and institutions for the college and university librarians and faculty members for updating their professional and practical knowledge.

The education and training of information personnel is one of the thrust areas of NISCAIR and DELNET. Though the impact of technological developments has brought alterations in existing curricula of library and information science courses, there is also a need to supplement these with continuing education programmes at various levels. The library professionals have to update their knowledge in latest development in order to implement them in practice. NIISCAIR' a premier institution in information science, technology, services and systems, set up under the Council of scientific & Industrial Research (CSIR) provides information both at the national and international levers. It offers HRD programmes like:

- Short term training courses;

- Attachment training programmes;

- On-site training programmes; and

- Associate ship in Information science (AIS) of two years duration.

INFLIBNET is a, autonomous inter- university, center of the University Grants commission (UGC) of India. The major objective e of this group is to conduct various short and long duration training courses from time to time. Areas of training programs include the aspects like:

• library automation

• networking, internet, its application in libraries;

• Standards and formats; and

• HTML and Web Design Tools and Techniques, etc.

With the help of this network center, all the universities will be put on mainstream of providing access to latest literature. This will bring radical changes in the higher education set up in India. INFLIBENT also started training courses in collaboration with ERNET on "Basics of Networking UGC-IFONET and its Management". They plan to train librarians and teachers on e-access. INFLIBENT Regional Training Programmes (IRTPLA) are also run by INFLIBNET. These conventions help the academicians to discuss the various issues for providing easy access to information, to prepare uniform records and in turn, help to make union data base of the Indian libraries.

ILA, IASLIC and other library associations also organize a number of training and development programs on various aspects of library and information science occasionally.

Conclusion :

Electronic information and electronic publications have come to stay. Electronic ifnoratm8ion resources provide tremendous scope for libraries in India to provide access to worldwide information. For library and information processionals to survive and thrive in the electronic environment, they need to urgently upgrade their skill levels to keep pace with technological changes I the workplace. To succeed in creating, designing, packaging and customizing value-added information products, the professionals need to know more about their users and what they do, to understand the value of the information they need, and to possess skills and understanding in both the conceptual and visual organization of information (Orna, 1992).

Indeed, it is the convergence of information skills, computing and a good understanding of information user behavior that have expanded the range and depth of information handling tasks can successfully be performed within organization and in the information services market place. Librarians have to address several issues and strategies, and establish new roles and relationships by constantly updating their skills through proper training and continuing education programme. This will determine and give credence to the role of library and information processionals in substantially contributing to social and economic development.

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A BIBLIOMETRIC ANALYSIS OF GLOBAL RESEARCH TRENDS IN BIODIVERSITY

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ABSTRACT :

*The present study deals with bibliometric study of Biodiversity literature during 2014-2018 using Scopus database. Multi authored articles are dominant i.e. 592 (88.0%), the year wise distribution of articles was high i.e. 152 (22.61%), the mean of relative growth and Doubling Time for the first five year was 1.57 and 3.15, USA ranked first with 130 (19.34%), University are the major contributors with 583 (**86.7**%) contributions during the period 2014 to 2018. Majority of the articles are written in English language i.e. 98.06%. "PLoS ONE" scores the 1st rank which account to 198 (29.4%) of the total papers.*

Keywords :

Biodiversity, Bibliometrics, Research Application

Introduction :

One of the first definitions of bibliometric describes it as "the application of statistical and mathematical methods to books and other means of communication" (Pritchard, 1969). Nowadays, bibliometrics are often used to evaluate scientific research through quantitative studies in research publications. Bibliometric evaluations are based on the hypothesis that most scientific discoveries and research results are published in international scientific journals in which other researchers can read and cite them. Evaluative bibliometrics: "quantitative measurements of qualitative aspects (such as" quality "or" reputation ") of the scientific system" (Theodorus Nicolaas Van Leeuwen, 2004) assumes that the number of citations of a newspaper article can be considered to reflect the impact of the article in the scientific community.

Biodiversity :

Biodiversity or Biological diversity is a term that describes the variety of living beings of earth. In short, it is described as degree of variation of life. Biological diversity encompasses microorganism, plants, animals and ecosystems such as coral reefs, forests, rainforests, deserts etc.

Review of Literature:

Kumar et. al (2018) analyzed the quantitative literature and can be applied to research articles published in national, international journals on related articles. This paper deals with the bibliometric analysis of CSIR-CECRI, Karaikudi research publications during the period 2010-2015. 650 articles were collected from Web of Science. This study examines the year-wise publications, journal-wise distributions, document-wise classifications, geographical presentations and productivity of researchers.

 Melvin Jeharaj & Thirunavukkarasu (2018) found Bibliometric analysis of research publications by the Faculties in Christian institutions in Tamil Nadu using Web of Science database from 1989 to 2016. In this study Most of the paper published in the year 2016 with 225 records, JebaSR is the topmost author, Relative growth rate (RGR) was found to be fluctuating trend during the study period. The doubling time (DT) was found to be increased and decreased trend in this study. The degree of collaboration is 0.98. Most of the paper published in the Christian institution is Karunya University; South Korea is a major international collaboration partner in Christian Institutions in Tamil Nadu

Alagn & Thanuskodi (2018) in their study analyzed the Information literacy research in India using bibliometric tools. The web of science database has used to retrieve records related to Information literacy research for the period of 1993 to 2017. Publications are counted on year basis. The retrieved bibliographic citation data is analyzed using Histcite Software and different bibliographic techniques are also practiced. The authors analyzed the year-wise publication of the journal, authorship pattern, source-wise publication, etc.

Methods and Materials :

The data has been extracted from SCOPUS international multidisciplinary database for the present study and the following search strategy has been used in the combined field of Title, Abstract and Keywords.

TITLE (biodiversity) AND DOCTYPE (ar) AND PUBYEAR > 2013 AND PUBYEAR < 2019 AND (LIMIT-TO (SUBAREA, "BIOC").

Objective :

1.   To identify the number year-wise distribution of publication.

2.   To know relative growth and doubling time of publication.

3.   To identify the authorship pattern of references per articles.

4.   To find out the country wise distribution of cited articles

5.   To know the organization wise contribution of articles.

6.   To know the Language wise distribution of Publications

7.   To identify core journals of articles.

Data Analysis:

Table No. 1: Year-wise distribution of Publication

Sr. No	Year	No. of Articles	Percentage
1	2014	152	22.61
2	2015	132	19.64
3	2016	142	21.13
4	2017	117	17.41
5	2018	129	19.19
	Total	**672**	**100**

The average no. of article publication was 672 articles per year. It observed that the contributions of earlier five years (2014-2018) the highest publication out of 672 articles 152 (22.61%) articles were published in 2014 and 129 (19.19%) articles lowest were in 2018 respectively.

Table No.2 : Relative Growth Rate and Doubling Time of Publication :

Year	No. Of Publication	Cumulative no. of Publication	$Log_e 1^p$	$Log_e 2^p$	[R(P)]	Mean [R(P)]	[Dt(P)]	Mean [(Dt(P)}
2014	152	-	-	5.02	-		-	
2015	132	284	5.02	5.64	0.44		1.57	
2016	142	426	5.64	6.05	0.41	0.26	1.69	1.85
2017	117	543	6.05	6.29	0.24		2.88	
2018	129	672	6.29	6.51	0.22		3.15	
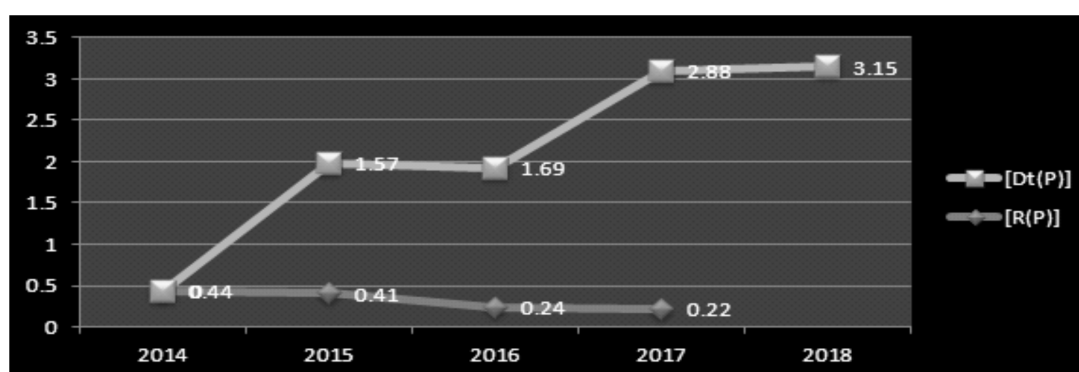
Figure No 2. Relative Growth Rate [R(P)] and Doubling Time [Dt(P)] of publication

The Relative Growth Rate [R(P)] and Doubling Time [Dt(P)] of publications are derived and presented in Table & Fig. no. 2. It can be noticed that the Relative Growth Rate of publications [R(P)] decreased from the rate of 0.44 in 2014 to 0.22 in 2018. The mean relative growth for the first five years (i.e. 2014 to 2018) The corresponding Doubling Time for different years [Dt(P)] gradually increased from 1.57 in 2015 to 3.15 in 2018.

Table No.3: Authorship Patterns research in Library Automation

Authorship Pattern	2014	2015	2016	2017	2018	Total	%
Single	21	14	18	13	14	80	11.90
Two	28	15	12	2 3	21	99	14.73
Three	51	48	45	40	48	232	34.52
Four	22	28	31	25	17	123	18.30
Five	21	15	23	15	24	98	14.58
More than Five	9	12	13	1	5	40	5.95
Total	152	132	142	117	129	672	100

Authorship pattern of the articles in presented in table no. 3, identified the distribution of articles according to the number of contributors. It shows that the number of Multi authors are more than single 80 (11.90%).

Figure No 3. Authorship Pattern
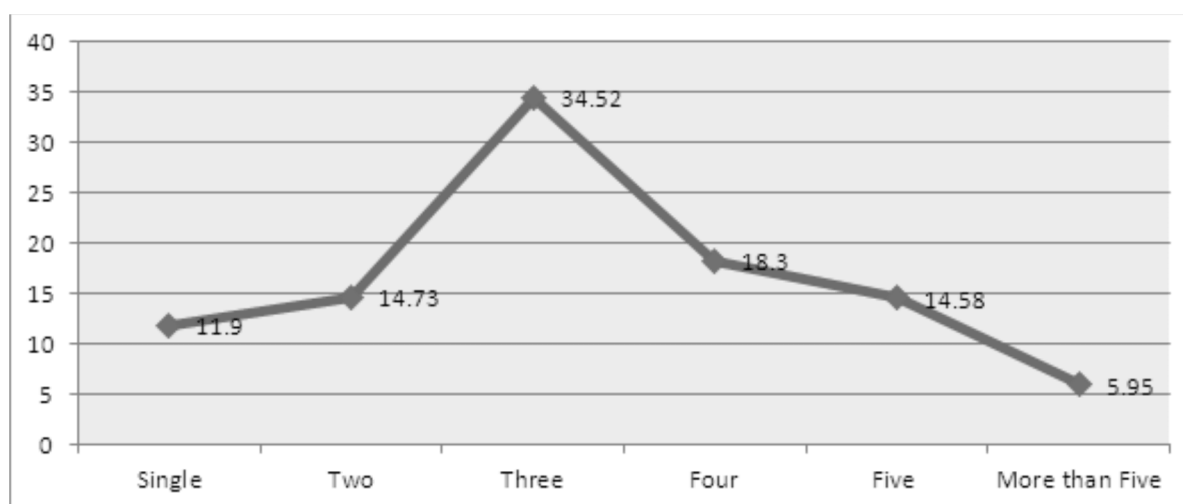
Table no 4. Country-wise distribution of Publications

Sr. No	Country	Articles	%
1	**USA**	130	19.34
2	United Kingdom	57	8.48
3	Germany	35	5.20
4	France	34	5.05
5	Australia	30	4.46
6	China	29	4.31
7	Canada	27	4.01
8	Spain	25	3.72
9	Italy	24	3.57
10	India	24	3.57
11	Switzerland	23	3.42
12	Brazil	21	31.2
13	Denmark	20	2.97
14	Indonesia	19	2.82
15	Sweden	18	2.67
16	Netherlands	18	2.67
17	Mexico	12	1.78
18	Belgium	12	1.78
19	South Africa	12	1.78
20	Portugal	11	1.63
21	Japan	11	1.63
22	Finland	11	1.63
23	Chile	11	1.63
24	New Zealand	10	1.48
25	Poland	9	1.33
26	Russia	6	0.89
27	Austria	6	0.89
28	Argentina	6	0.89

| Sr. No	Country	Articles	%
29	Singapore	6	0.89
30	Malaysia	2	0.29
31	Czech Republic	2	0.29
32	Greece	1	0.14
33	Ecuador	1	0.14
34	Madagascar	1	0.14
35	Pakistan	1	0.14
36	Ireland	1	0.14
37	Norway	1	0.14
38	Panama	1	0.14
39	Philippines	1	0.14
40	Thailand	1	0.14
41	Colombia	1	0.14
42	Egypt	1	0.14
	Total	**672**	**100**

Table no. 4 indicates that USA, UK, Germany and France have the majority of most cited records 130 (19.34%); 57 (8.48%); 35 (5.20%) and 34 (5.05%), respectively.

Table No. 5: Organizational Contributions of Articles

Organization	2012	2013	2014	2015	2016	Total	%
University	134	113.	127	98	111	**583**	**86.7**
Research Institute	18	19	15	19	18	**89**	**13.2**
Total	152	132	142	117	129	**672**	**100**

Table No 5 and fig no 4, it is seen that universities are the major contributors with 583 (86.7%) contributions during the period 2014 to 2018. While the research institutions contributed 89 (13.2%) respectively.

Fig No.5: Organizational Contributions of articles
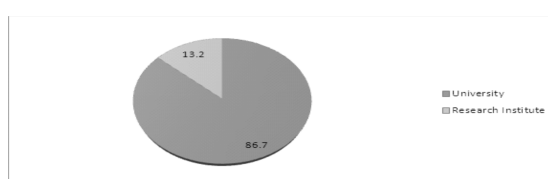
Table No.6 : Language wise distribution of Publications

Sr. No.	Language	No. of Articles	%
1	English	659	98.06
2	French	9	1.33
3	Chinese	2	0.29
4	Spanish	2	0.29
	Total	672	100

Table no 6 shows the languages of expression with the number of articles. In the current study, 4 languages i.e. English, French, Chinese and Spanish. Majority of the articles with 659 (98.06 %) are written in English language.

Table No. 7 : Most ranked list of Journal

Sr. No.	Name of Journal	Rank	No. of Articles	%
1	PLoS ONE	1	198	29.4
2	Nature Communications	2	32	4.76
3	Biodiversitas	3	25	3.72
4	Philosophical Transactions of the Royal Society B: Biological Sciences	4	22	3.27
5	Proceedings of the Royal Society B: Biological Sciences	4	22	3.27
6	PeerJ	4	22	3.27
7	Molecular Ecology	5	21	3.12
8	PLoS Biology	6	14	2.08
9	Molecular Phylogenetics and Evolution	6	14	2.08
10	Molecular Ecology Resources	7	13	1.93
11	Biological Reviews	8	11	1.63
12	Genetic Resources and Crop Evolution	9	10	1.48
13	Biologia (Poland)	9	10	1.48
14	Journal of Pure and Applied Microbiology	10	8	1.19
15	Journal of Theoretical Biology	11	7	1.04
16	Natures Sciences Societes	11	7	1.04
17	World Journal of Microbiology and Biotechnology	11	7	1.04

Sr. No.	Name of Journal	Rank	No. of Articles	%
18	Database	12	6	0.89
19	Evolutionary Applications	13	5	0.74
20	New Phytologist	13	5	0.74
21	Systematic Biology	13	5	0.74
22	American Journal of Botany	13	5	0.74
23	Current Biology	14	4	0.59
24	Journal of Mammalogy	14	4	0.59
25	Journal of the Royal Society Interface	14	4	0.59
26	PloS one	14	4	0.59
27	Research Journal of Pharmaceutical, Biological and Chemical Sciences	14	4	0.59
28	Applied and Environmental Microbiology	14	4	0.59
29	Asian Biotechnology and Development Review	15	3	0.44
30	Others	16	176	26.1
	Total		**672**	**100**

Table No 7 identified a rank list of journals, the study reveals that "PLoS ONE" scores the 1st rank which account to 198 (29.4%) of the total papers. "Nature Communications" scored second rank with 32 (4.76%) papers and "Biodiversitas" 25 (3.72%) scored third rank in the rank list.

Findings and Conclusions :

1. The Year-wise distributions of 672 articles published from 2014-2018. The maximum number of articles 152 (22.61%) were in the year 2014.

2. The mean relative growth for articles in the first five years 2015 to 2018 is (0.44%) reduced to (0.22%).

3. The number of Multi authors are more in number than Single authors.

4. USA, UK, Germany, France have the majority of most cited records in Literature.

5. Universities are the major contributors with 583 from 2014-2018 and followed by   research institute with 89.

6. English is the highest language in literature.

7. PLoS ONE scores highest.

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