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**Future Academic Libraries : Designing Technological  
Innovation and Best Practices in Academic Libraries**

**Chief Editor**

**Dr.Pramod P. Tandale**

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## Chairperson's Message



**Dr. Krantikumar R. Patil**  
Executive President  
Tararani Vidyapeeth, Kolhapur

I am very much delighted to extend warm regards to Kamala College fraternity on the occasion of one day National seminar on “**Future Academic Libraries: designing Technology innovation and best practices in academic libraries**”

Information is a vital resource for the advancement of all human activities and it is a precondition for the development of a country. The dependency on information in all realms of intellectual activities has increased day by day. The appearance of electronic resources has drastically changed the information behavior of the users not only in search methods but also in the use of sharing and its communication.

The Information and Communication Technology has brought revolutionary changes in the management of library and library functioning. Due to rapid growth of information in various forms the monopoly of the publishers has made the library professionals' task much more complex. Librarians not only have to carry out a routine task but they have also to act as an agent, facilitator, navigator and many more.

It is no doubt that the arrival and proliferation of electronic resources have number of significant impact on the use of resources. It is needed to be a resilient to create new ways to overcome the situation and explore opportunities of reshaping the services in the digital era. Considering the significance and relevance of the topic the college arranged the seminar which is a commendable gesture to bring forth views of academicians and scholars from different perspectives. On this occasion I wish all the best to the organizers and contributors

Date;- 3<sup>rd</sup> February 2023

Place; Kolhapur

## From the Principals Desk



It is matter of great pleasure and Pride to publish research papers which have been presented in the National Seminar on **Future Academic Libraries: Designing Technology Innovation and Best Practices in Academic Libraries** organized by our college, in a form of research journal. Now libraries are at turning point. Technology will continue to change and academic libraries and librarians have to use the changing technology to provide the best access and service to their patrons. Now a day's all stake holders of library expect to be able to access information around the clock from almost anywhere in the world and via growing number of devices from laptop to mobiles. As the information technologies are changing day by day and growing at tremendous speed the knowledge society is becoming more complex, competitive and dependent on technological changes and information explosion. In the era of information explosion and globalization future academic libraries will need to look behind the borders.

Kamala College is one of the branches of Tararani Vidyapeeth. Our college is established in 1984 with the noble vision of women empowerment. **The college is honored with college with potential for excellence by UGC in 2016 and reaccredited third cycle by NAAC with Grade 'A' (3.12 CGPA) status in 2017 also UGC has Conferred the Autonomous Status from the Academic Year 2022-2023.** Our college has organized Three International, Six National, Two State Level Seminars and One International and Six National Webinars very successfully. The Executive President Hon. Dr. Krantikumar Patil, who has kept the educational pace of the institution abreast of time with his guidance the institution is going ahead in the direction of excellence. Hon. Shri Prajakt Patil, the Secretary of the institution is our strong supporter. Due to their inspiration the seminar proved fruitful for the all delegates. It is my great pleasure to appreciate the efforts taken by Smt. Urmila Kadam Convener and Dr. Ravindra Adhav Co Convener. Teaching and Non Teaching Staff for making the seminar successful. I express my best wishes to the editors.

**Prof. Dr. Tejaswini B. Mudekar**  
Principal, Kamala College, Kolhapur

## From the Editorial Desk

Traditional libraries are shifting to become digital in the age of ICT. The print collection of the library is also going to be replaced by digital and electronic forms as the e-books, e-journals, e-resources are now easily available either on free or on subscription basis. It reflects on the nomenclature of the library like Knowledge Resource Centre. The planning of user's services and policy formulations basically depends on the requirement of the users in the modern world. The user needs and Publication trends are greatly affected by the computer communication and networking Technology. Availability of the information changes the role of librarians. The working environment of the libraries also changed along with these developments. Since the library professional should have an understanding about the current resources and the usage pattern of various kinds of information sources for the dissemination of the right information to their clients.

We believe that it is an opportune time to have intellectual discourses on the future of academic libraries, so we have organized one day National Seminar on **"Future Academic Libraries: designing technology innovation and best practices in academic libraries"**. We are happy that we would evoke a through brainstorming on the theme. The stupendous response by the delegates is an encouraging gesture which has boosted our morale. Number of research papers has been contributed by the researchers. We are immensely thankful to all the esteemed contributors who have revealed different dimensions of the topic and contributed their views, liberally. My personal gratitude goes to the eminent personality **Hon. Shri Ramesh Tawadkar, Speaker, Goa Legislative Assembly and MLA Canacona, Ex. Minister of Sports and Youth Affairs, Agricultural, Tribal Welfare, Animal Husbandry and Veterinary Services, Government of Goa** who had accepted our invitation as Chief Guest of Inaugural Function and shared his views and ideas. **Hon. Dr. Gopakumar V.**, Head Knowledge Centre, Kerala University of Digital Science, Innovation and Technology, Kerala and **Dr. Dhananjay Sutar**, I/C Director / Deputy Librarian BBK KRC, Shivaji University, Kolhapur for sharing their valuable views.

We owe our sincere thanks to Hon. Principal Dr. Krantikumar Patil, Executive President, Tararani Vidyapeeth, Kolhapur who is the constant source of inspiration and driving force behind the execution of innovative ideas. Without his guidance and kind support we would not have achieved the success. We are thankful to young and dynamic secretary of Tararani Vidyapeeth, Kolhapur Hon. Shri Prajakt Patil for his kind support in the venture. Thanks are due to Hon. Principal Dr. Tejaswini Mudekar whose enthusiastic encouragement could enable us to realize the concept of discourse on future of academic libraries. My personal gratitude goes to Shri. Pratap Rangapure for his valuable support and kind cooperation and Smt. Pooja Chavan for her continuous helping hand for seminar work. The organizing committee member also contributed a lot for the success of the seminar. I personally acknowledge the kind cooperation and support of Dr. Ravindra Adhav, President, **Shivaji University College Librarians Association (SUCLA)**. The said Seminar would not have been successful without the cooperation and support of the faculty and administrative staff. I thank all of them for their kind support and cooperation.

Smt Urmila R. Kadam  
Convener

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## Journal Citation Report Best Practices in Virology Research in the Digital Era: An Analysis

**Mr. Mangesh S. Talmale**

Librarian, Karve Institute of Social Service  
Karve Nagar, Pune

**Dr. Nandkishor Motewar**

Director, KRC and Head, DLISc,  
University of Mumbai

### Abstract:

*Researcher use impact factors to identify journal articles with significant impact. In high impact journals, researchers are more respected when their articles are published. This paper describes Clarivate Analytics' Journal Citation Reports, best practices and its Criteria for Web of Science Journal Evaluation, and its Key Features. The JCR reports should be examined and the impact factors, journal rankings, as well as the published journals and countries in the virology research field should be analyzed.*

**Keywords:** Journal Citation Report, Web of Science, Virology

### 1.0 Introduction:

The Journal Citation Report is a very useful resource. It is a unique tool. This tool is used to evaluate the quality of scholarly journals by examining their citations data. In journals, any metric that is overemphasized may lead to significant shortcomings, but the Journal Impact Factor, a measure of a journal's quality, is perhaps the most widely used metric. There is a tendency for it to serve as a measure of a journal's importance within its field. It was in the 1970s that the Journal Citation Report would be used for the first time after being conceptualized by Eugene Garfield in 1955. In science and medicine, technology, as well as the social sciences, the Journal Citation Report is one of the only sources of citation data on journals. JCR Web provides a clear and easy-to-understand overview of the relationship between citing and cited journals.

### 1.1 Definitions: Journal Impact Factor

Eugene Garfield introduced **Journal Impact Factor** concept in 1970, which measures the average number of citations for each citable item (article, review, letter, discovery account, and note, abstract) in a specific journal and during a specific year or period. The impact factor can be used to compare the relative importance of journals in the same area. Many different journals in the same area are compared using this factor. Journal impact factor (JIF) is of the utmost significance in this regard, as it looks at the number of citations a journal receives during each year. It divides the number of sources published in the journal in the previous two years by the number of citations. Clarivate Analytics (previously Thomson Reuters' intellectual property) publishes the Journal Citation Reports (JCR) every year.

### 1.2 Criteria for Web of Science Journal Evaluation:

In contrast with other curation services, Web of Science Core Collection TM is unique. For the purpose of preventing bias or conflicts of interest, the list is compiled by independent experts who are not affiliated with any publishing houses or research institutes. Editors are assigned particular areas of expertise, which enables them to develop a deep understanding of journals within that field. This process of editorial curation is distinct from other databases which rely primarily on algorithms and/or delegate editorial decision making to the research community. The three guiding principles of the selection process are objectivity, selectivity, and collection dynamics. There are 28 criteria in total that we use to evaluate journals; these are split into two groups: 24 quality criteria that evaluate journals based on editorial quality and best practices, and four impact criteria selected based on citation activity and their impact on their respective fields.

Emerging Sources Citation Index TM (ESCI) includes journals that meet quality criteria. According to their subject area, journals that meet the additional impact criteria are included in Science Citation Index Expanded TM (SCIE), Social Sciences Citation Index TM (SSCI) or Arts & Humanities Citation Index (AHCI). It

is a dynamic collection that is constantly curated to ensure that the journals belong to the right collection. SCIE, SSCI or AHCI journals that gain impact are moving from ESCI.

**1.3 Key Features of JCR:** Below are some of the major features of JCR.

- **Immediacy index** measures the frequency with which a journal's articles are cited within a year of their publication.
- **Eigenfactor scores** are computed by counting the number of times cited articles from a journal that were published in the past five years during the JCR year, but also taking into account which journals contributed citations, so higher cited journals would influence the network more than lesser cited journals.
- Impact factors **without self-citations** also address the criticisms that impact factors can be easily influenced by self-citations.
- **5-year journal impact factor** measures the number of times articles from the journal over the past five years were cited during a given JCR year.
- A journal's **h-index** can also be used to measure an individual scientist's scientific productivity and impact.

**1.4 Objectives:** This paper has the following objectives.

1. To analyze the ranking of the virology journals.
2. To study the impact factor and citation count of the virology journals.
3. To find out the most prolific publishers and country related to the virology journals.
4. Scope and limitation: Subject categories in research publications were determined based on the journals assigned to relevant subject categories by Clarivate Analytics. There are many subject categories. In this study, the focus was primarily on virology research journals. These were the journals covered in JCR during the 2017-2020 time periods.

**1.5 Research method:** The results presented in the study were based on the JCR data downloaded for the period 2017-2020. Researchers used a literature search for their research study.

## 2.0 Review of Literature:

Leydesdorff (2004) analyzed the Journal Citation Report 2001 of the Social Science Citation Index to identify eigenvectors and biconnected components of a single domain. Both methods may be applied to traditional disciplines (such as economics, psychology, and political science). However, they interact moderately. A number of other journals cluster between the major disciplines and show a relationship between the sub-disciplines. This mode differs from that of the major disciplines. Moreover, factor analysis can highlight methodological differences between groups that are connected in a theoretical bicomponent. According to Abrizah et al. (2015), the stated preference study examined how information science and library science journals are sub-categorized in the 2011 Journal Citation Report. There are few journals ranking near the top 25% in JCR's list of IS-LS journals by impact factor. Many respondents expressed concern regarding the "fit" of information systems journals in the IS-LS category. Ram (2014) studied eleven journals from 1997 to 2011 and only three were indexed by SSCI-JCR. There are no journals with an impact factor higher than 0.5. In terms of cited journals (Indian journals cited by other journals), Economic and Political Weekly has the highest citations. The weekly journal is the most frequently cited. Among Indian journals, self-citation is very common. A journal's popularity and visibility among its subject collection is crucial for identifying its core journals. This study will contribute to the selection of the right journals for library subscriptions and publication. The purpose of this study is to add value to this area and assist librarians in selecting, guiding, and assisting their users in identifying social science journals of importance wherever social science research is a domain area. With respect to analyzing the productivity of journals and the citation counts for long-term time periods, the five-year mid-term JIF is extremely complementary to the two-year short-term JIF when calculating the prestige, reputation, and impact of journals. Further insight into the landscape of scholarly publishing could result from segmenting the various indicators by

disciplinary and sub- disciplinary categories, or by language and country of publication of the journals (not by country affiliation of the authors).It was concluded that ISI's JCR was disproportionately represented by scientific journals compared with national GDP or scientific productivity. JCR representation may be affected by the quality, or perhaps by some other factors, that remain to be determined, of a country's scientific journals. Government support can help foster the quality of scientific journals and increase their international visibility in transitional countries.

**3.0 Analysis and Results:**

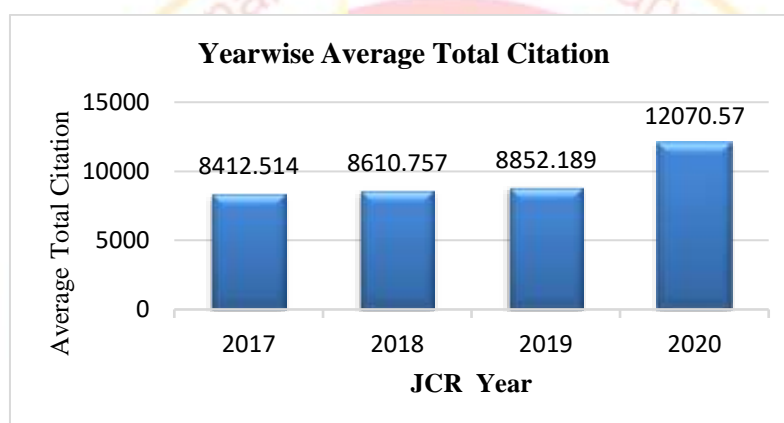
**3.1 Ranking of journals in Virology research is basedon total cites:**During the study period, 37 virology research journals were indexed in JCR. Journal of Virology has the greatest number of citations: 94277.50, whereas Virologie has the lowest number of citations (64.50). Citations provide an indication of how frequently a particular journal is used by researchers.Virology journals covered in JCR during the 2017-2020 as shown in the Table-1.

**Table-1: Virology Journals Ranked by Total Citation Count**

<b>Ra nk</b>	<b>Journal Title</b>	<b>Total Cites 2017</b>	<b>Total Cites2018</b>	<b>Total Cites2019</b>	<b>Total Cites2020</b>	<b>Sum of Total Cites</b>	<b>Average of Total Cites</b>
1	Journal of Virology	89,382	88,684	87,109	1,11,935	3,77,110	94277.50
2	PlosPathogens	40,344	43,751	44,617	55,666	1,84,378	46094.50
3	Virology	25,569	25,009	24,662	30,019	1,05,259	26314.75
4	Cell Host & Microbe	15,851	17,787	20,501	28,716	82,855	20713.75
5	Journal of General Virology	19,016	18,927	19,106	22,834	79,883	19970.75
6	AIDS	20,578	19,276	18,786	20,317	78,957	19739.25
7	Journal of Medical Virology	8,416	8,197	7,878	25,258	49,749	12437.25
8	Viruses-Basel	6,145	8,083	11,303	22,399	47,930	11982.50
9	Archives of Virology	10,202	10,715	11,215	13,818	45,950	11487.50
10	Virus Research	8,965	9,137	9,632	13,463	41,197	10299.25
11	Antiviral Research	8,099	8,440	8,708	15,686	40,933	10233.25
12	Journal of VirologicalMethods	7,521	7,508	7,558	9,082	31,669	7917.25
13	Journal of Clinical Virology	7,231	6,897	6,856	10,320	31,304	7826.00
14	Virology Journal	6,308	6,723	7,116	9,953	30,100	7525.00
15	Journal of Viral Hepatitis	4,846	4,816	4,742	5,219	19,623	4905.75
16	International Journal of Medical Microbiology	3,914	4,168	4,338	5,058	17,478	4369.50
17	Aids Research And Human Retroviruses	4,469	4,009	4,192	4,756	17,426	4356.50
18	Current Opinion In Virology	3,317	3,684	4,041	5,410	16,452	4113.00
19	Retrovirology	3,436	3,644	3,527	3,999	14,606	3651.50
20	Journal of Neurovirology	2,866	2,577	3,021	3,532	11,996	2999.00
21	Virus Genes	2,525	2,482	2,702	3,101	10,810	2702.50
22	Reviews In Medical Virology	1,945	1,883	1,982	3,385	9,195	2298.75
23	Influenza And Other Respiratory Viruses	1,589	2,044	2,062	3,470	9,165	2291.25
24	Advances In Virus Research	1,732	1,840	1,919	3,485	8,976	2244.00
25	Viral Immunology	1,298	1,328	1,437	1,991	6,054	1513.50
26	Intervirolgy	1,258	1,257	1,223	1,575	5,313	1328.25



27	Annual Review Of Virology	522	787	1,094	2,317	4,720	1180.00
28	Current HIV Research	1,024	981	987	1,270	4,262	1065.50
29	VirologicaSinica	542	602	863	1,850	3,857	964.25
30	Virus Evolution		769	1138	1,901	3,808	952.00
31	Future Virology	703	687	748	1,167	3,305	826.25
32	Food and Environmental Virology	589	809	757	1,132	3,287	821.75
33	ACTA Virologica	716	708	783	1,063	3,270	817.50
34	Journal of Virus Eradication			483	720	1,203	300.75
35	Southern African Journal of HIV Medicine	190	205	270	449	1,114	278.50
36	Molecular Genetics Microbiology and Virology	107	135	137	172	551	137.75
37	Virologie	48	49	38	123	258	64.50
	Year-wise Total Cites	3,11,263	3,18,598	3,27,531	4,46,611	14,04,003	351000.75
	Year-wise Average Total Cites	8412.514	8610.757	8852.189	12070.57	37946.03	9486.51



**Graph -1: Average total citation**

Graph -1: shows how Year-wise average total citations for the Years 2017 to 2020 have increased from 2.3 % (2017-2018), 2.72 % (2018-2019), and 26.66% (2019-2020).

**3.2 Journal Impact Factor analysis:** Ranking of journals in the virology subject category by Journal Impact Factors based on JCR during the 2017-2020 as shown in the Table-2. The journal impact factor is a measure of the frequency with which the “average article” in a journal has been cited in a particular year. The impact factor will help you evaluate a journal’s relative importance, especially when you compare it to others in the same field. The ranked journals in the subject category of virology by Journal Impact Factors are given as listed in the Clarivate Journal Citation Report. Cell Host & Microbe is the top ranked journal with JIFs of 17.872 (2017), 15.753 (2018), 15.923 (2019) and 21.023 (2020). Table-2 shows that the article published in this journal (2015-2016, 2016-2017, 2017-2018, 2018-2019) is cited an average of 17.643 times in a particular year and an increase in the JIF for the journals in the virology subject category over the last four years from 2017 to 2020. The average Impact Factor is increased from 2017 (3.12) to 2020 (4.37).

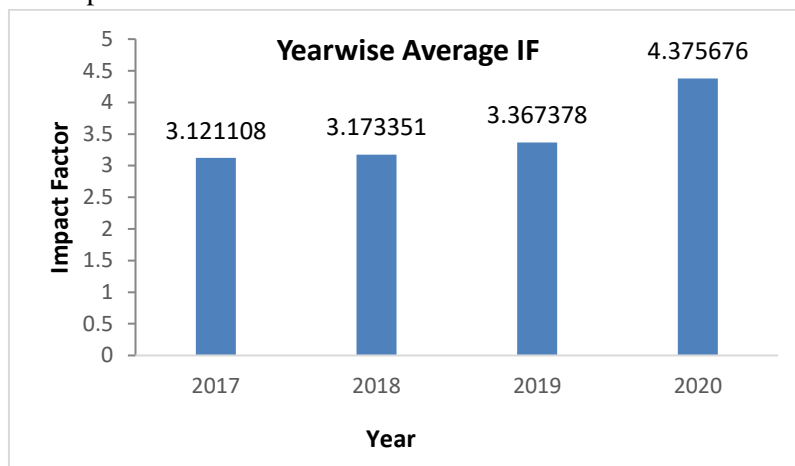
**Table-2: Ranking of journals in the virology subject category by Journal Impact Factors.**

S. N.	Journal Title	JCR 2017 of JIF	JCR 2018 of JIF	JCR 2019 of JIF	JCR 2020 of JIF	JCR Sum of JIF	JCR Average of JIF
1	Cell Host & Microbe	17.872	15.753	15.923	21.023	70.571	17.643

2	Annual Review of Virology	5.345	6.566	8.021	10.431	30.363	7.591
3	Advances in Virus Research	5.636	5.600	4.633	9.937	25.806	6.452
4	PLoS Pathogens	6.158	6.463	6.218	6.823	25.662	6.416
5	Current Opinion in Virology	5.644	5.400	4.985	7.090	23.119	5.780
6	REVIEWS IN MEDICAL VIROLOGY	5.034	3.702	4.221	6.989	19.946	4.987
7	Virus Evolution		5.408	5.549	7.989	18.946	4.737
8	ANTIVIRAL RESEARCH	4.307	4.130	4.101	5.970	18.508	4.627
9	JOURNAL OF VIROLOGY	4.368	4.324	4.501	5.103	18.296	4.574
10	AIDS	4.914	4.499	4.511	4.177	18.101	4.525
11	Viruses-Basel	3.761	3.811	3.816	5.048	16.436	4.109
12	Retrovirology	3.417	3.744	4.183	4.602	15.946	3.987
13	JOURNAL OF VIRAL HEPATITIS	4.237	4.016	3.561	3.728	15.542	3.886
14	Influenza and Other Respiratory Viruses	2.954	3.094	3.288	4.380	13.716	3.429
15	INTERNATIONAL JOURNAL OF MEDICAL MICROBIOLOGY	3.298	3.362	3.113	3.473	13.246	3.312
16	JOURNAL OF GENERAL VIROLOGY	2.514	2.809	3.376	3.891	12.590	3.148
17	VIROLOGY	3.374	2.657	2.819	3.616	12.466	3.117
18	VIROLOGICA SINICA	2.357	2.467	3.242	4.327	12.393	3.098
19	JOURNAL OF CLINICAL VIROLOGY	3.101	3.020	2.777	3.168	12.066	3.017
20	Virology Journal	2.465	2.464	2.579	4.099	11.607	2.902
21	VIRUS RESEARCH	2.484	2.736	2.934	3.303	11.457	2.864
22	Food and Environmental Virology	2.273	3.055	2.819	2.778	10.925	2.731
23	JOURNAL OF NEUROVIROLOGY	3.228	2.302	2.354	2.643	10.527	2.632
24	ARCHIVES OF VIROLOGY	2.160	2.261	2.243	2.574	9.238	2.310
25	JOURNAL OF MEDICAL VIROLOGY	1.988	2.049	2.021	2.327	8.385	2.096
26	AIDS RESEARCH AND HUMAN RETROVIRUSES	1.935	1.805	1.765	2.205	7.710	1.928
27	SOUTHERN AFRICAN JOURNAL OF HIV MEDICINE	1.089	1.372	2.500	2.744	7.705	1.926
28	VIRUS GENES	1.542	1.616	1.991	2.332	7.481	1.870
29	JOURNAL OF VIROLOGICAL METHODS	1.756	1.746	1.786	2.014	7.302	1.826
30	VIRAL IMMUNOLOGY	1.531	1.417	1.695	2.257	6.900	1.725
31	Journal of Virus Eradication			2.824	3.696	6.520	1.630
32	CURRENT HIV RESEARCH	1.562	1.115	0.802	1.581	5.060	1.265
33	INTERVIROLOGY	1.011	0.873	1.235	1.763	4.882	1.221
34	Future Virology	1.121	0.730	0.952	1.831	4.634	1.159
35	ACTA VIROLOGICA	0.696	0.554	0.793	1.162	3.205	0.801
36	Molecular Genetics Microbiology and Virology	0.313	0.333	0.250	0.352	1.248	0.312
37	VIROLOGIE	0.036	0.161	0.212	0.474	0.883	0.221
	Total IF	115.481	117.414	124.593	161.900	519.388	129.847
	Average IF	3.121108	3.173351	3.367378	4.375676	14.038	3.509

Table -109 shows the maximum cited journals in human virology research based on JCR Average of JIF during the study period has been identified and highly JCR Average of JIF are considered with which top 37.

**3.3 Average Impact Factor:** Journals in the virology subject category by Journal Impact Factors in JCR during the 2017-2020 as shown Graph-2.

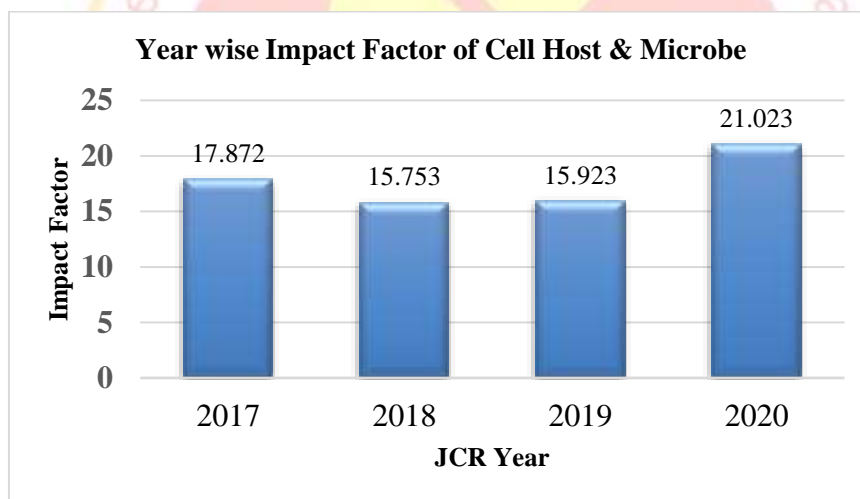


**Graph -2: Shows the average Impact Factor.**

The graph-2 shows the average Impact Factor of Journals in the virology subject category is increased from 2017 (3.121) to 2020 (4.375).

**3.4 Top Ranked Journal In Virology Research :**

The first ranked Journal Progress in Cell Host & Microbe by JIF 1<sup>ST</sup> based on the total citation count. The following Graph-3 shows of the journal Cell Host & Microbe for the last 4 years showing the increase in citation rate.



**Graph -3: shows the average Impact Factor of Cell Host & Microbe.**

The major advantages of JIF that it enables comparison between journals within field regardless of their size or reputation. JIF helps to establish the relative importance of one journals compared to other journal in the same discipline, that is not across displaces. Graph-3: show the Impact Factor of Cell Host & Microbe is increased from (15.753) to (21.023).

**3.5 Most Prolific Publishers in Virology Research :**

The attempt was made to most prolific publishers in virology research and is presented in Table - 4.

S.N.	Publisher	Country	Frequency	Average If	Average citation
1	Elsevier	Netherlands	6	19.743	40689.500
2	Springer	United States	3	6.911	15011.750
3	Academic Press Inc.	United States	2	9.568	28558.750

4	BioMed Central Ltd.	United Kingdom	2	6.888	11176.500
5	Wiley-Blackwell Publishing Ltd	United Kingdom	2	7.315	7197.000
6	Mary Ann Liebert Inc.	United States	2	3.653	5870.000
7	Cell Press	United Kingdom	1	17.643	20713.750
8	Annual Reviews Inc.	United States	1	7.591	1180.000
9	Public Library of Science	United States	1	6.416	46094.500
10	John Wiley and Sons Ltd	United Kingdom	1	4.987	2298.750
11	Oxford University Press	United States	1	4.737	952.000
12	American Society for Microbiology	United States	1	4.574	94277.500
13	Lippincott Williams and Wilkins Ltd.	United States	1	4.525	19739.250
14	MDPI	Switzerland	1	4.109	11982.500
15	Urban und Fischer Verlag GmbH und Co. KG	Germany	1	3.312	4369.500
16	Microbiology Society	United Kingdom	1	3.148	19970.750
17	Kohsuehchu pan she	Peoples R China	1	3.098	964.250
18	Taylor and Francis Ltd.	United States	1	2.632	2999.000
19	Wiley-Liss Inc.	United States	1	2.096	12437.250
20	AOSIS (Pty) Ltd	South Africa	1	1.926	278.500
21	Bentham Science Publishers B.V.	United Arab Emirates	1	1.265	1065.500
22	S. Karger AG	Switzerland	1	1.221	1328.250
23	Future Medicine Ltd.	United Kingdom	1	1.159	826.250
24	AEP - Academic Electronic Press Ltd.	Slovakia	1	0.801	817.500
25	Pleiades Publishing	Russian Federation	1	0.312	137.750
26	John LibbeyEurotext	France	1	0.221	64.500
	Total		37		

**Table - 4 : Most Prolific Publishers in Virology Research**

Table -4 represents the top 26 most prolific International publishers in Virology research based on frequency of journal titles during the study period. The highly prolific publishers and their countries are as follows: Elsevier (Netherlands) followed by Springer (United States) and Academic Press Inc. (United States) and so on. Most of the journals publishers are international than Indian publishers in virology research. It reveals that scientists published their virology research mostly preferred in international journals.

#### 4.0 Discussion and Conclusion:

There are several factors to consider when using JCR. When evaluating journals, ISI does not recommend users rely on citation data alone. There are many factors that can impact citation rates: a publication's history, its format, its schedule of publication, and subject matter specialization. The number of articles given for journals listed in the JCR includes original research and review articles only. Editors, letters, news items, and meeting abstracts are not included in article counts because they are not generally cited. Bias towards English language journals and the journals listed in the SCI will be counted when calculating the impact factor. This leads to lower impact for non-English language journals. Self-citation is a technique used by authors to boost their JIF. Researchers may self-cite if it indicates they are still involved in research. It is still possible to manipulate the JIF in order to increase it. It is not consistent that in calculating JIF the numerator includes all types of articles such as letters, editorials, and abstracts, while the denominator includes only normal articles and reviews as citable.



articles. In the process, millions of citations a year are processed which leads to inaccuracies. In Clarivate Analytics' coverage of citation tracking, only those indexes are included. Whenever a journal is not indexed in Web of Science, its references are not scanned. Since an impact factor cannot be calculated until at least three years have passed, the tendency is to favour older and larger journals. Journals with a larger body of previously published articles usually have more citations because they have a larger body of work available for citation. As seen from publications JCR data of Journals in the virology subject category by Journal Impact Factors. During 2017 to 2020, it grew steadily at 2.3 % (2017-2018), 2.72 % (2018-2019), and then increased suddenly at 26.66 % (2019-2020). Average Impact Factor of Journals in the virology subject category is increased from 2017 (3.121) to 2020 (4.375). In virology research, most journals are published by international publishers. Citation counts should not be based solely on journal impact factors. Everyone knows that different journals have different impact factors. In addition, this does not mean that the impact factor of the journal in which a person has published is irrelevant. There is no connection between a journal's impact factor and where a person has published. Scientific papers accepted by high impact journals are certainly regarded with some prestige. Bibliometric metrics from a reputable source can be obtained through the Journal Citation Reports (JCR). Although JCR has limitations and new metrics have been developed, it remains in widespread use. In recent years, JCR has become universal. Now it is less selective, but more comprehensive than it was.

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**Scenario in Maharashtra of Off-campus Access to Subscribed E-Resources through INFED  
(Indian Access Management Federation)****Minaj Naikawdi****Librarian,**

Smt. Akkatai Ramgonda Patil Kanya Mahavidyalya, Ichalkaranji

**Research Scholar,**

Department of Library &amp; Information Science

Shivaji University, Kolhapur

**Abstract:**

*Libraries have gone through continuous changes in the way they serve their users. The COVID-19 pandemic has had a path-breaking impact on the higher education system, especially in India. The pandemic period has highlighted the need for remote access to library resources and connectivity with users. It is not enough to have digital libraries or digital collections; users must have free off-campus access in combination to on-campus access. Libraries need to set up their own independent and authentic Identity and Access Management Federation. But implementation of such system requires technical skill sets and proper infrastructure. INFLIBNET come up with the initiatives of setting INDIA's first Access Management Federation as INFED. Maharashtra has 2961 (12.46 %) of the entire 23759 higher education institutions. Yet, Only 0.58 % of Indian institutes whereas 0.371 % of Maharashtra's qualified institutions have joined INFED.*

*Keyword: COVID-19 Pandemic, India, Higher Education, Institute, e-resources, Remote Access Management Federation, INFED.*

**Introduction:**

It is undeniable that the advent of ICT has drastically altered the way traditional library services are delivered. Libraries have gone through continuous changes in the way they serve their users. Libraries have witnessed changes in their collections, resources, user information needs, and services. All these changes were technology-driven. The entire world is suffering from an outbreak of the COVID-19 pandemic. Yet human life is under the fainthearted of COVID-19. The COVID-19 pandemic has brought drastic change to all spheres of human life globally. The COVID-19 pandemic has had a path-breaking impact on the higher education system, especially in countries like India. Higher education systems, from universities to colleges, began to impart online education, as well as libraries, also switching over their services from on-campus to off-campus within a very short space of time. Even now, after unlocking, libraries are serving their users with restrictions. The pandemic period has highlighted the need for remote access to library resources as well as the online connectivity of libraries with their users.

In India, despite the technological transformation, most libraries have more resources in traditional as well as digital form, which can be accessed on-campus only. Many institutions engaged in higher education have developed digital libraries and digital knowledge repositories. It is not enough to have digital libraries or digital collections; having free off-campus access along with on-campus access is a crucial part on behalf of users. Off-campus access to subscribed e-resources has three important factors, i.e., economic provision for purchase or subscription to e-resources, access to e-resources by legal users, and utilization of e-resources by the means of usage.

Institutions engaged in higher education have already started to subscribe to e-resources in the form of e-books, e-journals, and e-databases and provide access to subscribed e-resources. Libraries across India were providing access to subscribed e-resources using VPN or proxy-based access or IP-based access. It has been found from many studies that these access systems have their own limitations. Major issues related to VPN or IP-

based accesses are multiple log-in credentials for multiple e-resources from different publishers, and access is restricted within four walls of the campus. At the same time, Indian institutes engaged in higher education don't even have a mechanism for proper mail ids like student123@institution.ac.in. They lack the proper skill sets and technical infrastructure for setting up their individual authentic access management systems. As a result of all this, users can't have their authentic digital ids given by their institutions.

To get around this technical problem and provide hurdle-free remote access to subscribed e-resources, libraries must put up their own independent and genuine access management system.

**Purpose Of The Study:**

The goal of this exercise is to figure out how many institutes in Maharashtra are members of INFLIBNET's INFED and have access to the INFED facility, as well as how many institutes use the facility category wise.

**Methodology:**

The current research is both evaluative and descriptive in nature. Data from December 2021 onwards has been taken into account. The study's data comes from INFED's website, which includes information on participating institutions and publishers in the INFED ACCESS MANAGEMENT FEDERATION. Simultaneously, statistical data about the number of higher education institutions in India and Maharashtra was gathered from UGC, AICTE, and other websites. Excel is used to evaluate the data, and MS Word 2013 is used to create the report.

**Infed: (Indian Access Mangement Federation)**

One of the key duties of the INFLIBNET Centre is to give access to academic e-resources to Indian universities and colleges through the e-ShodhSindhu and N-list programs. Initially, INLIBNET provided IP-based access to subscribed e-resources. IP-based access has its own limitations. In view of this, INFLIBNET has devised a "user authentication and access control system dispersed across participating institutions using standard sets of rules and metadata for attribute sharing" solution called "INFED" (INDIAN Access Management Federation). From the point of delivering the right information to the right user at the right time, INFED is a highly beneficial tool for libraries. INFED is an access management federation developed solely for remote access or off-campus access, enabling enrolled patrons to access multiple e-resources with a single log-in credential, irrespective of geographical location with internet connectivity. At no charge, INFED promotes and assists collaborating institutions in implementing their own access management federation. INFED is important for building trust between all participating institutions, including universities, colleges, publishers, and e-resource users. Currently, INFLIBNET provides INFED facilities to government and government-aided universities and colleges covered by Sections 12 (B) and 2 (F) of the UGC Act, 1956, as well as all UGC Inter-University Centers (IUCs), IITs, IISc, IISERs, NITs, and other organizations that are eligible to access e-resources through the e-ShodhSindhu Consortium and the National Library and Information.

**Analysis & Interpretation:**

The information gathered from the INFED, UGC, and INFLIBNET, AICTE and Govt. of India websites is combined and analyzed under the headings.

**Higher Education Institutions In Maharashtra**

India's public education system is the world's second-largest. There are roughly 1100 universities recognized by the University Grant Commission, 23000 colleges recognized by the University Grant Commission



and the AICTE, and 151 institutes of national importance recognized by the Government of India, comprising IITs, IIMs, IISc CFITs, and IISERs NITs. The UGC, AICTE, and the Indian government have notified the following number of higher education institutes in India and Maharashtra.

**Table No.1**  
*Category-wise Institutions in Higher Education in India & Maharashtra*

Institutions	INDIA	MAHARASHTRA
Central Universities	54	01 (0.0185%)
State Universities	442	25 (5.65%)
Deemed to be Universities	126	20(15.87%)
Private Universities	397	21(5.28%)
Colleges under 2 f 12B	12911	1565 (12.12%)
Autonomous Colleges	832	119 (14.30%)
Technical Colleges Affiliated to AICTE	8997	1210(13.44%)

Source:<https://www.ugc.ac.in/oldpdf/Consolidated%20list%20of%20AI%20Universities.pdf> & <https://facilities.aicteindia.org/dashboard/pages/dashboardaicte.php>

As can be seen from the table above, there are a total of 23759 higher education institutes which have been notified by the UGC, AICTE, and the Government of India till December 2021. Maharashtra has **2961 (12.46 %)** of the entire 23759 higher education institutions. There is only 01 central university in Maharashtra, with just a ratio of only **0.0185 %** among all central universities in India; 25 state universities with such a ratio of **5.65 %** of all state universities in India; 20 deemed to be universities with a ratio of **15.87 %** of all deemed to be Universities in India; and finally 21 private universities with a ratio of all. In addition, there are 21 private universities in India, making up 5.28 percent of the total number of private universities. Furthermore there are 1565 colleges covered by UGC under 2(f) 12(b), accounting for **12.12%** of all colleges and 119 autonomous colleges accounting for **14.30%** of all autonomous colleges 1210 technical colleges affiliated with AICTE, accounting for **13.14 %** of all technical colleges across India.

**Category-Wise Member Institutions On Infed Portal:**

Central Universities, State Universities, Deemed to be Universities, State Private Universities, Colleges covered under 2(f) 12 (b), and Autonomous Colleges, Institutes of National Importance are the categories used by the University Grant Commission to classify higher education institutions. Institutions such like Architecture, Arts and Crafts, Architecture and Town Planning, Architecture and Planning, Architecture, Engineering and Technology, and so on have indeed been categorized mostly by AICTE. There are also institutes of national importance, research & development institutes, which have been categorized as IIMs, IITs, IIESR, NIITs, and so on. On their website, INFED has classified these institutes into 10 categories as follows:

**Table No.2**  
*INFED PORTAL CATEGORIES OF MEMBER INSTITUTIONS*

<b>Category</b>
Central Universities
Institutes of National Importance CFTI



State Public Universities
Deemed Universities Government
Deemed University Government Aided
Government and Others
Government aided
State Private Universities
Deemed University Private
Private

**Source :<https://infed.inflibnet.ac.in/vcategorywise.php>**

**Installation Of Infed In Maharashtra**

There are **166** participating member institutions which have installed INFED across India as of December **2023**. Out of **166** member institutes, INFED has been placed at **13 (7.78%)** of Maharashtra's institutes so far: **06** private institutes, **03** state public universities, **01** deemed university-government, **01** deemed university-private, **01** government/others institutes, and just **01** Institute of National Importance.

**Table No.3**

**List of Institutes Installed INFED as on December 2021**

Category	Name of the Institute
Government/Others institutes	1. Inter-University Centre for Astronomy and Astrophysics, Pune
Private institutes	2. Anjuman-I-Islam's Kalsekar Technical Campus 3. Prin. L. N. Welingkar Institute of Management Development and Research 4. Vivekanand Education Society 5. Zeal College of Engineering and Research 6. Deccan College Post-Graduate and Research Institute, Pune 7. Indira Group of Institutes, Pune
State Public Universities	8. Maharshi Karve stree Shikshan Sanstha's Cummins College of Engineering for Women 9. Shivaji University, Kolhapur 10. Swami Ramanand Teerth Marathwada University Nanded
Deemed University-Government	11. Indira Gandhi Institute of Development Research
Deemed University-Private	12. Bharati Vidyapeeth Deemed University, Pune
Institute of National Importance	13. Indian Institute of Information Technology, Nagpur

**Source: <https://infed.inflibnet.ac.in/vcategorywise.php>**

As previously stated, Maharashtra has **2961 (12.46%)** higher education institutes out of a total of **23759** institutes across India. Only 166 eligible institutes across India, and only 13 eligible institutes from Maharashtra, have taken steps to implement INFED Indian Access Management Federation by INFLIBNET as of January

2023. INFED has only been joined by **0.69 %** of institutes in India and **0.43 %** of eligible institutions in Maharashtra. It seems that installing INFED for remote access and off-campus access is taking a bit longer.

**Resources Available Through Infed**

As of January 2023, 43 service providers, i.e. publishers, had integrated the INFED initiative to provide patrons of participating institutions with remote access to subscribed e-resources. Just 01 service provider i.e. **American Physical Society** out of 43 does not integrate INFED. INFED is now deployed in 13 qualifying institutes in Maharashtra. However, the resources through INFED they offer are not the same. The institute-wise publishers offering remote access to subscribed e-resources are mentioned below.

**Table No.4**

*List of Institute-wise service Providers (Publishers) through INFED as on January 2023*

Name of the Institute	Service Providers
<ul style="list-style-type: none"> <li>● <b>Indira Gandhi Institute of Development Research</b></li> </ul>	<ol style="list-style-type: none"> <li>1. Cambridge University Press</li> <li>2. JSTOR</li> <li>3. Nature</li> <li>4. Oxford University Press</li> <li>5. Sage</li> <li>6. Science Direct</li> <li>7. Springer Link</li> <li>8. Taylor and Francis</li> <li>9. Wiley Blackwell Publishing</li> </ol>
<ul style="list-style-type: none"> <li>● <b>Shivaji University, Kolhapur</b></li> </ul>	<ol style="list-style-type: none"> <li>1. Cambridge University Press</li> <li>2. Institute of Physics</li> <li>3. JSTOR</li> <li>4. Sage</li> <li>5. Science Direct</li> <li>6. Springer Link</li> <li>7. Taylor and Francis</li> </ol>
<ul style="list-style-type: none"> <li>● <b>Inter-University Centre for Astronomy and Astrophysics, Pune</b></li> </ul>	<ol style="list-style-type: none"> <li>1. American Institute of Physics</li> <li>2. Cambridge University Press</li> <li>3. Sage</li> <li>4. Springer Link</li> <li>5. Taylor and Francis</li> </ol>
<ul style="list-style-type: none"> <li>● <b>Bharati Vidyapeeth Deemed University, Pune</b></li> </ul>	<ol style="list-style-type: none"> <li>1. JSTOR</li> <li>2. Springer Link</li> <li>3. Taylor and Francis</li> <li>4. Web of Science</li> </ol>
<ul style="list-style-type: none"> <li>● <b>Anjuman-I-Islam's Kalsekar Technical Campus</b></li> </ul>	<ol style="list-style-type: none"> <li>1. ASCE Journals Online</li> </ol>
<ul style="list-style-type: none"> <li>● <b>Vivekanand Education Society</b></li> </ul>	<ol style="list-style-type: none"> <li>1. Proquest</li> <li>2. Wiley Blackwell Publishing</li> </ol>

**Source: <https://infed.inflibnet.ac.in/vcategorywise.php>**

It can be seen that, out of 13 institutes only 06 institutes have access to e-resources from various service providers listed in the table. Indira Gandhi Institute of Development Research provide remote access to e-

resources from 09 publishers, next to it Shivaji University, Kolhapur provide off-campus access from 07 publishers then comes Inter-University Centre for Astronomy and Astrophysics, Pune, it provide access from 05 publishers and Bharati Vidyapeeth Deemed University, Pune provides off-campus access form 04 publishers. Anjuman-I-Islam's Kalsekar Technical Campus has access from only 01 publisher and Vivekanand Education Society has access from 02 publishers.

It can be observed that, only 06 institutes out of 13 have access to e-resources from the various service providers listed in the table, Indira Gandhi Institute of Development Research provides off-campus access to e-resources from 09 publishers, followed by Shivaji University, Kolhapur, which provides access from 07 publishers, Inter-University Centre for Astronomy and Astrophysics, Pune, provides access from 05 publishers, and Bharati Vidyapeeth Deemed University, Pune, which provides access from 04 publishers. Vivekanand Education Society has access from 02 publishers; whereas Kalsekar Technical Campus of Anjuman-I-Islam has access from only 1 publisher,

However, information on the remaining 05 institutions, namely Zeal College of Engineering and Research, Prin. L. N. Welingkar Institute of Management Development and Research, Maharshi Karve stree Shikshan Sanstha's Cummins College of Engineering for Women Indian Institute of Information Technology, Nagpur, and Swami Ramanand Teerth Marathwada University Nanded, is absent.

### Conclusion

COVID-19 seems to have a game-changing influence on the day-to-day operations of libraries around the world. Any institution's academic and research activities benefit greatly from hassle-free remote access to intellectual e-resources. For establishing single-sign-on and access management federations, remote access involves technological infrastructure, including hardware, software, and skill sets. Setting up an access management federation is a technological challenge. INFED is the nation's first access management federation. The current investigation discovered that INFED installation is not yet effective. In the context of this, a study should be conducted to understand why the installation of INFED in Maharashtra and throughout India is progressing at a moderate speed.

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**Bibliometric Study of Current Science Journal from 1994-2017****Dr. Jayaprakash G Hugar,**

Librarian,

Dnyanprassarak Mandal's College and Research Centre,

Assagao, Bardez, Goa – 403 507.

Email: [dmclibrarian@rediffmail.com](mailto:dmclibrarian@rediffmail.com)**Ms. Pankaj Bhardwaj**

Librarian

RDS Public Girls College

Rewari 123401 Haryana

**Abstract**

One of the Best source for primary and recent information in Science subject is Current Science Journal from Indian Academy of Science, Bengaluru. In this article researcher tracked the bibliometric trends and patterns of Current Science Journal in the last twenty-five years. The study presents the 19,861 articles written by 21036 authors of 71 countries in the world, published from 1994–2017. Further researcher studied — year-wise distribution, author wise productivity, Institution-wise, country wise and type of documents, funding agencies wise distribution of contributions. Researcher found that, on an average 0.94% of the publication came from each authors, 105 is the average number of publication during the last twenty-five years of study period. During the study period just 0.16% of the articles are funded by foreign funding agency i.e.:- National Natural Science Foundation of China, remaining articles are funded by different organisations of India in the Current Science journal. CSIR and NIO team is the main collaboration and together they have published only four articles. Indian Institute of Science, Bengaluru stood first rank by producing 5% publications in this Current Science journal. It concludes that most of the articles in this journal are contributed by Indian authors. The most productive country is India and Current Science was dominated by contributions from Indian institutions.

**Keywords:** India, Bibliometric, Research Publications, Current Science, journal evaluation, funding agencies.

**1. Introduction to Current Science Journal**

Current Science, published every fortnight by the Association, in collaboration with the Indian Academy of Sciences, is the leading interdisciplinary science journal from India. It was started in 1932 by the then stalwarts of Indian science such as CV Raman, Birbal Sahni, Meghnad Saha, Martin Foster and S.S. Bhatnagar. In 2011, the journal completed one hundred volumes. The journal is intended as a medium for communication and discussion of important issues that concern science and scientific activities. Besides full length research articles and shorter research communications, the journal publishes review articles, scientific correspondence and commentaries, news and views, comments on recently published research papers, opinions on scientific activity, articles on universities, Indian laboratories and institutions, interviews with scientists, personal information, book reviews, etc. It is also a forum to discuss issues and problems faced by science and scientists and an effective medium of interaction among scientists in the country and abroad. Current Science is read by a large community of scientists and the circulation has been continuously going up. It provides archival facility for online users also. Speciality of this journal is that, it provides full text of unedited version of forthcoming articles, on its website, and in the printer version it provides advertisements of different organisations and universities posts, forthcoming conferences / refresher courses for science students as well as for the teachers etc. (Indian Academy of Science, Bengaluru)

Current Science publishes special sections on diverse and topical themes of interest and this has served as a platform for the scientific fraternity to get their work acknowledged and highlighted. Contributions to these special issues 'which receive widespread attention' are from leading scientists in India and abroad. Current Science is indexed by Web of Science, Current Contents, Geobase, Chemical Abstracts, IndMed and Scopus. The Impact Factor of the journal for the year 2017 is 0.883 (Current Science Association in Collaboration with Indian Academy of Sciences) and (Parameswaran). According to SCImago Journals and Country Rank, Current Science journal is having h-index of 98 and in the ranking list it got 124<sup>th</sup> place among the journals published from India. (SCImago, 2018)



## 2. Review of Literature

Over the years there have been several studies taken place on this bibliometric study in different journals, here we have selected few articles from previous five years.

**Gangan Prathap (2014)<sup>4</sup>** carried out a citation-based bibliometric profiling of the journal Current Science. A three-dimensional approach breaks down scholarly performance into three primary components – quantity, quality and consistency. The citation data are retrieved from the Web of Science. They quantified the evolution of these primary indicators with time, and along with two additional secondary indicators, the h-index and the z-index, to identify the most productive authors, cities and states that have published articles and notes in Current Science in the recent past. **Faisal Mustafa (2015)<sup>11</sup>** studied 88 articles of the journal—World Digital Libraries: An International Journal, published during the year 2008–14. Author studied year-wise distribution, authorship pattern of contributions, institution-wise distribution of contributions, country-wise distribution of contributions, and length of articles in each volume. It concludes that most of the articles in this journal are contributed by India and most of the articles are written by single author. **Padme, S. L. & Vaishali, K. (2016)<sup>12</sup>** studied Bibliometric analysis of the Indian Journal of Chemistry -Section A (IJC-A) for the period of five years from 2010 to 2014. In the present study an attempt has been made to analyze the year wise distribution of articles, find out the issue wise distribution of articles, authorship pattern of Journal articles, year wise degree of collaboration, institute-wise distribution of papers, and geographical distribution of articles author also ranking of leading contributors in the articles. Researcher found that, the Indian Journal of Chemistry-Section A (IJC-A) published 482 research papers during the period of study. The journal on an average has published 96 research papers per year. Higher No of Authors contributed 409(62.63%) papers in the articles from universities. **Shankar Reddy Kalle (2016)<sup>10</sup>** reported the bibliometric analysis of articles published in the Journal of Knowledge Management, from 2009 to 2015 in order to reveal the publications trend in this journal. They collected the data from the Web of Science Database. A total of 437 articles were published for the stated period. Author analyzed to find out the year wise break up, citations, page counts, references, authorship pattern, prolific author and most contributing countries. And found that, maximum number articles were published in 2009 (74) and the articles published in 2009 had received highest citations. Page length and number of references used to write articles also kept increasing from 2009 to 2015. As the degree of collaboration value is 0.805, it is noted that multiple authored articles occupy the prominent position and USA, Australia and England are the major contributing nations to the journal. Lakehead University made major contribution to the journal for the period. **Jayaprakash and Gavisiddappa Anandahalli (2017)<sup>8</sup>** made a bibliometric study of Gyankosh: The Journal of Library and Information Management is one of the premier journals in the Library and Information Science field published from Ghaziabad, Uttar Pradesh, India. This article presents bibliometric analysis of Gyankosh from 2010 to 2013 and covers different parameters of bibliometric analysis. Researcher found that, working librarian's contribution to this journal is more compared to teachers and research scholars in the university departments. Single author publications are more in this Gynakosh journal. Further it is found that, more number of authors are concentrating their study on information seeking behavior, electronic resources and services and on citations. **Parameshwar S (2017)<sup>13</sup>** conducted a bibliometric analysis of the journal titled 'Pearl: Journal of Library & Information Science' for the period from 2007 to 2015. The paper analyses a citation study of 332 articles (57 times cited) which were published from 2007 to 2015 in the Pearl: Journal of Library & Information Science. Article covers the bibliometric analyses of year-wise publication of articles, issue-wise authorship patterns, institutions-wise publication of contributions, state-wise, city-wise and country-wise publication of articles. The study has found that the contributions of articles to PEARL were not only from India but also from foreign countries. The result showed that out of 332 articles multiple authors contributed 60.84%, whereas the rest 39.16% articles were contributed by single author. Further, study also examines the length of articles and average number of references in the articles. **Peng Wang, Fangwei Zhu, Haoyang Song and Jianhua Hou (2017)<sup>20</sup>** reported the findings of bibliometric analysis of 31,403 publications

in Current Science journal from 1961 to 2015 revealed an unstable trend; the highest citations per publication appeared during 2003–2005. The h-index of Current Science was 82 and 24 authors had more than one H-Classic articles. USA is quite active in co-authorship collaboration and shows the high collaboration ratio with India, England, Iceland and France. The most productive country was India and Current Science was dominated by contributions from Indian institutions. Co-occurrence analysis revealed 11 main research themes, indicating that Current Science is a multidisciplinary science journal. These findings will help the readers to get a quick and intuitive overview of Current Science. **Sushma H R (2018)**<sup>17</sup> carried out Bibliometric study on 294 scholarly research articles published in DESIDOC Journal of Library and Information Technology, during the period 2011–2015. Researcher examined the distribution pattern of the journal articles, authorship pattern, and geographical distribution of authors and citation analysis of the references attached to the papers and found that, a maximum number of articles (65) were published in the year 2012. On an average 9.8 articles were published by the journal in each issue during the period of investigation. Maximum number of contributions are joint collaborations with 191 (64.96 %) articles. Maximum of 133 articles contributed in the journal are on two author pattern, followed by 103 articles as single authored. 85% contributions are from India. On an average 16.5 references were cited by each article during the period of investigation with total references 4857.

These studies present an overview of the evaluation, growth of publications, type of documents, influential authors, institutions and countries etc.

### 3. Methodology

The main purpose of the study is to find out the publication trend, type of documents, funding agencies, institution and countrywide contribution, prolific authors and their organizations, etc. in the Current Science Journal. Accessed the data on Current Science in the month of June and downloaded all the required information from the web of science database, data collected is of twenty five years from 1993 to 2017. The downloaded data was tabulated and analysed with the help of MS-Excel.

### 4. Objectives

Objectives of the study are to undertake an in-depth study on Current Science journal with the following aims.

- To find out year-wise, author-wise contribution of the publications.
- To study institutions /organisation wise and country wise distribution of authors.
- To reveal funding agency wise distribution of articles published in this journal.

### 5. Data Analysis and Interpretation

Table No.5.1

Top 25 Author wise Distribution of Articles

Authors	Records	% of 19861
Balaram P	334	1.682
Kumar A	166	0.836
Kumar S	161	0.811
Prathap G	108	0.544
Singh R	106	0.534
Sen N	87	0.438
Sankaran Av	85	0.428
Singh S	79	0.398
Singh M	76	0.383

Kumar R	73	0.368
Ramaseshan S	71	0.357
Singh Ak	66	0.332
Ganeshaiah Kn	65	0.327
Kumar N	64	0.322
Virk Hs	63	0.317
Singh A	62	0.312
Gupta Pk	55	0.277
Shaanker Ru	54	0.272
Arunachalam S	53	0.267
Sharma S	53	0.267
Srinivasan R	53	0.267
Kumar V	50	0.252
Kumar D	48	0.242
Tekam Mk	48	0.242
Anonymous	534	2.689

Prolific authors who numbered 21036 contributed 19861 papers. These authors were scattered in 71 countries, in the last 25 years of establishment of this Current Science journal. Table No. 5.1 depicts the number of articles written by different authors. Balaram P published highest number (1.7%) of articles in this journal and stood 1<sup>st</sup> rank, followed by Kumar A and Kumar S published 0.83% and 0.81% publications and placed in 2<sup>nd</sup> and 3<sup>rd</sup> rank respectively. Anonym's authors have written 534 articles. On an average 0.94% of the publication came from each authors, Balaram P is the only the author who published more than average publications during the study period in this Current Science journal.

105 is the average number of publication during the last twenty-five years of study period, five author's i.e: Balaram P, Kumar A, Kumar S, Pratap G and Singh R having publications more than the average of 105 publications during the study period.

**Table No.5.2**  
**Top 25 Country wise Distribution of Articles**

Countries/Regions	Records	% of 19861
India	16440	82.775
USA	836	4.209
England	248	1.249
Peoples R China	189	0.952
Germany	187	0.942
Japan	131	0.66
Australia	111	0.559
France	85	0.428
Sri Lanka	68	0.342
Taiwan	62	0.312
Canada	58	0.292

Malaysia	51	0.257
Netherlands	48	0.242
Italy	46	0.232
South Korea	39	0.196
Switzerland	37	0.186
Saudi Arabia	29	0.146
Russia	28	0.141
Sweden	28	0.141
Iran	27	0.136
South Africa	26	0.131
Thailand	24	0.121
Nepal	23	0.116
Pakistan	23	0.116
Poland	23	0.116
Anonyms	1757	8.84

Articles are written by different authors of different countries in this world. The global publication share of the top 25 most productive countries were scattered among the developed and developing countries in the journal of Current Science. Table No.5.2 reveals the country wise contribution of articles during the last 25 years in Current Science journal publications are dominated by India as 82% of articles are written by Indian authors, followed by authors of United States of America and England with 4.20% and 1.24%. The global research publication share of the top 25 most productive countries in Current Science journal is varied from 0.11 to 4.20% during the study period. Overall 19861 articles are written by 21036 authors and scattered among 71 countries in the world. 1757 (8.84%) articles information about the countries is not mentioned in this study. 793 is the average publication of different countries during the study period, only two nations i.e.:- India and USA are having more than the average publications during the study period of 1994 to 2017. It is interesting to note that, Current Science is dominated by Indian authors (82.7%)

**Table No. 5.3  
Types of Documents**

Document Types	Records	% of 19861
Software Review	1	0.005
Retracted Publication	2	0.01
Book Review	9	0.045
Correction Addition	51	0.257
Proceedings Paper	79	0.398
Item About An Individual	92	0.463
Correction	99	0.498
Reprint	104	0.524
Biographical Item	461	2.321
Review	752	3.786
Note	1116	5.619
News Item	1211	6.097
Editorial Material	2449	12.331



Letter	3618	18.217
Article	9898	49.836

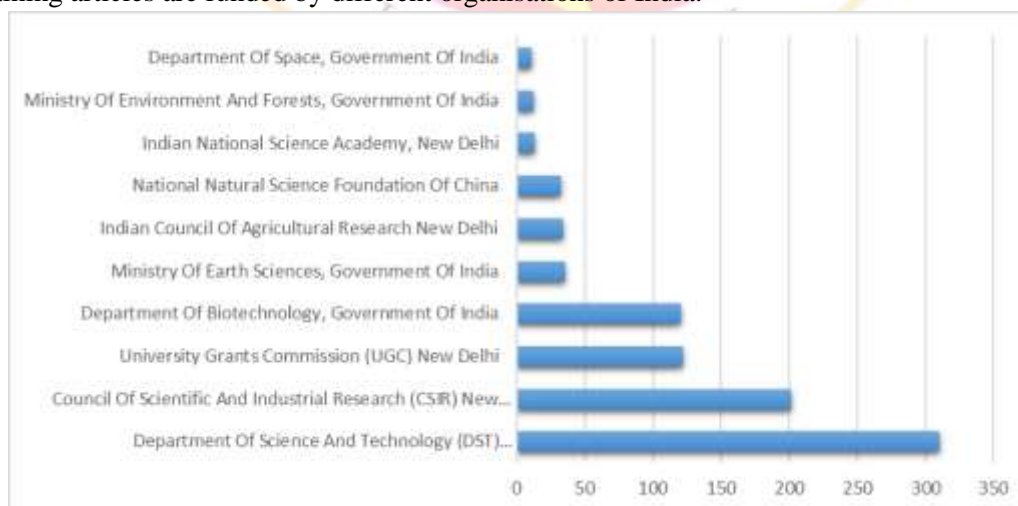
Publications to journals are in different types, in this journal it is 15 different types of bibliographic form are available in a total of 19861 publications during the study period. Table No. 5.3 shows the different type of research papers available in the current science journal during the year 1994 to 2017. Out of 19861 papers in the current science journal, 50% of the papers are scientific articles. 18% are in the form of letter and 12% are in the form of Editorial material. News items and Notes are around 6%, Reviews are 4%, and Biographical items are 2%. Reprint, Correction, Items about an individual, Proceedings of Paper, Correction addition, Book Review, Retracted Publication and Software Reviews are less than 1% of publications in this journal in the study period.

**Table No.5.4**

**Funding Agency wise Distribution of Articles**

Funding Agencies	Records	% of 19861
Anonyms	17944	90.34
Department Of Science And Technology (DST), GoI	310	1.561
Council Of Scientific And Industrial Research (CSIR), GoI	201	1.011
University Grants Commission (UGC), GoI	122	0.615
Department Of Biotechnology, GoI	120	0.605
Ministry Of Earth Sciences, GoI	35	0.176
Indian Council Of Agricultural Research GoI	34	0.171
National Natural Science Foundation Of China	32	0.161
Indian National Science Academy, New Delhi	13	0.065
Ministry Of Environment And Forests, GoI	12	0.06
Department Of Space, GoI	11	0.055

Different funding agencies are provided funding to authors to do the research work in this world of Science. Table No. 5.4 and figure no. 1 reveals the funding agencies of articles during the study period of twenty-five years. Largest 1.5% of the articles are funded by Department of Science and Technology, Government of India followed by Council of Scientific and Industrial Research with 1% publications. By funding 0.61% of the articles, University Grants Commission got third place in this study. In this journal in the last twenty-five years just 0.16% of the articles are funded by foreign funding agency i.e:- National Natural Science Foundation of China, remaining articles are funded by different organisations of India.



**Figure No. 1**

Average publications in this study period is 89 and Department Of Science and Technology (DST) of Government Of India, Council Of Scientific And Industrial Research (CSIR), Govt. of India, University Grants Commission (UGC) New Delhi and Department Of Biotechnology, Government Of India, published more than average publications during the study period. It is interesting to note that, all the funding agencies are from Government of India.

**Table No.5.5  
Collaboration of Authors**

Group of Authors	Records	% of 19861
Anonyms	19850	99.94
CSIR NIO TEAM	4	0.02
NMITLI BIOSUITE TEAM	2	0.01
SHIPBOARD SCI PARTY SK 306	2	0.01
BOARD SCIENTIFIC INDUSTRIAL RES	1	0.005
C1XS TEAM	1	0.005
INDIA NUSTAR COLLABORATION	1	0.005
INDIA PANDA COLLABORATION	1	0.005
MIP PROJECT TEAM	1	0.005
OSDD CONSORTIUM	1	0.005
SMEECS'08 ORGANIZERS	1	0.005

Collaboration brings together experiences, skills, knowledge and know-how of different researchers into one particular field of study. Collaboration ensures timely completion of research and also boosts the quality of research. Table No. 5.5 reveals the collaboration of authors among the leading research institutes in India and world. CSIR and NIO team is the main collaborators and together they published four articles, NMITLI and BIOSUITE team and Shipboard SCI and Party SK 306 together published 2 articles each, remaining 5 articles are published by five other different teams in this study. It is known from the study that, very less number of publications are collaborated with the different authors of research organisations/institutes.

**Table No.5.6  
Top 25 Organisation / State wise Distribution of Articles**

Organizations	State	Records	% of 19861
Indian Institute Of Science	Karnataka	1098	5.528
Indian Institute Of Technology	West Bengal	664	3.343
Banaras Hindu University	UP	381	1.918
National Geophysics Research Institute	Telangana	312	1.571
National Institute Of Oceanography	Goa	296	1.49
University Of Delhi	Delhi	289	1.455
Indian Agricultural Research Institute	Delhi	289	1.455
Bhabha Atomic Research Center	MS	271	1.364
Council Of Scientific And Industrial Research	Delhi	261	1.314
University Of Agricultural Science, Bangalore	Karnataka	260	1.31
Tata Institute Of Fundamental Research	MS	253	1.274
Birbal Sahni Institute Of Paleobot	UP	206	1.037
Physics Research Laboratory	Gujarat	204	1.027
Wadia Institute Of Himalayan Geology	Dehradun	182	0.916
Jawaharlal Nehru Center For Advanced Science Research	Karnataka	167	0.841

Raman Research Institute	Karnataka	162	0.816
Madurai Kamaraj University	Tamilnadu	160	0.806
Geological Survey Of India	West Bengal	158	0.796
Jawaharlal Nehru University	Delhi	152	0.765
University Of Calcutta	West Bengal	128	0.644
University Of Madras	Tamilnadu	125	0.629
University Of Hyderabad	Telangana	118	0.594
Andhra University	AP	115	0.579
Indian Space Research Organisation	Karnataka	112	0.564
Anonyms	-	2612	13.15

Table No. 5.6 describes the organisation wise distribution of articles during the last 25 years. 5165 organisations produced 19861 articles during the study period. Indian Institute of Science, Bengaluru stood first rank by producing 5% publications in this Current Science journal, followed by Indian Institute of Technology with 3%, Banaras Hindu University with 2% and placed 2<sup>nd</sup> and 3<sup>rd</sup> rank in this study respectively. Among the universities Banaras Hindu University got first place by producing 2% publications, second and third place got by University of Delhi and University of Agricultural Sciences, Bengaluru with 1%.

Under the category of research institute, National Geophysics Research Institute and National Institute of Oceanography published 1% publications each and stood first and second place. University of Delhi and Indian Agricultural Research Institute have published 289 publications each during the study period. It is interesting note that, Indian Space Research Organisation got just 0.5% publications in this journal and stood last place among the research institutes. Research publications of these organizations are varied from 112 to 1098. Average publication of these research institutes and universities is 359 during the study period and again Indian Institute Of Science, Indian Institute of Technology and Banaras Hindu University published more than average publications during the study period.

Overall, eleven states of India produced 19861 publications during the study period. Karnataka state stood first among the states, by producing 9.059% of research publications in this journal compared to other states in India. Delhi and West Bengal states got 2<sup>nd</sup> and 3<sup>rd</sup> place by producing 4.989% and 4.783% respectively. There is a very less margin (0.206%) in between Delhi and West Bengal states. Telangana, Maharashtra and Uttar Pradesh got similar percentage from 2.165, 2.638 and 2.955. Remaining states published less number of publications in this journal.

**Table No.5.7  
Year wise Distribution of Articles**

No. of Years	Publication Years	Records	% of 19861
1.	1993	594	2.991
2.	1994	493	2.482
3.	1995	576	2.9
4.	1996	535	2.694
5.	1997	529	2.664
6.	1998	638	3.212
7.	1999	763	3.842
8.	2000	729	3.671
9.	2001	778	3.917
10.	2002	706	3.555

11.	2003	749	3.771
12.	2004	770	3.877
13.	2005	890	4.481
14.	2006	728	3.665
15.	2007	809	4.073
16.	2008	784	3.947
17.	2009	722	3.635
18.	2010	728	3.665
19.	2011	706	3.555
20.	2012	646	3.253
21.	2013	702	3.535
22.	2014	671	3.378
23.	2015	804	4.048
24.	2016	874	4.401
25.	2017	1001	5.04



**Figure No. 2**

Table No.5.7 and figure no.2 illustrates the year wise growth of articles in the Current Science journal. Majority 5% of publications are published in the year 2017, followed by in the year 2005 and 2016 with 4.48% and 4.40% of publications. A total of 17925 articles found in this twenty five years, and it is found that on an average 717 articles are published per year in this Current Science journal. Highest number of articles are published in the year 2017 and lowest number in the year 1994. Around fifteen year its publications are in between 3.21% to 3.94% from 1998-99 to 2013-14, except in the year 2005 and 2007.

During the first five years of the study i.e.:- 1993 to 1997 it published just 13.73%, it raised to 18.19% during the period of 1998 to 2002, again in the year 2003 to 2007, 19.86% of the publications came from the Current Science Journal but, during the year 2008-2012 its publications came down to 18.05%, again at the end of twenty-five year it raised its publications and reached its peak in the year 2013 to 2017 by producing 20.40% of publications. The figure 2 shows continuous rising trend from 1993 to 2007. However, the annual rate of growth is inconsistent and fluctuates during the study period.

The compound annual growth rate (CAGR) was calculated using the formula given below and is available at [www.investopedia.com/calculator/cagr.aspx](http://www.investopedia.com/calculator/cagr.aspx). CAGR (mean annual growth rate) was found to be 2.1 during the study. (Dwivedi, Garg, & Prasad, 2017)

$$CAGR = \left( \frac{\text{Ending Value}}{\text{Beginning Value}} \right)^{\frac{1}{n}} - 1 \text{ (Investopedia)}$$



**Table No.5.8**  
**Relative Growth Rate and Doubling Time of Output**

Publicati on Years	No. of Records	Cumulat ive Number s	W1	W2	R(a)	Mean(a) 1-2	Doublin g Time	Mean pt (a) 1-2
1993	594	594	-	6.38	-	0.22		4.11
1994	493	1087	6.38	6.99	0.61		1.14	
1995	576	1663	6.99	7.41	0.42		1.65	
1996	535	2198	7.41	7.69	0.28		2.47	
1997	529	2727	7.69	7.91	0.22		3.15	
1998	638	3365	7.91	8.12	0.21		3.3	
1999	763	4128	8.12	8.32	0.2		3.46	
2000	729	4857	8.32	8.48	0.16		4.33	
2001	778	5635	8.48	8.63	0.15		4.62	
2002	706	6341	8.63	8.75	0.12		5.77	
2003	749	7090	8.75	8.86	0.11		6.3	
2004	770	7860	8.86	8.96	0.1		6.93	
2005	890	8750	8.96	9.07	0.11		6.3	
2006	728	9478	9.07	9.15	0.08		0.06	
2007	809	10287	9.15	9.23	0.08	8.66		
2008	784	11071	9.23	9.31	0.08	8.66		
2009	722	11793	9.31	9.37	0.06	11.55		
2010	728	12521	9.37	9.43	0.06	11.55		
2011	706	13227	9.43	9.49	0.06	11.55		
2012	646	13873	9.49	9.53	0.04	17.32		
2013	702	14575	9.53	9.58	0.05	13.86		
2014	671	15246	9.58	9.63	0.05	13.86		
2015	804	16050	9.63	9.68	0.05	13.86		
2016	874	16924	9.68	9.73	0.05	13.86		
2017	1001	17925	9.73	9.79	0.06	11.55		
	17925	35850				0.14		8.09

The Relative Growth Rates (RGR) were calculated for publications. The Doubling Time (Dt) against each year of study was also determined in Table -5.8 and figure no. 3 and discussed the relative growth rate of the articles during the years from the years 1993 to 2017. The relative growth rate is the increase in number of publications per unit per time. The relative growth rate and doubling time model developed by Mahapatra (1985). The overall study period has witnessed a mean relative growth rate is 0.14. Significantly, the doubling time for article output has decreased from 0.22 during 1993 to 2005 and to 0.06 in the year 2006 to 2017. The whole study period has witnessed the mean doubling time for article output as 8.09. It could be deduced from the above discussion that the mean relative growth rate of article output has shown a declining trend. The relative growth rate value is decreased from 0.22 to 0.06 during the study period.

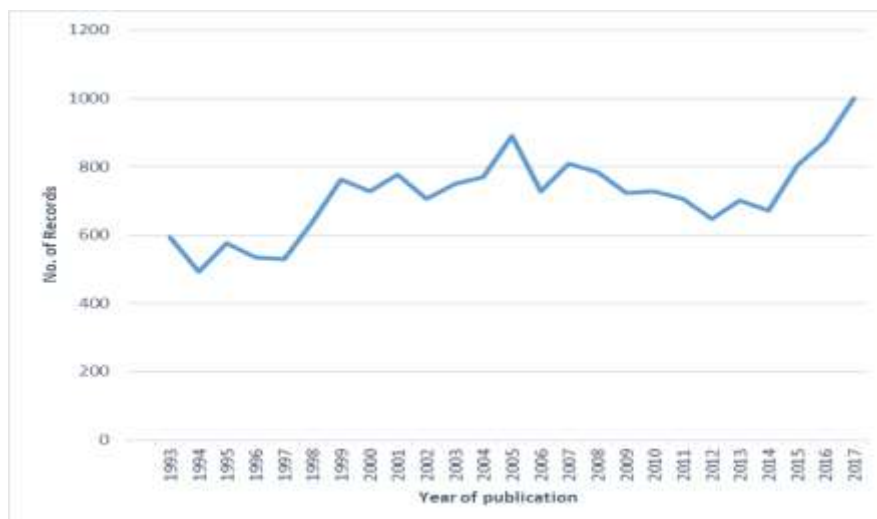


Figure No. 3

It can be seen in this table that, the value of average relative growth rate of articles decreased gradually from 0.61 to 0.1 in the year 2004 and again it increased to 0.06 in the year 2017. The corresponding mean doubling time for the period increased from 4.11 to 12.08.

## 6. Findings:

1. On an average 0.94% of the publication came from each authors, during the study period in Current Science journal. 105 is the average number of publication during the last twenty-five years of study period.
2. Overall 19861 articles are written by 21036 authors of 71 countries in the world.
3. Out of 19861 papers in the current science journal, 50% of the papers are in the form of articles.
4. In this journal during the study period, just 0.16% of the articles are funded by foreign funding agency i.e.: - National Natural Science Foundation of China, remaining articles are funded by different organisations of India.
5. CSIR and NIO team is the main collaborator and together they published four articles.
6. Indian Institute of Science, Bengaluru stood first rank by producing 5% publications in this Current Science journal,
7. Highest number of articles are published in the year 2017 and lowest number of publications in the year 1994.
8. All the articles (19861) are published in this journal is multidisciplinary science in nature the main research area is Science, Technology and other topics. At the same time, it is noted here that, 100% communication taken place in English language during the study period.
9. Most productive country is India and Current Science is dominated by publications of Indian research institutions and universities.
10. The doubling time for article output has decreased from 0.22 during 1993 to 2005 and to 0.06 in the year 2006 to 2017.

## 7. Conclusion

Bibliometric is a quantification tool which helps to analyse the growth and development in scientific communications. The popularity in the adaptation of bibliometric techniques in various disciplines stimulated stupendous growth of literature on bibliometric and its related areas. Current Science has published 19861 articles during 1994 – 2017. The present study is extensively attempted to highlight the research productivity in the area

of Sciences. The resultant data obtained for this study discovers that, India and UK are the most productive countries and stood 1<sup>st</sup> and 2<sup>nd</sup> rank.

All the articles (19861) are published in this journal is multidisciplinary science in nature the main research area is Science, Technology and other topics. At the same time, it is noted here that, English is the international language in which Indian researchers predominantly (100%) published their research work, during the study period. Current Science is the reputed journal in the field of Science education and publishes pure primary research articles. Analysis of contributions shows that it covers contributions related to nearly all aspect of Science. The journal is not only popular in India but also popular among various countries of the world. Current Science is receiving wide range of institutional affiliations, and is gaining international acceptance as a journal in which to publish high quality science papers. The result underscores the significance of journals as an important information source. It can be concluded that the result of this type of studies would appear to be of great potential in the management of library and especially the collection of journals. The present investigation again proved that, since India being the host country of the journal as such, more than 85% publications in the journal during the period of investigation is from India and only 15% contributions are from abroad and that too in collaboration with Indian authors.

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**Developing Digital Library: Processes, Services, Challenges and Opportunities****Mrs. Urmila R. Kadam**

M. Lib, SET

Librarian, Kamala College, Kolhapur, Dist.

Kolhapur-416008

**Dr. Rahul Deshmukh**

Librarian, SGRG Shinde Mahavidyalaya, Paranda,

Usmanbad

**Abstract:**

*If technology push, crashing costs, and global connectivity are the signposts for the coming decade, digital libraries are the next step in the convergence revolution. Digital libraries are innovations, the implementation of which is nascent in the developing countries. However, they hold the promise of becoming key technologies for knowledge creation and management in the future. The purpose of this article is to describe basic concepts, processes, and services of digital libraries, and discuss challenges and opportunities offered/faced by digital libraries.*

**1.0 Introduction:**

Digital Libraries are being created today for diverse communities and indifferent fields e.g., education, science, culture, development, health, governance and so on. With the availability of several free digital Library software packages at the recent time, the creation and sharing of information through the digital library collections has become an attractive and feasible proposition for library and information professionals around the world. Library automation has helped to provide easy access to collections using computerized library catalogue such as On-line Public Access Catalog (OPAC). Digital libraries differ significantly from the traditional libraries because they allow users to gain online access and work with the electronic versions of full text documents and their associated images. Many digital libraries also provide access to other multimedia content like audio and video. (Keywords: Digital Library, Processes, Services, Challenges and Opportunities)

**1.2 Definition of Digital Library:**

According to Lesk (1997)

"Digital libraries are organized collections of digital information. They combine the structuring and gathering of information, which libraries and archives have always done, with the digital representation that computers have made possible."

**According to - William Arms**

"An informal definition of a digital library is a managed collection of information, with associated services, where the information is stored in digital formats and accessible over a network. A crucial part of this definition is that the information is managed. A stream of data sent to earth from a satellite is not a library. The same data, when organized systematically, becomes a digital library collection."

**According to Gladney H.M, et. al. (1994)**

"A digital library service is an assemblage of digital computing, storage, and communications machinery together with the software needed to reproduce, emulate, and extend the services provided by conventional libraries based on paper and other material means of collecting, storing, cataloguing, finding, and disseminating information."

**1.1 Objectives of the Study:**

Objectives of the study are determined as follows:

1. To review the Digital Library system.
2. To assess the challenges and opportunities of Digital Library.
3. To suggest better policy and measures for improvement of the Digital Library.

**1.2 Methodology:**

This study intended to examine the challenges of the Digital Library system based on partially secondary and some extent of primary observation of the researcher. The data has been collected and furnished from the official websites of the various journals, and other related research papers, books and published work.

**1.3 Significance of the Study:**

Digital libraries provide a variety of benefits that can help users in many ways. Digital library existence certainly greatly helps educational academics in finding learning resources. The core benefits of digital libraries are easy access, unlimited space and time, preservation of collections. Many benefits provided by digital libraries do not make it replace the position of conventional libraries. This research will be helpful to point out the challenges and opportunities of the Digital Library.

**2.0 Digital Library Services:**

Digital Library Services provides a wide array of services to assist members of the library with organizing collections of materials or making them more widely available. The following services offered by the Digital Libraries.

- E-books /E-Journals
- E-mail
- DVD- ROM databases
- Internet service
- Photocopying
- Current Awareness Service
- Selective Dissemination of Information
- Catalogue database
- Externally-Internally purchased database.
- Document delivery

**3.0 Digital Library Processes****3.1. Content selection:**

The content selection for the DL depends on the utility, value and rarity of the collection. It may be Internal or external, free or commercial, owned or licensed, print or electronic formats. The content may include Staff publications, email archive, news, reports, policies and plan documents, drawings, software, press releases, presentations, courseware, lectures, best practices, etc. for education and corporate purposes.

**3.2. Content acquisition**

Digital Library acquired contents already in digital form as well as to be converted and they may be loaded in central or distributed sites. The format (PDF, TIFF, postscript, html, xml) of the digital content may be selected as those supported subsequent presentations today & tomorrow and It should not need special access mechanism.

**3.3. Content organization:**

The concept of content management has been around in intellectual organization and physical organization. Intellectual organization consists of object description, categorization, indexing control and automatic content extraction. Physical organization includes databases, indexes, storage, content granularity (full text tagging or hierarchical browsing support), search and retrieval. Digital object identity fire also plays an important role in content organization. The content organization needs special attention in DL because it is the base of the DL services and products.

**3.4. Content access and delivery:**

DL is changing the landscape for access and delivery of digital contents globally. This allows various type search such as Structured search (metadata driven), Object search (full-text, multimedia object search), Search at finer granularity (tables, figures, paragraphs, section headings), Global search and resource type search (e.g., bibliographic databases, e-journals, reports, experts). The searching features includes Relevance ranking, Search refinement, search history, search set combination, Personalization, customization. It also facilitates structured presentation (display), Hierarchical browsing (subject schemes/ topic directory). Access and delivery areas of Digital library are developing new innovative technologies and processes in these areas that will capitalize upon the digitized status of DL content, and allow quicker, easier and cheaper access to content, which in turn will be a powerful justification for your digitization effort. Access and delivery processes are aided by conversion to digital mass storage.

### 3.5. Access management:

Access management consists of various operations such as access control, content security, object identification, ownership establishment, License metering, user Id and password management, Proxy/IP authentication management, etc. All the above operations have been controlled by the various software's and techniques which facilitate DL has access control over the owned and licensed contents.

### 3.6. Usage and monitory:

DL has an integrated usage and monitoring system that gives answers to such questions like what digital sources are being used, how much and by whom. Those answers may help you to evaluate system performance and information services.

### 3.7. Networking and interoperation:

Networking enhances digital information services and resource sharing. Metadata and Open access initiative allows federated access to different collections within and across DL. Interoperation allows DL users to find out desired information from different systems across the word.

### 3.8. Preservation:

Digital preservation involves quite different methods, skills, and outcomes and can complement traditional preservation services, while simultaneously providing unique and dynamic new uses of information. Digital Library ensures perpetuity and long-term access through time and changing technologies.

## 4.0 Challenges:

- a) **Copyright:** - Digitization violates the copyright law as the thought content of one author can be freely transferred by another without his acknowledgement. So One difficulty to overcome for digital libraries is the way to distribute information. How does a digital library distribute information at will while protecting the copyright of the author?
- b) **Speed of access:** - As more and more computers are connected to the Internet its speed of access reasonably decreases. If new technology will not evolve to solve the problem, then in near future the Internet will be full of error messages.
- c) **Initial cost is high:** - The infrastructure cost of digital library i. e. the cost of hardware, software; leasing communication circuit is generally very high.
- d) **Band width:** - Digital library will need a high band for transfer of multimedia resources but the band width is decreasing day by day due to its over utilization.
- e) **Efficiency:** - With the much larger volume of digital information, finding the right material for a specific task becomes increasingly difficult.
- f) **Environment:** - Digital libraries cannot reproduce the environment of a traditional library. Many people also find reading printed material to be easier than reading material on a computer screen.
- g) **Preservation:** - Due to technological developments, a digital library can rapidly become out-of-date, and its data may become inaccessible.



**5.0 Opportunities:****5.1. Expand services:**

DL is added to expand the repertoire of the Pre-existing library services or complementary to existing one. It is also creating new services for a new or changing market. DL has seamless provision of services that are responsive to the needs and interests of the communities served. It is clear that the DL is maintaining an acceptable level of operational service. Effective authentication is the key to delivery of personalized services. There are significant opportunities for products and services emerging from digital libraries to expand their markets beyond the boundaries of the time and geographical location to achieve additional wider benefits.

**5.2. Promote Collections:**

Promoting the more widespread use of unique collections is one common aim of DL. Collection is one of rare and expensive materials in the library. It includes collections created as digital (i.e. e-books, e-journals, e-databases) or digitized rare books, manuscripts, pictures and fragile material. Digitization of collection is depending on the utility, rarity, and value. Since the digitization is a major expensive process, it should be done by the expert because it may be painstaking and therefore mindful of the preservation and security needs of the collection. The digital collection has greater visibility and global accessibility with features of searching, browsing and cross-reference linking.

**5.3. Knowledge management/ content management:**

Digital library has a wider perspective working towards managing and access of work practices, internal information assets and intellectual assets which are to improve the creativity of the persons, sharing of knowledge and to achieve the objectives of an organization.

**5.4. Scholarly communication:**

Digital Libraries support scholarly communication in the field of education, research and development through the E-journals, e-prints, e-books, data sets, e-learning and e-transformation.

**5.5. Archiving and preservation:**

It allows archiving and preserving documents/ digital objects of education, Cultural, heritage, historical & special, museums and biodiversity for long term continued accessibility of the document contents through time and changing technology and reproduce a suitable facsimile of the original document.

**5.6. E-governance:**

Digital libraries offer improved access to the government. policies, plans, procedures, rules and regulations so that the general people of the country can access important information on their desktop. It fulfills the needs of the right to information act. E-governance also helps to manage various activities related to Government and peoples.

**5.7. Generate revenue:**

DL can sell the information services for the internal and external users of various organizations. It can provide consultancy services and advertising facilities for the creation of revenue.

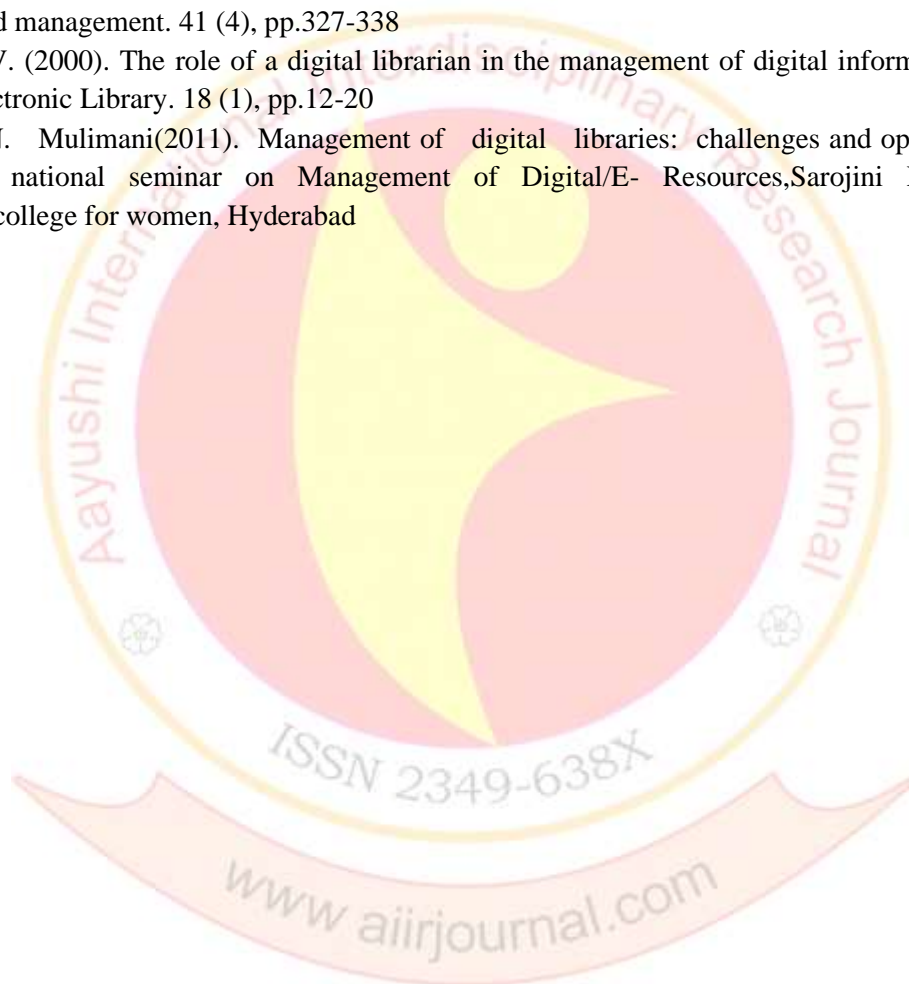
**Conclusion:**

The advancement of new technologies libraries are changing their face from print to digital. Through the proper management of digital collection libraries should provide instant access to information in various formats. Digital libraries create many opportunities for professionals as well as challenges. Thus, this paper explains the opportunities and challenges for any library in creating and maintaining the digital libraries. These are the issues which play a vital role in the digital era. The benefits of the digital libraries are there, on the other hand we have to face some complex issues like copyright and funds. The library management should be aware about the intellectual property in creating the digital collection.



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**Recent Trends in Digitalization of Law Libraries.****Dr. Asmita Prajakt Patil**Assistant professor  
Shahaji Law College Kolhapur**Abstract:**

*Library can be considered to be a soul of information in every discipline. The output is always a result of what inputs are involved in that. Hence libraries play a vital role in formation of a strong organization. As far as the legal discipline is concerned, the paper gives a study about various types of different resources that are available in law library, some traditional and some modern having a digital origin. The paper further speaks about how convenient it is to use the ICT in law libraries. The paper further talks about the challenges faced by the libraries in accessing the digital means. Further it speaks about the recent development of e-SCR made by CJI Chandrachud.*

**Introduction:**

Today's age is an information age in which all the disciplines are engaged in data transfer and data storage. Technology has given access to free flow of information through the entire generation.

Every library has its own way of serving the users and so is of the law libraries. Law libraries usually focus on serving lawyers, judges, law students as well as teachers. Law libraries are well equipped with various types of resources like law bare acts, textbooks, journals, law reports, digests, statutes, periodicals, dictionaries and legal encyclopedias. Many a times we also see a collection of legal articles, case laws, parliamentary proceedings, treaties, judicial and administrative decisions, law related publications.

Law libraries may function in a different manner depending upon the users which it serves. Accordingly, there may be academic law libraries which serve the academicians like teachers, students as well as research scholars. Bar association library which serves the advocates in the court, Judicial library which are meant for judges, government department law libraries which is specially focused on the legal data available in the specific government department useful for the officers. Legislative libraries are also specially designed for serving the legislators in making laws and statutes. In spite of this there are also some research libraries which serve the researchers studying in various organizations.

Law libraries play a unique role in strengthening the legal system in India. Law libraries need to be updated with all the current judgments and decisions, and then it can play a major role in providing updated knowledge for its users.

Law libraries have various kinds of resources like print resources, various kinds of statutes, legislative enactments, treaties, governmental publications are included in the print resources available now-a-days. Textbooks also play a vital role in knowing the law. There are various text books available on every subject which provides a detail study of the law. It contains a detail discussion of various legal provisions along with various case laws and over ruling judgments. It gives a very specific idea to the reader as to how the law was developed.

Law journals are also a very important resource in the law libraries. They are also called as periodicals as they are published after specific periodic intervals. There are also law reports which provide easy access to recent decisions of the high courts and supreme courts. There are weekly reports like Supreme Court cases, there are monthly periodicals like All India reporters, Allahabad law journals and some journals are published annually like Journal of Indian Law Institute. The journals also cite most of the recent judgments and the overruled decisions of the High Courts and Supreme Court. It also contains comments on recent cases as well as book reviews.

Besides law journals, there are also various manuals which contain latest rules and notifications published by few government departments such as civil service manual, Income tax manual. We also find digest

like AIR Supreme Court digest, Complete Supreme Court criminal Digest etc. digests help us to know facts of a particular reported case of the Supreme court. For tracing article from law journals we have index to legal periodicals which is published by Indian law Institute, New Delhi. This has become the most convenient way to trace out the legal articles.

There are various committees and commissions in India which are formed under different subjects like the National Human Rights Commission, the Women's Commission. The reports of these commissions provide a good source for law library collection. Parliamentary debates of Lok Sabha and Rajya Sabha provide a good source to law libraries. The basic intention of the parliament in making a specific law come into picture by referring to the parliamentary debates. We also come to know the various interpretation which a particular statute requires.

There can be a collection of various institutional repositories such as research articles, seminar papers, dissertations and thesis. It also adds to a good library collection.

Now –a days we see a trend of digitalization of law libraries. Martins identified some of the overlooked deficiencies of course books, he says that books are cost like compared to a CD, books are costlier as well as they are inflexible. Hence today's world support digitalization. There are various databases available of law libraries. These databases are mostly freely available which do not charge any kind of fees. Most of the databases are commercial so passwords are given to the users and then they can be accessed. The most widely assessed database from the law libraries are Manupatra, Laxisnexis, SCC online, All India reporter, Taxmann Online etc.

There are various E-journals coming up in recent times. They provide us with latest updates of judgements and various emerging legal principles. Some of the important e-journals in law are International journal of Constitutional law, international journal of refugee law etc.

The number of websites are also increasing now-a days. Websites provide with the latest update information as well as any further program to be undertaken. Besides these there are also some e-resources which we can have open access. They are freely available. Some of them are Judgements information system (JUDIS) which contain various judgements of Supreme Court and high courts. National portal of India, it provides access to all Indian government websites.

#### **Challenges before law libraries:**

The major challenge before law libraries is the reliability of information, an incredible amount of information is easily available on the internet but it remains unfiltered. There is no organised control over the information and hence it is not safe to rely on all the information which is available. Further digital information can face a major issue of fragility and rapid technological obsolescence. Though the digital data is stored in a CD, it may become out of date when more advanced and improved other means of communication are available in the market. Similarly the data on the internet can be vanished in a day. So proper storage and citing of the information is much needed. There is a crucial problem of authenticity of digital legal information. The user of the information has a big challenge to check whether the information which he uses is true and trustworthy. Otherwise he himself can be in trouble for the fake information.

Further constrain to use ICT in law libraries as far as India is considered is that there is poor local content, there are very few websites, poor awareness and education in information technology, poor telecommunication techniques,

#### **Suggestions for more improvement:**

The major cause for lack of improvement in Indian law libraries is lack of proper funding. The funds required to improve are very less, hence when funds are increased we can have access to better quality of technology. Law libraries need to be digitised, with advanced technological aids we can have easy access to information and further knowledge. Online database and material should be easily available. The masses should be properly oriented and trained to use ICT in digital libraries.

*Further to improve digitalisation, there should be an interconnection of libraries, so that students from any part of the country can have access to the information.*

Chief Justice D. Y. Chandrachud in January 2023 launched the e-SCR project providing over 34,000 judgements pronounced by the Supreme Court in the last 72 years free of cost to all, but especially to young lawyers unable to spend lakhs of rupees to buy the Supreme Court report volumes since 1950. CJI Chandrachud announced that the e-SCR link is available on the SC website. The e-SCR project is an important stepping stone for further of the modern Indian judiciary. For enhancing its accessibility to those who are visually disabled, they are able to access them through their screen reading software. It is part of the judiciary's endeavour towards complete digitisation of Indian judiciary.

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## Covid-19 and role of Social Media as a Promotional Tool in developing Libraries: India's Context

**Mr. Avinash B.Salunkhe**

Librarian

N.S.Soti Law College, Sangli

**Dr. Anil N. Chikate**

Director

Knowledge Resource Center, KBCNMU,  
Jalgaon

### Abstract:

*Social media tools are essential in every discipline nowadays. The Library and its services depend primarily on social media in this internet age. It acts as a medium between the library resources and its users. The paper highlighted the concept of social media and the utilization report of social media in the world and India in a universal context. The article also defines why Social media calls as a promotional tool in modern libraries and how they played a vital role in covid-19 period. It covers social media and its possible implications in modern libraries, e.g. Facebook, Twitter, blog, myspace, LinkedIn, Meebo etc.*

**Keyword:** Social Media, Tools, Covid-19, India

### Introduction:

Social Media is a controversial topic in today's society, and it makes it easy for other people to communicate & interact with each other anytime, anywhere in the world. People can stay connected to their families & loved ones no matter how far they are from each other. Social media has made communication a lot easier than ever before. Social media is pervasive in today's modern world. Social media is considered one of humanity's most outstanding achievements & accomplishments.

In the context of Library & information science, social media play a vital role in the development of modern libraries. Social media has the potential to facilitate much closer relationships between libraries & their patrons. Nowadays, the number of libraries which adopt social media technology is increasing. Modern libraries enjoy social media services such as social networking, bookmarking, blogs, and microblogs to interact & connect with their clients. The above background information has exposed that social media & modern libraries are interrelated & very useful in our academic system as it relates to positively availing staff & students' intellectual development. All educational institutions are closed during this epidemic emergency. Universities are now required to conduct all conceivable academic activities online because time and time take time and effort. Remote educational activities have been carried out using various technology-driven tools, including Cisco Webex, Zoom Meeting, and Google Classroom. Numerous colleges have also employed social media platforms like WhatsApp, Facebook, etc., to assign and receive home assignments.

In such a scenario, libraries play a significant role in supporting the academic demands of the literary brotherhood by making various resources available to its users. Social media can help spread information and offer library services to customers and the general public.

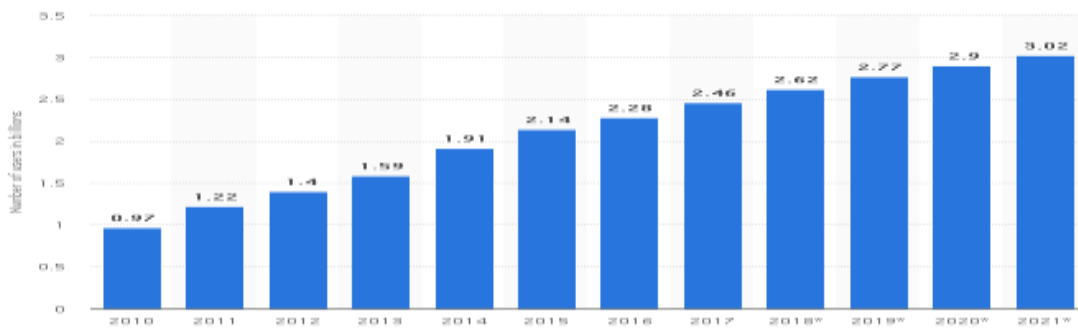
### Social Media Concept:

Social media is A tool that facilities the communication of information through human interaction. In simple words, s.m refers to the means of interactions among people in which they create, share and exchange information & ideas in virtual communities & networks. Social media helps the libraries /knowledge Resource Centres to get direct feedback from patrons (and potential user) while making the Library seem more personable. Social media is more familiar with the increased popularity of websites such as Twitter, Facebook, MySpace, LinkedIn, & YouTube. Social media facilitate the development of the online social network by connecting a user's profile with those of other individuals or groups. The library users access social media services via web-based

technologies on desktops, computers, & laptops or download services that offer social media functionality to their mobile devices(e.g. Smartphones & tablet computers)

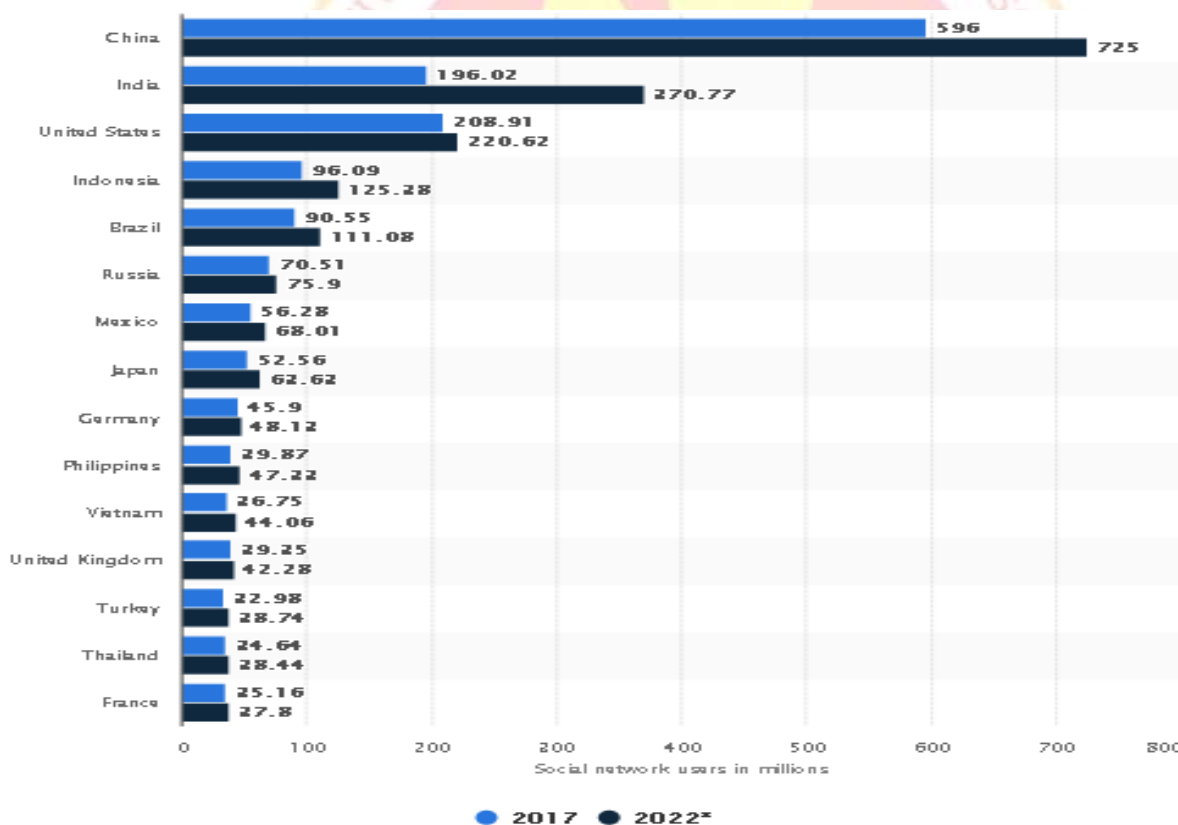
**Social media & world:**

Around the world, billions of us use social media every day, and that number keeps growing. The power of s.m is such that the number of worldwide users is expected to reach some 3.02 billion by 2021 if you analyzed country-wise in 2020.



**Number of social media users worldwide from 2010 to 2021 (in billions)**

An estimated 650 million of these users are expected to be from China alone & approximately a third million from India.



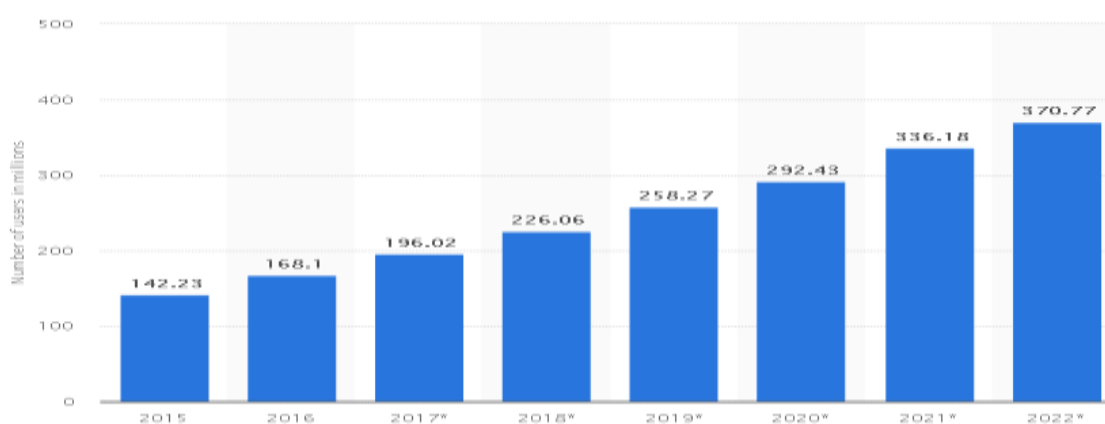
**Social media in India's point of view:**

In recent years, social media has played a crucial role in knitting the texture of Indian society. Impact one would agree that social media has revolutionized Indian society from an ignorant organization to a more

mature organization. Social media websites such as Facebook, Twitter & Youtube have given the Indian people a podium to raise their voices against oppression & injustice.

Social media has become a forceful weapon to attach the social destructive of inequality. Today there are so many incidents happening in Indian society, line molestation against girls and inequality in castes; also, an incident occurred a few days ago; two younger doctors threw down one dog in their apartment & shot all activity onto their mobile & uploaded it into social media. As a result, some animal lovers /friends raised their voices through social media, so the police had to arrest those two doctors. The suicide of farmers has answered the significant issue that has gotten much attention in social media. If a farmer dies in a remote part of Maharashtra, the news immediately flashes on S.M.websites. Social media apps also play a deceptive role in transforming the nation. Such apps are WhatsApp or Instagram. This app is primarily for chatting with your contact, but with the formation of groups, one can create awareness & build on the statement to change mindsets.

Today, we can say that social media is a platform for change in Indian society. Indian society, too, has benefited from this digital revolution & presented new hope for needy people.



Number of social network users in India from 2015 to 2022 (in millions)

### Social Media as Promotional Tools in Modern Library:

In the context of Library & information science, social media plays a vital role. Nowadays, social media systematically promotes modern libraries. Library users can access the Library and library services using the SM apps. Social media allows modern libraries to target the audience with tailored messages. Modern libraries use Facebook, Twitter & to a much smaller degree, Instagram to help cover special events, exhibitions & celebrations, e.g. library week, the birthday anniversary of Dr S.R. Ranganathan or a link to famous alums. Most of the libraries are established a social media committee & teams for Facebook, Instagram, Twitter & Pinterest.

### Social media Tools and their Possible Implications

"Social media helps librarians to share information with patrons and students in the easiest way for a digital library environment. Librarians can use three main activities in Library and information services. The primary three are Information communication, Knowledge distribution and knowledge organization.

Information Communication: In this process, a librarian can keep continuously in touch and have practical dealings with staff, patrons, and faculty in an online collaborative environment. The social media tools that the Library can practice for the foreknown purposes are:

**I. MySpace:** MySpace (<http://www.myspace.com>) and Facebook (<http://www.facebook.com>) are prevalent social networking sites which primarily have a social function allowing people to make friends, talk online and share resources.

**II. Facebook:** Another social media site frequented by students, Facebook is librarian friendly. Group communication among faculty and students can be possible in modern libraries.

**III. Ning:** Librarians can use this tool to connect with students, library associations, and more. You can also use it to share information with many people at a time in one single click.

**IV. Blog:** By creating a blog, you'll be able to disperse information to many people at once. Most librarians have developed blogs for sharing their information and library activities. Whether you're updating students on new collections or just conferring with library staff, blogs are a powerful tool, especially when combined with RSS.

**V. Meebo:** Network and assist students on Meebo, no matter what IM client they use. Professionals can impact online chatting or virtual reference service in the Library to clients.

**VI. LinkedIn:** This social networking site for professionals is a great way to get library consumers connected with the people that can help them find information. Whether that's you, faculty, authors, historians, or other sources, they can find them in your LinkedIn network.

**VII. Twitter:** Use Twitter, a microblogging application, to keep staff and students updated on daily activities, like frequently updated collections, new arrival, and current content services of the Library.

**Information Distribution:** Information sharing is a significant and crucial area where professionals should look seriously while considering and designing library activities in the digital age. Patron's satisfaction should give first and foremost priority by providing the correct information at the right time in the right way from anywhere. Library professionals should rethink implementing web 2.0 technologies in library services from an early period.

**I. Flickr:** This image distribution tool is a great way to share new image collections. LibraryØ can share photo collections of workshops, conferences and different programmes that are organized within the campus. You can create image sets with metadata and take advantage of the many plugins available for Flickr users. Flickr users can also help gather missing information about images.

**II. YouTube:** Library video and e-learning tutorials, events and other video library services can be effectively promoted and webcast through YouTube.

**III. TeacherTube:** TeacherTube, a YouTube for teachers, presents an excellent opportunity for instructor-librarian collaboration. Instructors can guide students to helpful library resources and vice versa.

**IV. Second Life:** You can create a virtual library with streamed media, discussions, classes, and more.

**V. Wikipedia:** Wikipedia is an online encyclopedia updated by users. You can use this tool to share your knowledge by editing or pointing library patrons in the right direction. You can also host your library websites on wiki software like PBWiki.

**VI. PBwiki:** PBwiki is the world's largest hosting business and educational wikis provider. It encourages collaboration from students, is a way to showcase work, and offers a central gathering point for information. PBwiki offers controlled access, giving you editing privileges while another scan only reads.

**VII. Footnote:** On Footnote, you'll get access to original historical documents and can update them with your content and insights. You can even find personal anecdotes and experiences you won't find in reference books.

**VIII. Community Walk:** Community Walk offers a geographical way to interpret text and events. You can use it for instruction, such as showing someone where to find a book or walking them through a historical and geographical timeline.

**IX. SlideShare:** Encourage faculty, staff, and students to share their slideshow presentations for the greater community to access on SlideShare. It's a getaway to disseminate information among the research community in research and development (R&D) activities.

**X. Digg:** Digg is a great way to find helpful content you wouldn't see in traditional methods. Find stories here, then share them with others using Digg's blog function.

**XI. StumbleUpon:** Another way to find great content is with StumbleUpon. You can channel and surf the Internet to find helpful content, research tools, and more.

**XII. Daft Doggy:** If you've found an excellent resource, you can use Daft Doggy to create a website tour with instructions, pointing out valuable references and items of note.



**Knowledge Organization:** Social software can help the professionals in KOenvironment get handy information accessible with the social networking technologies in the web 2.0 milieu. The below-mentioned tools can effectively in Library and information centre for patrons as:

**I. aNobii:** Social networking site like aNobii helps book lovers to share reviews and recommendations. It also prepares due date alerts, lending, and discussions.

**II Del.icio.us.:** With this social bookmarking tool, you can create a custom directory for library patrons. Teach them to search by your tags, and it will be easy to find helpful Internet research links.

**III. Netvibes:** In Netvibes' new Ginger beta, you can create a public page that anyone can view. You can use it to help guide patrons to use internet sources, news feeds, and more. It can be integrated with many of the tools mentioned here, like Flickr and library blogs.

**IV. Connotea:** Connotea is an excellent reference tool, allowing you to save and organize reference links and share them with others. They can be accessed from any computer and offer integration with many other devices.

**V. LibraryThing:** This social cataloguing network is excellent for librarians, and you can catalogue along with Amazon, the Library of Congress, and more than 200 other libraries worldwide. You'll get recommendations and easy tagging as well.

**VI. lib.rario.us:** Another social cataloguing site, you can put media such as books, CDs, and journals on display for easy access and tracking" (DR Sahoo, 2015)

#### Covid- 19 and Libraries:

During the crucial covid-19 period, libraries and information centres are provided with their library services using different social media tools. Shekharjyoti Neog, a Research scholar DLISc, Guwahati University, conducted one survey. He mentioned that 50% of the University libraries had used Facebook and Blogs to deliver library services during the lockdown. Twitter and some other social media platforms have been used by 25% of the university libraries, and WhatsApp has been used by 100% of the libraries during the lockdown. Most of the librarians convinced their journal supplier to provide the soft issues of the journals with hard copies because students can't access the hard copy of the journals, so professionals can send the soft copies of the journals through WhatsApp groups for utilization purposes. Professionals also arrange a meeting using different platforms like Zoom, Microsoft teams, G-Meet etc., for organizing the library orientation programme or some other topic afterward recorded videos of professionals are uploaded on YouTube channels which are created during the period of covid-19. Professionals also use different tools to arrange the virtual book exhibition because physical book exhibitions are impossible during the covid-19 period of time. Some professionals created blogs and Facebook pages to provide quality library services to users.

#### Conclusion:

Social Media has been used by modern libraries worldwide and in India as a tool to reach out to users and provide them with information in their own time and space. This paper explored the concepts of social media and its implications in modern libraries. It discussed why libraries use social media and found its relevance and importance. Libraries can use social media tools or technologies, including blogs, wikis, Twitter, LinkedIn, Meebo, Ning, social networking, bookmarking and tagging, RSS, podcasting, vodcasting, screencasting, content creation, etc. The advantages of using social media in libraries are numerous, and to sustain this, libraries and librarians must follow some guidelines and use some tips. A library's social media campaign should focus on becoming social rather than just opening an account on available social media websites/platforms. Now a day's, most libraries are using these Social Media applications to provide quality-based services to users. The conclusion of this paper is to offer and use a minimum number of Social media applications for the potential growth of the libraries to maximize the utilization of library resources and save the time of library staff; it means social media helps libraries to successfully implement the five laws of library science in their concerned area.

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**Library 2.0: The Changing Scenario****Mr. Ashok B Nagare**

(M. Lib I. Sc., SET, NET) Librarian

M J M Arts, Commerce and Science College, Karanjali, Tal. Peth, (Nashik).

**Abstract**

*The web has seen the explosion of social networking tools, which are empowering ordinary people to connect, collaborate and contribute in a global collaboration. These social software applications are now the hottest properties of the Internet users. This article explains how Web 2.0 tools could be applied in library. This article also posits a definition for "library 2.0". It suggests that recent thinking describing the changing web as "web 2.0" will have substantial implications for libraries. Specifically addressing how web 2.0 technologies such as synchronous messaging and streaming media, blogs, wikis, social networks, tagging, rss feeds, and mashups might intimate changes in how libraries provide access to their collections and user support for that access.*

**Keywords** Web 2.0, Library 2.0, Blog, Wiki, Streaming media, Social network, Tagging, RSS, Mashup,  
Web 2.0 + Library = Library 2.0

**1. Introduction**

The term "Library 2.0" was coined by Michael Casey on his blog Library Crunch as a direct spin-off of the terms Business 2.0 and Web 2.0. Casey suggested that libraries, especially public libraries, are at a crossroads where many of the elements of Web 2.0 have applicable value within the library community, both in technology-driven services and in non-technology based services. In particular, he described the need for libraries to adopt a strategy for constant change while promoting a participatory role for library users. A theory for Library 2.0 could be understood to have these four essential elements:

- **It is user-centered.** Users participate in the creation of the content and services they view within the library's web-presence, OPAC, etc. The consumption and creation of content is dynamic, and thus the roles of librarian and user are not always clear.
- **It provides a multi-media experience.** Both the collections and services of Library 2.0 contain video and audio components. While this is not often cited as a function of Library 2.0, it is here suggested that it should be.
- **It is socially rich.** The library's web-presence includes users' presences. There are both synchronous (e.g. IM) and asynchronous (e.g. wikis) ways for users to communicate with one another and with librarians.
- **It is communally innovative.** This is perhaps the single most important aspect of Library 2.0. It rests on the foundation of libraries as a community service, but understands that as communities change, libraries must not only change with them, and they must allow users to change the library. It seeks to continually change its services, to find new ways to allow communities, not just individuals to seek, find, and utilize information.

**2. Definition**

"Library 2.0 is a change in interaction between users and libraries in a new culture of participation catalyzed by social web technologies."

As you can see, this definition coincides with many previous ideas about library 2.0 and the notion that it is about more than just the technology – rather it is about what the technology is allowing us to do. Some would even say that technology is not essential to a definition of library 2.0 at all.

**3. Importance of Library 2.0 in the library in the following ways:**

- It's about cultivating communities
- It's about encouraging participation



- It's about human conversations
- It's about collaboration
- It's about being in their space
- It's about small pieces loosely joined
- It's about shifting the focus
- It's about letting go

#### **4. Web 2.0 applications in the library**

The Learning 2.0 program has enabled staff to see ways that Web 2.0 applications can be used in the library. The Library 2.0 program has extended this learning so staff could use their skills to share their knowledge with the community. Web 2.0 applications are now incorporated into the library environment, whether it is in a virtual or a physical space, in many ways.

##### **4.1 Streaming Media**

The streaming of video and audio media is another application that many might consider Web 1.0, as it also predates Web 2.0 thinking and was widely employed before many of the following technologies had even been invented. But for reasons similar to synchronous messaging, it is here considered 2.0. Certainly, for libraries to begin maximizing streaming media's usefulness for their patrons, 2.0 thinking will be necessary.

Another implication of streaming media for libraries is more along the lines of collections instead of services. As media is created, libraries will inevitably be the institutions responsible for archiving and providing access to them. It will not be enough to simply create "hard-copies" of these objects and allow users to access them within the confines of the library's physical space, however. Media created by the Web on the Web belongs on the Web, and libraries are already beginning to explore providing such through digital repository applications and digital asset management technologies. Yet these applications are generally separate from the library's catalog, and this fracture will need to be mended. Library 2.0 will show no distinction between or among formats and the points at which they may be accessed.

##### **4.2 Blogs**

A blog is a website where A blog or weblog is a powerful two way web based tool. A blog is a website where library users can enter their thoughts, ideas, suggestions, and comments. Any library user can publish a blog post easily and cheaply through a web interface, create "What's New" for users, marketing of Information, user conversation about the services and resources, Post the meetings/conferences output, Place the discussion forum, and any reader can place a comment on a blog post.

##### **4.3 Wikis**

Wikis are essentially open web-pages, it is an online encyclopedia where any registered user can write, amend or otherwise edit articles in the library world well note

##### **4.4 Social Networks**

Social networks are perhaps the most promising and embracing technology discussed here. They enable messaging, blogging, streaming media, and tagging, discussed later. MySpace, Facebook, Del.icio.us, Frappr, and Flickr are networks that have enjoyed massive popularity in Web 2.0

Library Thing enables users to catalog their books and view what other users share those books. The implications of this site on how librarians recommend reading to users are apparent. Library Thing enables users, thousands of them potentially, to recommend books to one another simply by viewing one another's collections. It also enables them to communicate asynchronously, blog, and "tag" their books.

It does not require much imagination to begin seeing a library as a social network itself. In fact, much of libraries' role throughout history has been as a communal gathering place, one of shared identity, communication, and action. Social networking could enable librarians and patrons not only to interact, but to share and change resources dynamically in an electronic medium. Users can create accounts with the library network, see what



other users have in common to their information needs, recommend resources to one another, and the network recommends resources to users, based on similar profiles, demographics, previously-accessed sources, and a host of data that users provide.

#### **4.5 Tagging**

Tagging essentially enables users to create subject headings for the object at hand. In Library Thing, they tag books. In Library 2.0, users could tag the library's collection and thereby participate in the cataloging process.

Tagging simply makes lateral searching easier. The often-cited example of the U.S. Library of Congress's Subject Heading "cookery," which no English speaker would use when referring to "cookbooks," illustrates the problem of standardized classification. Tagging would turn the useless "cookery" to the useful "cookbooks" instantaneously, and lateral searching would be greatly facilitated.

#### **4.6 RSS Feeds**

RSS feeds and other related technologies provide users a way to syndicate and republish content on the Web. Users republish content from other sites or blogs on their sites or blogs, aggregate content on other sites in a single place, and ostensibly distill the Web for their personal use. Such syndication of content is another Web 2.0 application that is already having an impact on libraries, and could continue to do so in remarkable ways.

But libraries have yet to explore ways of using RSS more pervasively. A new product from a company called Blog Bridge, Blog Bridge: Library (BBL) "is a piece of software that you can install on your own server, inside your firewall. It's not the content of the library (the books), it's the software to organize the library (the building)." While BBL's potential for libraries has yet to be determined due to its being brand new, it is conceivable that this syndication will replace browsing and searching through library websites for content. BBL and similar RSS aggregator applications, installed in a library's system and coupled with the social network of the library, will enable users to have a single, customized, personal library page that syndicates all the library content of interest to them and their research, eliminating irrelevant information. And users will, of course, control that page and that content.

#### **4.7 Mashups**

Mashups are perhaps the single conceptual underpinning to all the technologies discussed in this article. They are ostensibly hybrid applications, where two or more technologies or services are conflated into a completely new, novel service.

Library 2.0 is a mashup. It is a hybrid of blogs, wikis, streaming media, content aggregators, instant messaging, and social networks. Library 2.0 remembers a user when they log in. It allows the user to edit OPAC data and metadata, saves the user's tags, IM conversations with librarians, wiki entries with other users and the user is able to make all or part of their profile public; users can see what other users have similar items checked-out, borrow and lend tags, and a giant user-driven catalog is created and mashed with the traditional catalog.

### **5. Conclusion**

Library 2.0 is a change; it is of a nature close to the tradition and mission of libraries. It enables the access to information across society, the sharing of that information, and the utilization of it for the progress of the society. Library 2.0 really is merely a description of the latest instance of a long-standing and time-tested institution in a democratic society. Web 2.0 and libraries are well suited for marriage, and many librarians have recognized so.

The best conception of Library 2.0 at this point in time would be a social network interface that the user designs. It is a personalized OPAC that includes access to IM, RSS feeds, blogs, wikis, tags, and public and private profiles within the library's network. It is virtual reality of the library, a place where one can not only search for books and journals, but interact with a community, a librarian, and share knowledge and understanding with them.

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## Opportunities And Constraints of Using Cloud Computing To Enhance Academic Library Operations

**Vishwas Hase**

Librarian<sup>1</sup>, Rajarambapu Institute of  
Technology, Affiliated to Shivaji University,  
Kolhapur, Islampur

**Manjusha Ahirrao**

Librarian<sup>2</sup> SPDM College, Shirpur Dhule

### Abstract

*In the present era of ICT, information and communication technology is necessary for all library operations and services. This study goes into detail on the various applications of cloud computing in academic libraries. Financial constraints and a lack of technological expertise led to a concentration on library cloud computing applications. In the contemporary ICT era, cloud computing is beneficial for academic libraries. This paper presents the benefits and drawbacks of cloud computing in libraries and the applications of cloud computing in academic libraries*

*Keywords: Cloud; Academic library, cloud computing, RIT*

### 1. Introduction

ICT has significantly changed how people use libraries and how they seek out information. Nowadays, people may feel very comfortable using their computers, laptops, tablets, and smart mobile gadgets. In brief, cloud computing is a form of internet-based computing that instantly makes data and pooled computing resources available to computers and other devices. It is a concept for sharing resources, especially servers, storage, applications, and services used across computer networks. Specifically, cloud computing is the development of distributed computing, parallel computing, grid computing, and distributed databases. Furthermore, the basic aspect of cloud computing is distributing tasks across a vast number of distributed computers rather than local or external servers.

### 2. Cloud Computing

Amazon was the first significant cloud provider in 2002, and with the release of its 2006 service, Amazon Simple Storage Service (Amazon S3). Apple, Cisco, Citrix, IBM, Joyent, Google, Microsoft, Rackspace, Salesforce.com, and Verizon/Terremark are additional cloud service providers.

(According from Lakhmanan 2009) Key Players in the cloud computing platform

Table 1- Key Players in Cloud Computing

Key Players in Cloud Computing Platforms (adapted from Lakshmanan (2009))			
Company	Cloud Computing Platform	Year of Launch	Key Offering
Amazon.com	AWS (Amazon Web Services)	2006	Infrastructure as a service (Storage Computing), Datasets and Content Distribution
Microsoft	Azure	2009	Application platform as a service (.Net, SQL data services)
Google	Google App. Engine	2008	Web Application Platform as Service
IBM Salesforce.com	Blue Cloud Force.com	2008	Proprietary 4GL Web application as an demand platform

## 2.1 Concept of Cloud Computing

According to Gartner IT Glossary, "cloud computing is a style of computing in which scalable and elastic IT-enabled capabilities are delivered as a service using Internet technologies."

NIST defined cloud computing In generic term, and cloud computing can be defined as "a model for enabling ubiquitous, convenient, on demand network access to a shared pool of configurable computing resources (e.g., networks, servers storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

To put it simply, cloud computing is a technology that primarily uses virtual servers as infrastructure and has been allowed access to third parties on the web.

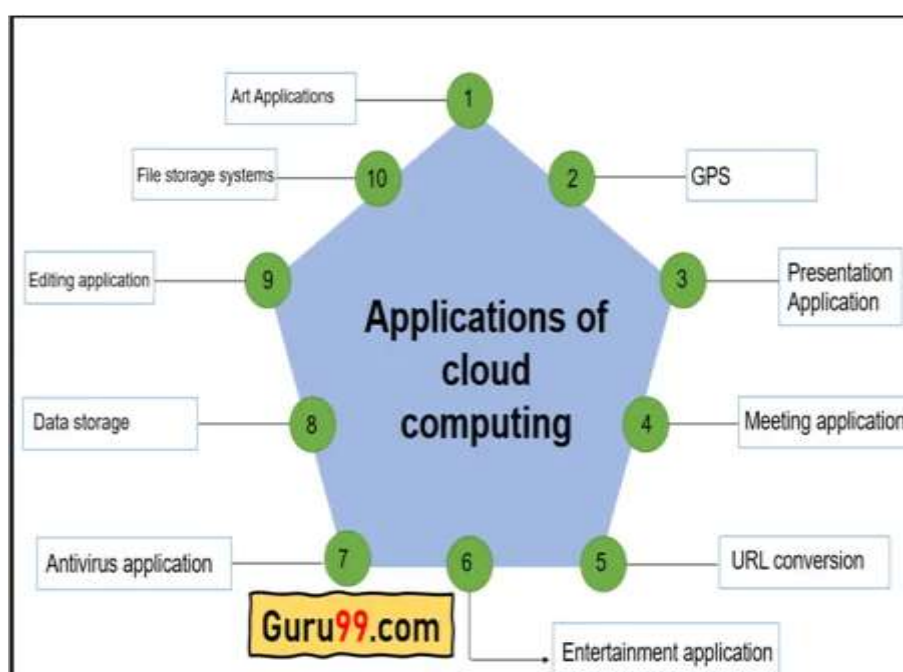


Figure 1-Displaying the application of cloud computing

Source: <https://www.guru99.com/cloud-computing-applications-examples.html>

## 2.2 Characteristics Of Cloud Computing

**Self-Healing:** In a cloud computing environment, each program or service can repair itself. A hot backup of the program is always available and prepared to take over without any interruption in the event of an application failure.

**Multi-tenancy:** Using cloud technology, applications may support numerous tenants operating simultaneously. Without any of the users being aware of it, the system enables several users to use the infrastructure that has been assigned to them.

**Linearly Scalable:** The system can split workloads and distribute them around the infrastructure.

**Service-oriented:** All systems for cloud computing are service-oriented.

**SLA Driven:** In most cases, contracts between firms specify the scope of the services. Issues with scalability and availability lead to clients breaking these agreements.

**Streamline/ Virtualised:** All connections to the underlying hardware are broken in cloud computing. The cloud computing environment is entirely virtual.

**Flexible:** They can handle a wide range of workloads, from light loads for tiny consumer applications to very heavy loads for business applications.



### 2.3 Types Of Cloud Computing

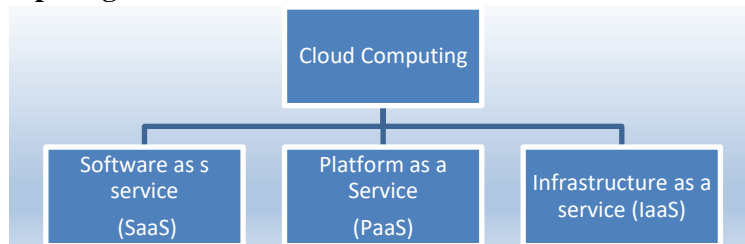


Figure 2- Cloud types

### 2.4 Models For Cloud Deployment

There are 4 major models for cloud deployment.

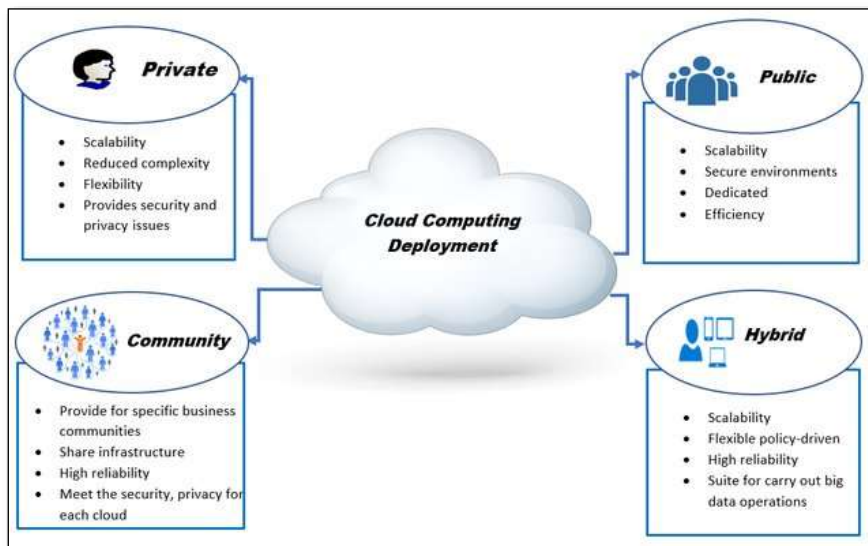


Figure 3 Cloud computing deployment models

• Source: 10.35741/issn.0258-2724.55.1.11

Every deployment model ultimately reflects the vital characteristics we've recently reviewed only. The different abilities are to the scale and accessibility of cloud services given to end consumers.

### 3. Cloud-Based Library Services:

Since it has the potential to transform how librarians provide services to their patrons in light of evolving technologies and information demands, cloud computing has attracted a great deal of interest recently. Cloud computing not only brings some new service models to libraries but also significantly impacts hardware and maintenance. Before using the cloud, one should be aware of the costs associated with storage and other services and the price. The below table shows popular service providers and their annual cost

Table 2- Cloud storage service provider

Service Provider	Free	Add-on
GoogleDrive	15 GB	\$9.99/ month
Onedrive	5 GB	\$1.99 month
Box	10 GB	\$10 month
Amazon	5 GB	\$19.99 for 100GB/ year
iDrive	5GB	\$104.25
iCloud	5GB	\$1.19

On that, I describe some google applications for useful for library information centres

### 3.1 Google Drive:

In that it offers unlimited free storage, Google Drive is widely used. You can save pictures, documents, stories, designs, recordings, and videos, among other things. You need a Google account in order to store the files on Google Drive.

Key features of Google drive:

- You can store any kind of file on it. You can save images, sketches, audio, movies, etc.
- From a computer, tablet, or smartphone, files can be uploaded.
- Files and folders can be shared with ease. Without an email attachment, collaboration on any file is possible.

### 3.2 Google Applications (APPS)

Google is rapidly establishing itself as a very effective cloud service provider, offering cloud-based services and a wide range of useful apps that the community may use to improve their services.

**3.2.1 Google Form:** Google Forms help for the library for planning any kind of event, user feedback, library feedback, quiz, and gather other data in a simple, efficient manner. A Google spreadsheet can be linked to a Google form. Responses will be sent automatically to a spreadsheet if one is connected to the form.

**3.2.2 Google Calander:** we can make our own personal library calendar with a list of forthcoming events, and activities for the entire year.

**3.2.3 GoogleMEET:** Librarians can schedule video conferences and schedule webinars through Google Meet. There are certain restrictions with Google Meet; we can only invite up to 100 guests and meet for free for up to 60 minutes per meeting. If we require more, then we need to subscribe Gsuite application.

**3.2.4 Google DOC:** You can create your own documents in the library, and numerous users can modify and share them at once. Users who have registered can submit, modify, or view it. This tool very useful for research paper writing purposes.

**3.2.5 Google Site:** one of the important tools for all librarians. Using google Site app we can develop our own library website free of charge. E.g. <https://sites.google.com/view/deurcollegelibrary/home>

**3.2.6 Google Slides:** Presentation software like Google Slides provides users with a number of tools to make creating and presenting presentations simpler than before. You may make slideshows using Google Slides in your web browser without installing any other software. Furthermore, Google Slides provides collaboration tools so that multiple users may work simultaneously on presentations. It also has online editing features so that you can continue working on your presentation even when you are not in close proximity to a computer. It is very beautiful tool for librarians for presenting their library services in various manner

### 3.4 ZOTERO (reference management software):

Zotero reference management software support for over 10,000 citation styles. Zotero automatically generates references and bibliographies for use with MSWord, LibreOffice, Google Docs, and other text editor applications. We can arrange our work to adhere to any style manual or publication.

Web browser integration, online syncing, the creation of in-text citations, footnotes, and bibliographies, as well as an integrated PDF reader and note feature, are just a few of its features, which are very useful for researchers. The library can provide awareness to the researcher.

Library Management Software: KOHA, Libsys, iSLIM. Many clouds base library management software are available for managing day-to-day housekeeping library activities through automation software.

### 3.5 MENDELEY (reference management software):

Mendeley is a free reference manager and academic social network that can help you organise your research, collaborate with others online, and discover the latest research.

### 3.6 CLOUD LIBRARY EXAMPLE

- WorldCat
- OCLC

- Polaris
- Google Scholar
- Library of congress
- Discovery Science
- Exlibris

#### 4. Advantages Of Cloud Computing

##### 4.1 Backup & restore:

Once the data is in the cloud, using the cloud to backup and restore the data is an easy & faster process, so librarians have no worries about taking backups every day.

##### 4.2 Wonderful accessibility

Using the cloud and an internet connection, we may quickly and conveniently access information stored anywhere, at any time. An internet cloud network boosts organizational productivity and efficiency by ensuring that our data is always available.

##### 4.3 Better Mobility

By having a PC and Internet connectivity, the library's employees and users can connect to the library's servers from any location, eliminating the need to be physically present at their desks. We can access all cloud data via mobile

#### 5. Disadvantages Of Cloud Computing

- Internet and electricity are the biggest issues or disadvantages of cloud computing.
- Another drawback of cloud computing is vendor lock-in. Transferring an organization's services from one vendor to another could provide challenges. Switching from one cloud to another might be challenging because different vendors offer various platforms.
- The operation and execution of services within a cloud infrastructure are less within the control of cloud users as, as far as we know, the cloud infrastructure is owned, maintained, and watched over by the service provider.
- The cost may be high initially but may decrease depending on the usage of the services. However, organizations may pay higher fees in the future.

#### Conclusion

Cloud computing is going through a period of explosive growth, although the technology still has security risks and is immature. In the contemporary era, many new IT technologies should be applied to improve the library or use cloud computing to improve library services. Although cloud computing is an early practice, it has clear implications. Libraries will become more user-friendly, professional, and effective. We believe that cloud computing libraries will help improve the knowledge of our country. The cloud environment provides high-quality service and security. Digital libraries can leverage cloud computing to increase resource utilization and reduce regional development disparities.

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## Use of Online Databases by the Selected Science Faculty Members in Western Maharashtra (India): A Study

**Mahesh N Gaikwad**

Librarian

Rayat Shikshan Sanstha's

Sadguru Gadage Maharaj College, Karad

Dist-Satara

**Dr. Prakash B Bilawar**

Deputy Librarian

BBK Knowledge Resource Center (Library),

Shivaji University, Kolhapur

(Maharashtra)

### Abstract

*The study examined the role of access to online databases as the basis for faculty research output of seventeen 'A' grade colleges run by Rayat Shikshan Sanstha, Satara (Maharashtra) affiliated with three Maharashtra state universities in, India. The survey research design method alongside a multistage sampling procedure were employed to select 249 science faculty members those provided the data for the study. Online structured questionnaire used for data collection. Total 280 copies of the questionnaires administered and out of that 90 per cent were retrieved fully completed and found usable. The research questions that guided the study were analyzed using inferential statistics. Findings of the study revealed that H.W. Wilson, Indian Journals, Cambridge University Press, JSTOR, American Institute of Physics and Royal Society were the most regularly accessible database. Access of these online databases has positive impact on research productivity in the form of quality and quantity. Unavailability of archival and difficulty in searching required information are the posed the greatest threats to access online databases. Similarly, the study found that the provision of more high quality full text databases, organizing training on acquisition of online information resources were the most effective ways of addressing online databases access constraints. Accordingly, study recommended that adequate funding for college libraries for subscribe more required online databases, and increased user education for maximum exploitation of subscribed online databases.*

**KEYWORDS:** Databases, Academic Databases, Online Databases, Electronic Databases, Science Databases, E-Resources, Faculty Members, Use, Awareness, Survey, Maharashtra, India.

### Introduction

Research is a process of engaging in a systematic study in order to provide answers to questions, gain new insights on knowledge, develop new products and initiate services. It can also be described as it is a method of scientific enquiry by which, through careful and exhaustive investigation of all ascertainable evidences, bearing upon a definable problem, one can reach a solution to that problem (Connaway and Powell, 2010). Thus, research is a studious activity engaged in by universities and other research-based institutions geared principally, towards the creation of knowledge needed for economic growth and sustainability. For optimum result, certain individuals with requisite academic qualifications and intellectual expertise are entrusted with the process. These individuals are sometimes referred to as Academics, Lecturers or Faculty; as this study chose to address them. Many university libraries now feature online databases as a staple of their collections. These databases frequently include reports, conference papers, e-books, reference materials, journal articles, or referrals to such works. It provides efficient access to research information beyond institutional boundaries. Academicians are using these e-resources for their research work and this would result in an increase use of online databases. In the present day of information age, libraries play the key role for information dissemination where the researcher, students and the faculty members can retrieve the information and explore the universe of knowledge through library collection and by using the Internet for accessing the e-information. At present the college-libraries in India are actively engaged in electronic information resources and services to provide much needed primary as well as secondary information. Many academic alliances are devoted to giving scholar users access to electronic resources. Consortium for Higher Education: E-ShodhSindhu to guarantee that the students have access to high-quality material, INFLIBNET is taking an important MHRD step by implementing e-Resources. The expert committee

established by the MHRD, Government of India, by combining three separate consortiums, such as the UGC-INFONET Digital Library Consortium, the INDEST-AICTE Consortium, and N-LIST, has recommended its formation. The e-ShodhSindhu provides its member institutions, which include centrally funded technical institutions, state and central universities and colleges covered under 12(B) and 2, with access to more than 15000 core and peer reviewed current as well as archived journals with a number of bibliographic, citation, and factual databases of different disciplines and publishers (f) 2(f) Sections of UGC Act. INFLIBNET NLIST is also another good step towards the quality Higher Education, where everyone can utilize the e-resource through various types of Online Databases at the best possible way. It operates through its headquarter set-up at INFLIBNET Centre, Gandhinagar. NLIST provides variety of E-resources through ten e-journals provider databases and twelve e-books databases. This is an excellent initiative, which should greatly help research activity in colleges. More students and staff would be able to incorporate these resources as an integral part of their curriculum. Those types of e-resources are beneficial for all the users whether they live in academically well-equipped cities or scantily equipped small towns and villages. It is unimaginable that an access to so many books and e-journals under various types of databases are provided. Surely, this would increase the learning abilities of individuals and boosts the rate of research publications with this venture. So there is a need to maximum utilization of the online databases accessed through NLIST consortia in Indian colleges. Hence the investigator felt the need to study role of online databases which covered under umbrella of NLIST consortia and its impact on research productivity of the faculty members in Rayat Shikshan Sanstha's 'A' grade colleges.

### Significance

Faculty members of the colleges and universities in India have realized the advantages of e-resources and seem to have accepted the primary medium of research ideas and result. Libraries are spending a huge amount to providing access of online resources to their users. This impels to assess the use and value of such resources and to identify and understand the resources that are in utilization, and its impact on academic and research activity. Academic library professionals in India are actively engaged incorporating electronic information resources through various Online Databases and services to provide much needed primary research information to their academic fertility. From the last few years, UGC INFLIBNET NLIST Programme has become an important information source for research and learning, and now these are considered as an essential component for access online databases in Indian college libraries. It is an excellent tool for various full texts Online Database searching, which is widely used in various fields of education, particularly in the Science and Technology. For the optimum use of these databases, the proper assessment and its impact become requisite. The study will be helpful in advising academic library administration as they develop strategies to satisfy the information and research demands of faculty members through pertinent acquisitions. Additionally, this research will offer suggestions for enhancing the use of these priceless datasets.

### Research Questions

1. What is the awareness level of different online databases/e-resources of the faculty members of the science colleges?
2. Which Online Databases are mostly accessed by the faculty for research purposes?
3. What is the relationship between online databases and research productivity?
4. What are the constraints faced by faculty in accessing online databases for research?
5. What are the possible strategies for overcoming the constraints faced by faculty in accessing online databases?

### Objectives of the Study

Considering the topical and geographical scope of the study, the objectives of the present research work have been set as under.

- To study the awareness and usage pattern of various online databases accessible by science faculty members for research.
- To find out the relationship between online databases and research productivity.
- To identify faculty’s constraints to accessing online databases.
- To examine possible strategies for overcoming the identified constraints.

**Scope & Limitation of the Study**

Present study limited to the Science College faculty members those are working at presently in Rayat Shikshan Sanstha’s Seventeen (17) ‘A’ grade college’s affiliated to three state universities of Shivaji University, Kolhapur, Savitribai Phule Pune University and Punyashlok Ahilyabai Holkar Solapur University of Maharashtra state. The total 249 population from these colleges has been covered comprising of researchers at different levels. All colleges have access of INFLIBNET NLIST programme for providing online databases facility to the faculty members. Ten E-journals Online Databases (i.e. full-text) and its impact on research productivity have been studied. Study also focuses on a research productivity status of the faculty members. The ‘A’ Grade college run by Rayat Shikshan Sanstha covered under this research work are listed (As per their NAAC ranking) in the following Table no. 1.

**Table No. 1 ‘A’ Grade Colleges run by Rayat Shikshan Sanstha, Satara, Maharashtra State (India)**

Sr. No.	Name of the Institute/College	Place
1	Sadguru Gadage Maharaj College, Karad	Karad
2	Yashwantrao Chavan Institute of Science, Satara	Satara
3	Karmaveer Bhaurao Patil College, Vashi, Navi Mumbai	Vashi, Navi Mumbai
4	Karmaveer Bhaurao Patil Mahavidyalay, Pandharpur	Pandharpur
5	R.B.N.B. College, Shrirampur	Shrirampur
6	Dahiwadi College, Dahiwadi	Dahiwadi
7	Maharaja Jivajirao Shinde Mahavidyalaya, Shrigonda	Shrigonda
8	Mahatam Phule Arts, Science & Commerce College, Panvel	Panvel
9	Mahatam Phule Mahavidyalay, Pimpri, Pune	Pimpri (Pune)
10	D.P.Bhosale College, Koregaon	Koregaon
11	Balwant College, Vita	Vita
12	Annasaheb Awate College, Manchar	Manchar
13	Dada Patil Mahavidyalay, Karjat	Karjat
14	Rajarshi Chhatrapati Shahu College, Kolhapur	Kolhapur
15	Radhabai Kale Mahila Mahavidyalaya, Ahemadnagar	Ahemadnagar
16	S.M.Joshi College, Hadapsar, Pune	Pune
17	Arts, Commerce & Science college, Ramanandnagar	Ramanandnagar

**(Source: Primary Data)**

**Methodology**

The survey method consider most appropriate for this study because it can measure faculty background, experience and what they know about online databases. Data on the use of online databases and research publications has been collected from faculty member’s trough structured online questionnaire which has been designed keeping in view of the stated objectives. Data from the INFLIBNET NLIST website was helpful to know the various Online Databases provide by them. Collected data and information analysed electronically by



applying statistical method and certain techniques of research methodology by using Excel and online data analysis packages.

### Literature Review

There are number of studies have been undertaken on electronic/online databases in the areas of awareness, usage, impact, relevance, access, preference, orientations and training, and evaluation among others. Some relevant studies have been taken into consideration for the study. Study conducted by the *Omeluzor et al. (2012)* revealed use of electronic information resources and its impact on research output of academic staff of private universities in Ogun State, Nigeria. Study found that most of the academic staff from the three private universities knew and used electronic information resources and also they have published their articles and presented papers by using electronic information resources. Lack of personal computers and erratic power supply, are the significant constraints and researchers' recommended that academic staff should acquire computer skills, learn and relearn to navigate and utilize the vast available electronic information resources on the internet to achieve better research output. Nagarajan (1995) conducted another study on the research output of Indian scientists in marine biology. The study of the Marine Science literature at the international level demonstrates that the relative growth rates of marine science research output have showed a downward tendency, despite double the time for publications that have grown significantly.

The same pattern may be seen in terms of Indian output. Other study by *Yusuf, M. (2017)* investigated the perception of the academic staff toward Electronic Databases for their research productivity and found that the majority of respondents have a positive perception towards online electronic databases due to the accommodation of more current and prompt information. The study also reveals that the staff members using online databases are under the "sometimes" option. Still, they were "never" (option) using the offline databases available in the Library. Due to this, the research productivity of the university's academic staff is above average level. A study made by *Vakkari (2008)* to explore the relationship among academics in using electronic library resources and their work and examines the association between this perceived impact and publication output. The result reveals that there is a positive impact on the efficiency and quality of their work. *At the University of Pittsburgh's school of information science, Abouserie (2006) investigated how academics in the fields of library and information science used electronic journals. According to position and gender, different information sources are used differently, as demonstrated by the study.*

### Rayat Shikshan Sanstha: A Brief Sketch

The Rayat Shikshan Sanstha is one of the largest and leading educational organizations in Asia founded by the Late Padma Bhushan Dr. Karmaveer Bhaurao Patil in 1919, with the motto "Education through Self- help". The aim of the organisation to provide education to the students those not got an opportunity due to caste, religion and economic status. The organization has its headquarters at Satara, in Maharashtra state, India. Padma Bhushan, Karmaveer Dr. Bhaurao Patil and his wife Sou. Lakshimibai Bhaurao Patil are the idol of sacrifice, for the cause of education to the people who are poor, needy, down trodden and belong to the rural society. The University of Poona honoured him with the Doctor of Literature (D.Lit.) and the Government of India with the Padma Bhushan. However, the people have known him as "Karmaveer" meaning, "hero in action". The educational set-up of Sanstha is spread in two states Maharashtra and Karnataka. Rayat Shikshan Sanstha provides education through 21 Primary schools, 439 High Schools, 42 Senior Colleges, 8 Teacher training institutes. Out of 42 senior colleges 17 colleges got 'A' and 'A+' grant from the NAAC. Well-equipped fully automated libraries having 1538349 printed books are provided by the colleges run by the Organization. Besides, E-resources facilities are made available to the users through various online databases provided by NLIST.

### Results and Discussions

#### Demographics

A total of 251 science faculty members from the selected 'A' grade 17 science colleges took part in the survey. The investigator distributed online questionnaires among the selected colleges for the study and got back the wholly filled questionnaires. It is evident from the following table no. 2 that is highest responses, i.e. 24.90%



received from Yashwantrao Chavan Institute of Science, Satara followed by 8.43% from Karmaveer Bhaurao Patil College, Vashi, Navi Mumbai, 8.3% from RBNB College Shrirampur, 7.17% from Sadguru Gadage Maharaj College, Karad and S.M. Joshi College, Hadapsar, Pune respectively. Lowest responses, i.e. 1.20% received from Balwant College, Vita.

**Table No. 2 Demographics of the respondents**

Sr. No.	Name of the College	No. of Respondents	Percentage
1	Sadguru Gadage Maharaj College, Karad	18	7.17%
2	Yashwantrao Chavan Institute of Science, Satara	62	24.70%
3	Karmaveer Bhaurao Patil College, Vashi, Navi Mumbai	21	8.36%
4	Karmaveer Bhaurao Patil Mahavidyalay, Pandharpur	9	3.58%
5	R.B.N.B. College, Shrirampur	20	7.96%
6	Dahiwadi College, Dahiwadi	17	6.96%
7	Maharaja Jivajirao Shinde Mahavidyalaya, Shrigonda	9	3.61%
8	Mahatma Phule Arts, Science & Commerce College, Panvel	8	3.18%
9	Mahatam Phule Mahavidyalay, Pimpri, Pune	8	3.18%
10	D. P. Bhosale College, Koregaon	5	1.99%
11	Balwant College, Vita	3	1.19%
12	Annasaheb Awate College, Manchar	13	5.17%
13	Rajarshi Chhatrapati Shahu College, Kolhapur	8	2.81%
14	Dada Patil Mahavidyalay, Karjat	6	2.41%
15	Radhabai Kale Mahila Mahavidyalaya, Ahemadnagar	10	3.98%
16	S. M. Joshi College, Hadapsar, Pune	18	7.17%
17	Arts, Commerce & Science college, Ramanandnagar	16	6.37%
	<b>Total</b>	<b>251</b>	<b>100%</b>

(Source: Primary Data)

**Research Question 1- What is the awareness level of different Online Databases among the faculty members?**

**Table No. 3 Awareness of various Online Databases accessed by college**

Classification	No. of Respondents	Percentage
Yes- Aware	249	99%
No- Not Aware	2	1%
<b>Total</b>	<b>251</b>	<b>100.00%</b>

(Source: Primary Data)

Table no. 3 shows that the out of the 251 respondents majority 249 (99%) of the respondents, are aware about the online databases accessed by their institution. Remaining 2 (1%) of the respondents said they were not aware about the NLIST, so they were not considered for the study.

**Table No. 4 Online Databases accessed and its awareness level**

Sr. No	Databases	1	2	3	4	5	μ
1	American Institute of Physics	26 (10.44%)	148 (59.44%)	38 (15.26%)	32 (12.85%)	5 (2.01)	2.29
2	Annual Reviews	4 (1.61%)	27 (10.84%)	170 (68.27%)	45 (18.07%)	3 (1.20%)	3.02
3	Economic and Political Weekly (EPW.)	22 (8.84%)	29 (11.65%)	75 (30.12%)	121 (48.59%)	2 (0.80%)	3.18
4	Indian Journals	5 (2.01%)	66 (26.51%)	141 (56.63%)	37 (14.86%)	0	2.84
5	Institute of Physics	22 (8.84%)	75 (30.12%)	92 (36.95%)	47 (18.88%)	13 (5.22%)	2.61
6	JSTOR.	5 (2.01%)	10 (4.02%)	45 (18.07%)	179 (71.89%)	10 (4.02%)	3.56
7	Oxford University Press	2 (0.80%)	5 (2.01%)	39 (15.66%)	140 (56.22%)	63 (25.30%)	3.02
8	Royal Society of Chemistry	13 (5.22%)	64 (25.70%)	99 (39.76%)	58 (23.29%)	15 (6.02%)	2.75
9	H. W. Wilson	5 (2.01%)	10 (4.02%)	60 (24.10%)	159 (63.86%)	15 (6.02%)	3.44
10	Cambridge University Press	3 (1.20%)	8 (3.21%)	52 (20.88%)	132 (53.01%)	54 (21.69%)	3.04

**(Source: Primary Data)**

(Note: μ indicates mean, Unaware=1; Neutral=2; slightly Aware=3; fully Aware=4; extremely Aware=5) Awareness of ten online databases directly impacts on its usage, as the higher the awareness among the users, the higher the use of online databases. In this context the above table no 4 shows that the database wise mean ratings of the awareness of the online databases. Using real limit of number principle, the results of the data analysis showed that majority of the faculty members are aware JSOTR database having 3.56 mean, followed by HW Wilson (Mean= 03.44), Economic and Political Weekly (Mean=3.18), Cambridge University Press (Mean= 3.04) are the fully aware databases by most of the faculty members. As the overall mean ratings suggest with that JSTOR leading the pack. In contrast Oxford University Press and Annual Reviews are the slightly aware databases having 3.02 mean respectively followed by Indian Journals (Mean= 2.8), Royal Society of Chemistry (Mean= 2.75), Institute of physics (Mean = 2.61) are also slightly aware databases among the science faculty members. Whereas majority of the respondents are neutral about the American Institute of Physics database having 2.29 mean.

**Research Question 2- Which Online Databases are mostly accessed by the faculty for research purposes?**

**Table No. 5 Frequency of use of E-Journals Databases for the Research**

Sr. No.	E- Journal Databases	0	1	2	3	4	μ
1	American Institute of Physics	28 (11.24%)	84 (33.73%)	104 (41.77%)	31 (12.45%)	2 (0.80%)	2.58
2	Annual Reviews	7 (11.24%)	24 (9.64%)	89 (35.74%)	122 (49.00%)	7 (2.81%)	3.39

3	Economic and Political Weekly (EPW)	30 (11.24%)	23 (9.24%)	72 (28.92%)	97 (38.96%)	27 (10.84%)	3.27
4	Indian Journals	3 (11.24%)	5 (2.01%)	71 (28.51%)	141 (56.63%)	29 (11.65%)	3.76
5	Institute of Physics	28 (11.24%)	45 (18.07%)	79 (31.73%)	74 (29.72%)	23 (9.24%)	3.08
6	JSTOR	11 (11.24%)	5 (2.01%)	64 (25.70%)	153 (61.45%)	16 (6.43%)	3.63
7	Oxford University Press	6 (11.24%)	10 (4.02%)	48 (19.28%)	135 (54.22%)	50 (20.08%)	3.86
8	Royal Society of Chemistry	19 (11.24%)	39 (15.06%)	88 (35.34%)	84 (33.73%)	19 (7.63%)	3.18
9	H. W. Wilson	13 (11.24%)	7 (2.81%)	57 (22.89%)	157 (63.05%)	15 (6.02%)	3.62
10	Cambridge University Press	6 (11.24%)	11 (4.42%)	50 (20.08%)	137 (55.02%)	45 (18.07%)	3.82

**(Source: Primary Data)**

(Note:  $\mu$  indicates mean, Not Used =0; Rarely Used =1; Occasionally Used =2; Frequently Used =3; Most Frequently Used =4)

The frequency is an essential aspect in assessing the usefulness of online databases, as it is related to the extent of use of E-Journals online databases. Table 5 revealed the mean ratings of the respondents on the frequency use of E-Journals online databases. The data obtained reveals that, Overall, the Oxford university press is most frequently used database having highest mean 3.86. Cambridge University Press (Mean =3.82), Indian Journals mean (Mean =3.76), JSTOR (Mean =3.63) and HW Wilson (Mean= 3.62) are also the most frequently used online databases by the science faculty members of the selected colleges. On the other extreme, the Annual Reviews is frequently used database having 3.39 mean, Economic and Political Weekly having 3.27 mean, Royal Society of Chemistry mean is 3.18, Institute of Physics having 3.08 mean and American Institute of Physics database is 2.58 mean are also the frequently utilized databases among the selected faculty members.

**Research Question 3- What is the relationship between online databases and research productivity?**

**Table No. 6 Users view point on the usefulness of available Online Databases in research productivity.**

Response	Respondents	Percentage
Yes	235	94%
No	1	1%
May Be	13	5%

**(Source: Primary Data)**

Table No. 6 indicates that the majority, i.e. 94%, of the users were found that online databases accessed from the institute are helpful and positively impacted on their research productivity. It was the best source providing accurate, reliable and current information. In contrast, 5% of the users are not sure about its impact.

**Table 7 Relevance of the Online Databases with the Research.**

Classification	Responses
Very High	18 (7.23)
High	216 (86.75%)
Average	15 (6.02%)

Low	0
Very Low	0

**(Source: Primary Data)**

The views of the relevance of online databases influenced the research work is shown in table no. 7. Obtained data shows that 87% of the respondents agreed that Online Databases having high relevance with their research work. 7% of the respondents felt that it has very high relevance with their research work, and 6% responded with average relevance.

**Research Question 4- What are the constraints faced by faculty in accessing online databases?**

**Table No. 8 Problems faced while accessing Online Databases.** (Multiple Choices were permitted)

Sr. No	Classification	No. of Respondents	Percentage
1.	Difficulty in searching required Information	111	44.58%
2.	Displaying of mass of irrelevant Information	108	43.37%
3.	Inaccessibility of some archival and current electronic resources	112	44.98%
4.	Inadequate/lack of searching skills and ICT techniques	102	40.96%
5.	Limited/restricted access in Library	96	38.55%
6.	Login Credentials	70	28.11%
7.	Slow internet connection/ retrieval speed	89	35.74%
8.	Staff not always available for help/Non-supportive library staff	99	39.76%
9.	Inadequate Collection of databases/resources	92	36.95%
10.	Lack of awareness about online databases/e-resources	102	40.96%
11.	Lack of online help/Tutorials	102	40.96%
12.	Language barriers	74	29.72%
13.	Missing of Training/Orientation/Hands-on programs on e-databases	92	36.95%
14.	No Knowledge of using online databases	96	38.55%
15.	Time-consuming/Insufficient time/ library timings	70	28.11%

**(Source: Primary Data)**

The above table No. 8 indicates that the inaccessibility of some archival and current electronic resources and Difficulty in searching required information are the two main constraints faced by the 44.98% and 44.58% of the faculty members respectively while accessing Online Databases. Most i. e 43.37% of the respondents responded that online databases display of mass of irrelevant information. About 40.96% of the respondents stated that they also encountered the issue of inadequate/lack of searching skills and ICT techniques, lack of awareness about online databases/e-resources, and lack of online help/Tutorials are also significant factors respectively. Although an average ratio of 39.76% realized unavailability of library staff for providing help to access e-resources is also a factor in low usage of online databases. Although, an average number of the faculty members realized that Limited/restricted access in Library and Missing of Training/Orientation/Hands-on programs of online databases are also a significant factor in less use of online databases.

**Research Question 5- What are the possible strategies for overcoming the constraints faced by faculty in accessing online databases for research?**



**Table No. 9 Possible strategies for overcoming the identified access constraints to online databases**  
(Multiple Choices were permitted)

Sr. No.	Items	No. of Respondents	Percentage	Rank
1.	Awareness creation of the availability of newly added databases	115	46.18%	5
2.	Provision of full-text of most relevant materials	189	75.90%	3
3.	Provision of increased internet bandwidth	102	40.96%	6
4.	Provision of more high quality databases	215	86.34%	1
5.	Provision of steady power supply	95	38.15%	7
6.	Training on acquisition of Online information resources	191	76.70%	2
7.	Training on computer operating skills	52	20.88%	8
8.	Training on online databases searching skills	189	75.90%	4

(Source: Primary Data)

Table 9 revealed the strategies for overcoming the challenges faced by faculty when accessing online databases. Overall, the Provision of more high quality databases (215) ranked highest among the distribution. This is followed by Training on acquisition of online information resources (191), Provision of full-text of most relevant materials and Training on online databases searching skills (189) ranked third and fourth respectively according to faculties of Rayat institutes. On the other extreme, awareness creation of the availability of newly added databases (115), Provision of increased internet bandwidth (102) and Provision of steady power supply (95) also ranked least respectively.

#### Discussion of Findings

- Research question one sought awareness level of different online databases/e-resources among the faculty members in selected colleges affiliated to three state universities of Maharashtra. According to the analysis, majority i.e. 249 faculty members were aware about the online databases accessed by their institution. In this context of E-journals JSOTR, HW Wilson, Economic and Political Weekly and Cambridge University Press were the mostly aware databases among the science faculty members.
- Research question two attempted to most accessible online databases by the faculty members. It is found that Oxford university press was the most frequently used online databases followed by Cambridge University Press, Indian Journl.com, JSTOR and HW Wilson databases.
- Third research question identified the relationship between online databases and research productivity of the faculty members. Majority of the faculty members responded that access of online databases having positive impact on research productivity in the form of quality and quantity. Having access to Online Databases was a significant boon to the science faculty members.
- Research question four attempted to unearth the constraints to online databases access for research purposes. Unavailability and lack of access of archival resources and difficulty in searching required information are the two main constraints faced by the respondents. Display of mass of irrelevant information, issue of inadequate/lack of searching skills and ICT techniques and lack of online help/Tutorials were the most common obstacles to using online databases.
- Research question fifth that aimed to identifying possible strategies for overcoming the constraints faced

by faculty in accessing online databases. The study suggested that the provision of more high quality required databases, organizing training on acquisition of online information resources, provision of full-text of most relevant materials, provision of increased internet bandwidth and steady power supply were the most effective ways of addressing online databases access challenges. 'A' grade college libraries should be implements the newer technologies like Web 2.0 tools (Blogs, Wikis, RSS, Social Networking Sites, etc.) on its website for providing better services to the users.

## Conclusion

Research and development are closely linked. If we want to create a happy, intelligent and knowledge-based society, we need to do quality research. The current situation is highly complementary to research. Currently there are a number of e-resources available for the research. An online database makes the availability of such e-resources easily. Online Databases have become an established component of many academic libraries' collection. The availability of a wide variety of online databases has accelerated research and will continue to do so. In short, online databases play an important role in improving the speed and direction of the research. The study examined the correlation between access to online databases and faculty research output and its attendant impact on scholarship. It is clear from the study that Online Databases have become the vital part of information for the research community. The present study would definitely provide a clear picture on various factors associated with the usage of online databases and its impact on research productivity. Affirmatively, the study established in general terms that the overall success of faculty research undertakings is predicated on the quality and quantity of availability of research materials and the level of access provided. This study helps the librarian to know the importance of online journals and databases. It helps them to improve the services related to online information sources.

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## Applications of Big Data in Libraries

**Prof Ashok L. Pathade**

Librarian

Siddharth Arts, Commerce & Science  
College, Jafrabad.Dist-Jalna.431206.

### Abstract:

*Modern like produces at an astounding rate which leads to advance in data storage and analysis and the emergence of the concept of big data. Big data will be important resource application and used in academic resource and make data driven decision making. This paper describes the definition, characteristics and application in libraries of big data and its effect in the libraries.*

**Keyword:** Big Data, Characteristics, Big Data and Librarian, Big Data application in Libraries.

### Introduction:

The term big data was coined in the 1970's and was used to describe large amounts of data generated by oceanography and meteorological experiments. Big data can be understood as natural evolution of database management technique that has changed the way data is analysed. Early implementation of Big Data solution can be found during the 1980's the era of the first generation of software based parallel database architecture. However it was not implemented significantly until the maturity of internet users, when web search companies faced the challenge of indexing and querying large aggregation of loosely structured data. Existing database technology was not ideal for the challenging task and neither was it cost effective. Google developer the first wave of big data tool in the early 2000s. Which gave birth of serve other framework and techniques that make the handling processing and interpretation of large data set more economical. Big data is generated from various source such as sensor device video audio network log files transactional applications, social media whose sides of type is beyond the ability of traditional relational database to capture, manage and process the data.

### Definition:

- Big data can be de as high volume, high velocity and high variety of information asset which demand cost effective innovative form of information processing for enhanced insight and decision making (Gandomi& Haider,2015)
- Dunhill, Edd define big data as a data that exceeds the processing capacity of conversational database system that is too big, moves too first and doesn't fit the structure of database architecture. An alternate way must be chosen to process this data in order to gain value (Dunhill, 2022).
- Another definition which describes big data is that it is Frontier of a firm's ability to store, process and access all the data which is need to operate effectively, make decision and serve customer (Guilateri, 2022). Big data is defined as a turn for data sets that so large and complex that traditional data processing application are inadequate to do analysis, capture, store, data creation , sharing, transfer and so on big data.

### Characteristics of Big Data:

Big data is characterized by its sheer large volume, high velocity, and variety with low value. All major sources such as a logs, sensors and social media generate new type of unstructured or semi structured data that has given rise to a new phenomenon in decision making.

### Volume:

Social media (Face book, Twitter, LinkedIn, four square, YouTube and many more) generate a large volume of data that need to be stored and analyse rapidly in context for the right decision making. The volume of

machine generated data or semantic web data is much larger than the traditional data volume. For instance, a single jet engine can generate 10 TB of data in 30 minutes. With more than 25000 airline flights per day, the daily volume of just the single data source run into the gigabytes, smart metres and heavy industrial equipment like oil refineries and drilling rigs generate similar data volumes, compounding the problem. The benefit join from the ability to process large amount of information is the main attraction of big data analytics. This volume present most immediate challenge to conversational IT structures. It requires scholarship and distributed approach to querying.

#### **Velocity:**

The data comes into the data management system rapidly and obtain requires quick analysis for decision making. The importance lies in the speed of the feedback loops, taking data from input through to analysis and decision making. The tighter the feedback loop, the greater will be the competitive advantage it's this need for Speed, particularly on the web, that has driven the development of key-value stores call columnar database, optimised for the fast retrieval of Pre computed information. Social media data streams bring a large input up opinions and relationship that are valuable to customer relationship management. Even at 140 characters per tweet, the high hello city of Twitter data ensure lodge volumes.

Most of these data received maybe of low value, and analytical processing maybe required transforming the data into a usable form or deriving meaningful information.

#### **Variety**

Big data bring variety of data types. It varies from tax from social networks, two image or video data, to a raw feed directly from a sensors source, to semantic web logs generated by machines. These data are not easily integrated in any applications. A common use of big data processing is to take unstructured data and extract meaningful information for consumption either by human or as a structure input to an application. Big data brings a lot of data that has patterns sentimental and behavioural information that need analysis.

#### **Value:**

The economics value of different data varies significantly. Generally, there is good information hidden within a larger body of non traditional data. Big data offer greater value to businesses in bringing real time market and customer insights, enabling improvement in new product and services. Big data analysis can river insights such as peer influence among customers, revealed by analysing shoppers transaction and social and geographical and data. The past records successful wave start ups are prime example of big data use as an enabler of new product and services. For example by combining a large number of single from a users action and those of the users friends, Face book has been able to craft highly personalized user experience and create new kind of advertising business.

#### **Variability:**

In addition to the increasing velocities and varieties of data, data flows can be highly in consistent with periodic peaks. Is something trending in social media daily, seasonal and events triggered peak data load can be challenging to manage.

#### **Complexity:**

Today's data comes from multiple source, which makes it difficult to link, match, cleanse and transform data across system. How're, it's necessary to connect and correlate relationship, hierarchies and multiple data linkage or your data can quickly spiral out of control.

#### **Big Data and Librarian:**

Why librarians need to know about big data? Because of it's prevalence and potential impacts. Librarians need to know the basis of big data and how it affect academic research.. Business librarians need to know how companies leverage big data, how such data meaning provides comparative advantage, and how students might need to grapple with big data sate in future science librarians need to know how big data

differs from other scientific data and the impact of emerging software and hardware used for its analysis. Humanity and social science librarians should know that big data is becoming more commonplace in their disciplines as well, and is no longer restricted to Corpus linguistics. Librarians in all disciplines, in order to Facilitate the research process , Will need to be aware of how big data is used and where it can be found( mark Bieraugel,2016).

### Applications of Big Data in Libraries:

We might think “Big Data” doesn't apply to libraries. Our library may not collect user data the same way that typical” big data” commercial entries like Amazon or Google or Face book do. Maybe that’s because of privacy users. Maybe it's not data we need for library operations. But there is often and ocean of data already available to libraries in order format. We can get it from direct observation of library users. Cataloguing activities, user data survey’s. Reports usage statistical, website metrics, World cat and mouse itself is a growing collection of data about library resources, activity location and increase.

Big data is basically divided into three different parts normally is collected the structure, semi – structured and unstructured data.

#### 1. Structured Data:

Structured data that is basically stored in the RDBMS data warehouse in formal way. Data is group in the form of rows and columns. Now total 10% of structured data available around us. Structured data gives names to each field in a database and defines the relationship between the fields.

#### Library Automation:-

Now most of the libraries are automated to bibliographical details of book and journals, information of borrowers are available in structured from bibliographical details of a book are Accession number. Author, title, subtitle, edition, publisher, year of publications, place of publication, ISBN, pages, class number, keywords, table of contains, price, supply details etc. Whereas title, publishers, volume, Issues, ISSN, department, published on, received on, item code, supplier details etc. Details of printed journals, information of borrowers includes. Borrowers ID, name, membership started date and end dates, birth date, gender, email, contact number, address, blood group etc. Collection of each library grows rapidly so structure data is increased and it leads to big data.

#### 2. Semi Structured Data:

Semi structured data lies somewhere between the two. It is not organized a complex – manner that makes sophisticated access and analysis possible. How’re, it may have information associated with it, such as metadata taking, which allows element contained to be addressed.

A word document is generally considered to be unstructured data. However one can add meta data tag in the form of keywords and other metadata that represent the document content and make it easier for that document to be found when people search for those term. The data is now semi structured. This type of data currently 10% existing and example of this kind of data is RSS feeds and XML format data. Semi structured data arises under a variety of forms for wide range of application such as institutional repositories, scientific database, digital libraries, online documentation and electronic resources.

#### Institutional Repositories:

Institutional repositories are an online archives of institutional scholarly papers, deposited by their authors. Institutional repositories may include variety of research output of an organization such as datasets, administrative documents, course notes, learning objects, our conference proceedings; number of institutional repositories has been increased. Research libraries and academic libraries are uploading documents in repository, so that user can access resources within campus of remotely.

#### 3. Unstructured Data:

Unstructured data represent around 80% of data; it often includes text and multimedia content. Example include library email messages, word processing documents, audio videos lecturers, photos, scanned images, presentations, blog , web pages, social media and many other electronics documents. Note that will those short of file may have an internal structure, they are still considered “Unstructured”. Because the data the contain



doesn't fit nearly in a databases. A different type of unstructured and scattered big data is available in libraries and this variety makes big data seat more challenging to organize analyze.

**Conclusion:**

Big data is not new for libraries. Variety, volume and velocity are the characteristic of big data which make it more challenging. It is important to understand big data now because it affect library directly and tangentially; directly because now library can use big data tools to analyze big data sets; and tangentially faculty and researchers will increasingly in incorporate big data into their research.

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**Big Data and Libraries****Dr. Ganesh Ramdas Sanap,**

Librarian

MTES's Doshi Vakil Arts College and G.C.U.B. Sci. & Com. College,  
A/P.- Goregaon, Tal.- Mangaon, Dist.- Raigad, Maharashtra-402103.**Abstract:**

*Digital era produces vast amounts of data which leads to advances in data storage and analysis and the emergence of the concept of big data. Big data will be an important resource used in academic research and to make data driven decision making. This paper provides an overview about the big data concept and its application in libraries. This paper aims to create an awareness amongst librarians about big data, its applications and the role of librarian in big data scenario.*

**Keywords:** *Big Data, Academic Libraries, Librarian's Role, Data Curation, etc.*

**Introduction:**

Data is generated at an unprecedented level and at an incredible pace from everywhere such as governments, universities, Scientists, businesses & non-profit organizations. Big data affects the libraries directly in such a way that libraries can use the big data tools to analyze big data sets and tangentially as the faculties at the educational institutions can incorporate big data into their research. Big data is generated from various sources such as sensors, devices, videos, audios, network, log files, transactional applications, web and social media whose size or type is beyond the ability of traditional relational databases to capture, manage and process the data. Big data when analyzed allows users to make better and faster decisions.

'As the library's role is to identify, evaluate, select, organize, and describe resources, as well as preserve, disseminate, use, and reuse resources and information, the library's role is getting more complex today than ever. This role for library, librarians, and information scientists as information providers finds them in a crossroad that forces them to choose if they will play a central role in the meta-fourth industrial revolution as central-information providers or if they will keep a profile as organizations that continue to provide "traditional" services to patrons. The dilemma is big, as big are the big data and the changes that will bring to our society' (Garoufallou, 2021).

**How big is big data:**

Big data is loosely structured data which is often incomplete and inaccessible. It may consist of billions to trillions of records of millions of people all from different sources for e. g. web, sales, customer contact center, social media, mobile data etc. the starting of terabytes may be considered as starting of big data. It may be equivalent to petabyte or Exabyte.

**Definition:**

"Big Data is the amount of data that cannot fit into the memory of a single computer system. With each passing day, Big data is growing bigger, is more difficult to make sense of, is being generated at a much faster rate and this trend is only going to intensify in our data-driven digital world" (<https://intellipaat.com>).

Ed Dumbill, the editor-in-chief of a journal devoted to the topic of big data, offered this broader, more conceptual definition:

"Big data is data that exceeds the processing capacity of conventional database systems. The data is too big, moves too fast, or doesn't fit the strictures of your database architectures. To gain value from this data, you must choose an alternative way to process it." (Dumbill, 2013)

'Big data is defined as a term for data sets that are so large and complex that traditional data processing applications are inadequate to do analysis, capture, store, data curation, sharing, transfer and so on.'

**Characteristics of Big Data: 5 Vs of Big Data**

- Volume: The amount of data,
- Velocity: The speed of data in and out, and

- **Variety:** The range of data types and sources which include: unstructured text documents, picture, video, email, audio, stock ticker data, financial transactions, etc.
- **Variability:** At times, the data flow is highly inconsistent with periodic peaks which hamper the process of handling and managing data effectively.
- **Complexity:** As large volumes of data come from multiple sources, data management becomes a challenging task.

‘In fact, the data sets are so big and complex that it becomes very difficult and challenging to process them using traditional data processing applications. It is estimated that about 2.5 quintillion bytes of data are created every day.’ (Verma, 2022)

**Importance of Big Data:**

The use of Big data is becoming very crucial and following are the importance of big data.

- a. There is a significant amount of data which is yet not captured in digital form or made accessible or searchable through the network. Big data can unlock the value hidden in these forms of data by making information more transparent.
- b. Big data allows narrower segmentation of customers and this helps in producing more precisely tailored products and services.
- c. Sophisticated analytics would help to improve decision making.
- d. Future generation products and services can be developed with the help of big data.

**Big Data Technologies:**

Coursera (2022) has been described the big data technologies on their web page. According to him ‘Big data technologies can be categorized into four main types: data storage, data mining, data analytics, and data visualization. Each of these is associated with certain tools, and you’ll want to choose the right tool for your business needs depending on the type of big data technology required.

**i. Data storage**

Big data technology that deals with data storage has the capability to fetch, store, and manage big data. It is made up of infrastructure that allows users to store the data so that it is convenient to access. Most data storage platforms are compatible with other programs. Two commonly used tools are Apache Hadoop and MongoDB.

**ii. Data mining**

Data mining extracts the useful patterns and trends from the raw data. Big data technologies such as Rapid miner and Presto can turn unstructured and structured data into usable information.

**iii. Data analytics**

In big data analytics, technologies are used to clean and transform data into information that can be used to drive business decisions. This next step (after data mining) is where users perform algorithms, models, and more using tools such as Apache Spark and Splunk.

**iv. Data visualization**

Finally, big data technologies can be used to create stunning visualizations from the data. In data-oriented roles, data visualization is a skill that is beneficial for presenting recommendations to stakeholders for business profitability and operations to tell an impactful story with a simple graph. The Tableau and Looker are popular tools in data visualization.

**Benefits of Big Data in different sectors:**

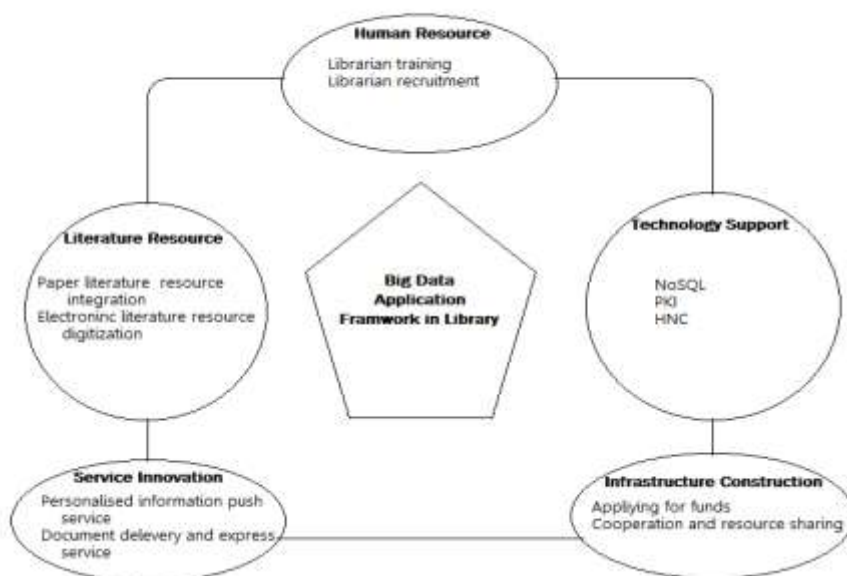
Most of the industries today face challenges due to the large and complex amount of data that they deal. With the help of big data analytics, the following industries would benefit which is as follows:

- I. Banking and securities: Big data could provide solutions in the areas such as card fraud detection, archival of audit trails, customer data transformation and so on.
- II. Communication and media entertainment: Big data helps in creating quality content for the target audiences.
- III. Health care providers: the technology involved in Big data allows faster and efficient identification of healthcare information which can help in tracking the spread of chronic diseases.
- IV. Education: it would help students to pick up courses according to their liking and even help in increasing the effectiveness of the teachers.
- V. Government: government can use big data in energy exploration, financial market analysis and health related research and environmental protection.

**Application of big data in libraries:**

The application of big data in a library involves a complex framework as different modules interact and work together. Hussain (2022) presented framework of the application of big data in libraries which involves Human Resource, Technology support, Infrastructure Construction, service innovation and literature resources.

Framework of the application of big data in libraries



The unique skills of librarians are essential to make use of big data. Librarians’ jobs have evolved from traditional setup into data mining, consultant, data management, librarian data services, data research scientist, architecture librarians, librarian data designs, coordinator, scientific data curation, librarian specialist/metadata, data curator, etc. Librarians should change their traditional role and learn the new skills needed in the 21st century. Large data sets can improve the quality of library services. Data resources of digital libraries can be used as big data by using techniques to bring innovation and introduce important digital changes. Big data provides insights into the utilization of resources, decision-making, and library user needs more accessible. Academic libraries are already using high-level services to collect, evaluate and manage library resources. Changes in technology and new ways of communication are demanding the redefined academic library. A significant milestone was announced in 2010, which was the collaboration between the world’s most extensive library – Library of Congress and Twitter. The purpose of the partnership was to analyze all the tweets on Twitter to retain and archive users’ data. In 2012, the Harvard University library also published its metadata, including books, videos, audio recordings, manuscripts and other contents. Ensuring data privacy and security are also concerns when implementing big data analytics in library services (Bhat, 2018).



**Big data analytics could be applied in the following areas of the libraries such as**

- For superior search results: Data mining and text analytics on the past loan records and book bibliographies could enhance search results and recommendations.
- Demand Analysis: It would help in forecasting demand for new and existing titles.
- Planning Library Collection: The technology used would optimize to plan the category mix in the collection by taking into consideration the space and budget constraints.

**Librarian's roles in big data:**

Jain, Priti (2016) has mentioned the various roles of librarian in big data, these are as follow:

- Data manager: Librarian is a well placed to deal with data management issues. Since they have expertise and experience with institutional repositories; they have a legacy of preserving knowledge for future generations, advocate open access and as such are advocates of the value of open data.
- Intermediaries: Librarians can act as intermediaries linking to faculties with peers in other disciplines to facilitate interdisciplinary research. They can create data literacy and awareness of data management issues and practices among students.
- Advocate of big data: Based on their vast experience with open data, librarians can foster the importance generation of researchers. Advocacy of big data is quite viable for librarians because by nature of their business they are always with their users.
- Big data curator: In this e-science and big data revolution age, libraries are expected to play key role in data curation, since librarians have the skills and most of the infrastructure to curate various types of data. Library user may or may not be knowledgeable in the areas of big data and the process of obtaining the data. Hence this is an excellent opportunity for librarians to assist library user on these pertinent issues.
- Thought leader on big data curation: Librarians have been doing a lot of work on data curation and we could be vital partners in terms of metadata standards, metadata creation, preservation and managing the whole information life cycle which librarians are really good at.
- Facilitator in source of choice: every day the library users produces raw material in their quest for new insights into the past and new ways to explain culture, politics and philosophy. skilled librarian, who knows how to effectively search for not only books but primary sources of material across the world and who can understand, create and navigate catalog to accelerate a researcher's efforts.
- E-research data manager: big data underpins e-research and it must be preserved for future re-use. Academic libraries, being research oriented and facilitating students and academia research initiatives are considered research libraries. They can play a significant role in research data management to accelerate their user's research activities.

**Conclusion:**

The discussion in this article is focused on big data in libraries perspective. The capabilities of big data have captured the attention of the world of libraries. Library and information professionals can play a big role in the universe of big data as they have the skills, knowledge and service mentality to help universities, business and governments. With the help of these powerful analytics which big data technologies offers, librarians can look at the data in new ways thus adding value to different services and programs.

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**E resources and its Utility in library****Mrs. Dhanawanti Sunil Bamane**

Librarian

TuljaramChaturchand College Of Arts,Science and Commerce, Baramati

**Abstract**

*E-resources are available in abundance in every field of knowledge, so we can do in-depth study in every discipline with little time and money. Sometimes electronic resources provide information that is not in printed books. Due to their portability, electronic resources can be accessed anywhere on a laptop computer. The font size can be adjusted accordingly; E-sources provide the ability to quickly save and convert pages. E-resources are available in abundance in every field of knowledge, so we can do in-depth study in every discipline with little time and money. E-resources (electronic resource) is that "Information (usually a file) that can be stored in the form of an electrical signal usually, but not necessarily in a computer. It can be delivered on CD ROM, on tape, over the Internet, etc. In recent years, various techniques and related standards have been developed to enable the creation and distribution of documents in electronic form. To cope with the current situation, librarians are turning to new media, which are electronic resources to develop their collections, making users' documents more complete.*

**Keywords** Eresources, electric, database

**Introduction**

The term e-resource refers to all products provided by the library via a computer network. Electronic resources are also known as online information resources, which include bibliographic databases, electronic reference books, complete textbook search engines, and digital data collections. Electronic resources include websites, e-mails, movies, television programs, social media, podcasts and radio broadcasts, online magazines, and e-books. 21st century library and information services are changing rapidly. With the rapid development of electronic publishing, libraries not only provide reading materials such as printed books and magazines, but also provide access to various learning materials. Web resources and the use of the Web as a tool are changing the way users live and learn. While in the early days the World Wide Web was primarily used for push applications to provide information and resources to users, the development of Web 2.0 and the spread of open source and shared use concepts focused on user-generated content and sharing applications. This led to the rapid growth and popularity of electronic resources. E-resources occupy an important part of world literature. They refer to sources of information in electronic form. Different types of electronic resources are e-books, e-journals, databases, CD/DVD, e-conference procedures, EReports, EMaps, EPimages/photographs, electronic manuscripts, electronic theses, electronic newspapers, internet/websites-Listservs, newsgroups, subject gateways, USENET, FAQs, and more. It can be sent on CD ROM, on tape, over the Internet, and so on. In recent years, various techniques and related standards have been developed to enable the creation and distribution of documents in electronic form. To cope with the current situation, librarians are turning to new media, which are electronic resources to develop their collections, making users' documents more complete. Electronic resources of magnetic and optical media have had a major impact on the holdings of university libraries. It is more useful because of the inherent ability to manipulate and search, providing access to information is cheaper for access to information resources, storage and maintenance etc. and sometimes electronic form is the only alternative.

E-resources (electronic resource) is that "Information (usually a file) that can be stored in the form of an electrical signal usually, but not necessarily in a computer.

**Definition**

According to Library and Information Technology Glossary "Term used to describe all of the information products that a library provides through a computer network... .."

According to Wikipedia, Electronic Resources means "Information (usually a file) which can be stored in the form of electrical signals, usually on a computer; Information available on the Internet".

According to Gradman glossary, "A publication in digital format which must be stored and read on a computer device. There are two types: Direct access: these are physical objects such as CD-ROMs, diskettes, computer tapes, and computer cards, containing text, images, software etc.

**Need of e-resources**

E-resources are available in abundance in every field of knowledge, so we can do in-depth study in every discipline with little time and money. Sometimes electronic resources provide information that is not in printed books. Due to their portability, electronic resources can be accessed anywhere on a laptop computer. The font size can be adjusted accordingly; E-resources provide the ability to quickly save and convert pages Users with disabilities can hear E-resources can be downloaded immediately. Users can read the e-resource at any time Due to their portability, electronic resources can be accessed anywhere on a laptop computer.

**Issues and Challenges by using E-Resources**

Power is the first requirement for an e-source. It participates in a significant technological infrastructure Unique tools are required to gain access requires consistency between different publishers. Challenges presented by hardware and software Patent infringement issues Current e-book settings may not be readable by potential e-book devices. Paper books are cheaper than book reading materials User knowledge is essential to networking skills for electronic resource practice. Technology Obstruction Lack of security / privacy like email hacking and network breach etc., Rely on technology, i.e. users are not aware of finding books that do not use technology

**Types of Eresources****1 E-Book**

E-books are the many formats that compete for prime time, including Adobe PDF, Microsoft Reader, eReader, Mobipocket Reader, EPUB, Kindle and iPad

**2 E-Journal**

An electronic journal is a very important part of every library collection. Magazines application of information technology.

**3 E-Newspaper**

I am known in e-newspapers as in online newspapers or on the web newspapers available on the World Wide Web or the Internet.

**4 E-Magazines**

E-Magazine is a very important part of every library collection. Magazines application of information technology.

**5 Indexing and Abstracting Databases**

These are reference sources that provide a bibliography information in journals including abstracts from articles. These are reference sources that provide a bibliography information in journals including abstracts from articles.

**6 Full text database**

Today are either free or with charges. E-databases is an organized collection of information of a particular subject or multidisciplinary subject areas, information within e-databases can be searched and retrieved electronically.

**7 Reference database**

That's a lot of dictionaries, almanacs and encyclopaedias, i.e available on the Internet in electronic form.

**8 Statistical database**

These databases contain numerical data that is useful to the masses commonwealth.

**9 Image collection**

Due to the adventure of e-picture devices, it is a kind of databases naugmad.

**10 Multimedia products etc.****11 E-Thesis**

These databases include theses and dissertations published via e-format

**12 E-Clipping**

The main purpose of the electronic scrap is for reverse search and comprehensive analysis of new objects.

**13 E-Patents**

E-patents are an exclusive right granted by the government to use invention for a certain period of time.

**14 E-Standards**

Written definition, rule limitations, approved and maintained for complaints authoritative authority.

**Consortia Subscription To E-Resources**

It is well known that libraries and information centres are unable to purchase, organize and distribute much information due to lack of funds and budget. Currently, registration of an electronic resource consortium through a library consortium is a practical solution to increase access to electronic resources at a lower cost. A library consortium refers to the collaboration, coordination, and cooperation of library brands or institutions to share resources. Libraries around the world have formed consortia of all kinds and at all levels to use the world wide web to develop better, faster, and more cost-effective ways of providing electronic resources to those interested. and information. The collective strength of consortium members rushed to benefit from wider access to electronic resources at low cost and on the most favourable terms.

**Utilities of E-Resources**

Now a days the reading materials and information sources are changing from print to electronic.

- Electronic publishing can cost less than paper.
- E-Resources are created in all file formats such as text, audio, video and images.
- Electronic resources are available 24 hours a day and save space in the library • Searching electronic resources is easy with a user-friendly interface.
- Give users faster, easier, anytime access from home, campus or library.
- Electronic resources can be accessed through advanced search and retrieval system support. Content may be copied, retransmitted, republished, duplicated or otherwise used for any copyright and authentication purposes.
- The electronic environment allows the library to integrate with other libraries and use their resources
- Those who have limited time to access libraries can effectively access libraries through dialogue. j. Libraries provide access to a myriad of information resources.

**Conclusion**

Electronic resources are useful for libraries as well as for any user in society who is hungry to obtain a variety of information from around the world. Advances in information and communication technology services are currently bringing significant changes to library operations. Its advantages for technocrats, the use of electronic products improves user knowledge. E-mails and RSS alerts contain information that enables the individual identification of the user. Improvement of infrastructure like high speed network, wi-fi in the campus.



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## Applications of New Technologies for Enabling Library Services

Manisha Khandu Gaikwad

Arts Science and Commerce College, Indapur, Dist. Pune

### Abstract

*This paper is discussing various new technologies that can be applied in Library and Information centers. Implementation of various Technologies has change the way of people to access and communicate information. Users need of easy access of information, leads Library professionals to think out of the box for meeting their information needs. Application of new technologies to provide library and information services are a significant step in this direction. In this 21st century Library professional's essentially to use various technology offering outreach technical options for librarians. Use of this technologies, provides well opportunity to extend new different types of library services to users.*

**Keywords:** Mobile Technology, BlockChain, QR Code, RFID, Remote Control Technology, Library science, ICT Services, Library Services.

### Introduction

Libraries are not merely a storehouse of books but becoming a hub of information – based society. Because of increasing awareness among the users, availability of new resources and rapid advancement in Information and Communication Technology (ICT), library professionals and libraries are changing their traditional role. The web technology and Internet has changed the way of information is stored, retrieved and communicated in the libraries. As more libraries move towards traditional services to digital services to improve more advance services by adopting advance technology.

This paper discusses some advance technology that can be applied in the library and with the help of this technology the environment of the library will be upgraded and library services will fulfill the users' satisfaction.

### Research Methodology:

For this paper, literature search was carried out by using secondary sources. For this study, the documents were studied online on Google Scholar, databases, N-list, seminar proceedings.

### Following Technologies can be applied in libraries

#### Mobile Technology

Mobile is playing a vital role in enabling Digital India. Now a day, Mobile device is the integral part of every human life. From very beginning of childhood to old man and rural to urban and every corner of the world everybody use Mobile technology for accessing information. In 21<sup>st</sup> century there is revolutionary change in Information and Communication Technology. Use of nanotechnology is increased. Also this change is used in mobile technology. Now android version of mobile permit their users to access, stored, organize, retrieved information. There is a continually growing numbers in engaging mobile phone as a search tools. Smart phones, cell phones, iphones and tablets are commonly used devices for seeking information.

The invention and the use of information technologies need to meet life's basic challenges and responsibilities (Ademodi & Adepoju, 2009). Academic libraries can use several tools and techniques to fulfill the information need of their users. In the teaching and learning mobile technology is one of the better options to provide service to their remote users effectively. Libraries can play an important role to make their users self-directed and independent learning by providing access to their resources. Following is the possible mobile services that can provide –

- Mobile Apps for library

- Mobile on-line Public Access Catalogue (MOPAC) service
- Reference Enquiry Service
- List of New Arrivals
- Current Awareness Service and Selective Dissemination of Information Service (CAS & SDI)
- Distribution of E-Resources through Mobile site
- E-mail and SMS –Service
- Library instructions, library working hours and library tours etc can arrange
- Mobile databases

### **BlockChain Technology**

Digital world has introduced new effective, innovative products globally by the use of mobile, internet, social media and cloud technology for better decisions. A Blockchain is a type of Distributed Ledger Technology (DLT) which stores transactional records, called blocks, in several databases, known as the “chain”, in a network connected through peer-to-peer nodes (Ahram et al., 2017). A blockchain is a decentralized database and peer to peer network that stores a registry of transactions secured with cryptography. In 2008 a blockchain was created by group using the name (pseudonym) Satoshi Nakamoto to serve the public distributed ledger for bitcoin crypto currency transactions. Some of the services can enhance by using block chain technology in the library.

- Initially block chain technology developed for financial service purpose, further it may apply in other field
- In libraries it is used for storing digital information
- In Block chain technology there is a peer to peer network system can used for inter- library loan services.
- In digital archives or rare collection where its originality and authenticity is required
- In R & D libraries and corporate libraries for intellectual property and for keeping records

### **QR Code Technology**

QR code was first introduced by Denson Wave in the year 1994. QR Code stands for quick response, developed concept for code and whose aim was to gain the high-speed reading. It is a two-dimensional bar code and can easily read by smartphones and mobile phones with cameras installing QR code reader app.

QR Code can be used fir following –

- IT is open source technology; one can create the QR Code by using free software.
- QR Code is very fast to access the information
- Simple implementation process and only required android phones with QR Code scanner for reading the code
- Not required so much hardware
- It helps to increase the information and technology literacy of the users.
- Library professionals can connect their users to library services like OPAC service, IR service, Library instructions, Library news easily

### **RFID Technology:**

Libraries are now automated libraries where daily housework is performed with the help of computers. Libraries provide ICT based services to increase the quality of their services and decreased the time consuming transaction. One of the best tools in the security of library is RFID (Radio Frequency Identification). Most of the library are adopting this technology for the security of library resources and provide quick and effective services. By using this technology achieves the fourth law of library services. Some of the advantages of RFID are listed below –

- Can be issuing multiple books at a time
- Reduction in queue at circulation desk (Saves the time of user)
- Saving time of the library staff while issue/return of library resources
- Reduction of staff at circulation desk
- Allow library staff to provide other users' centric service
- Provide more security of library collection

### Remote Control Technology:

This is a great development in the ICT. With this technology one can work with a remotely located computer system. By using this remote technology, we can do online meeting, sharing of software, sharing of desktop, file transfer or web conference etc. By using TeamViewer or Ammyy or AnyDesk remote control software we can share our desktop to our client.

### Use of Automation:

Library automation is the application of ICT and the excellent way of reducing human participation for library services. Automation provides excellent services within less time and minimum cost. In the market many automation software are available for library services like – Lisys, SLIM21, Koha, E-Granthalay, etc. The functions of the library such as acquisition, cataloguing, circulation, serials management, stock verification etc are controlled through the software, which minimize the human errors and maximize excellent service to the library users.

### Conclusion

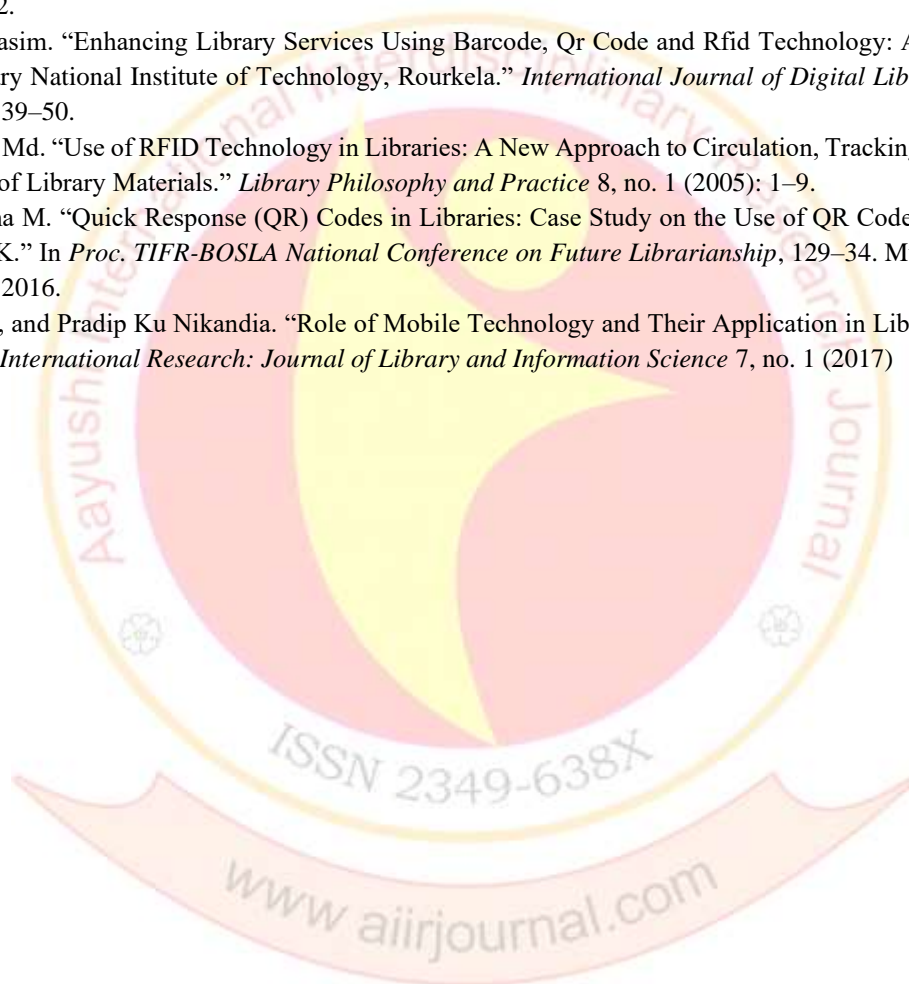
Libraries are well-known for knowledge having rich and updated information which are available for their users. The main purpose of the libraries is to dissemination of information easily to their end users. To fulfill this purpose, library professionals use several tools and new technologies to enhance their services. Library professionals can introduce more library resources and services to their users by using different new technology. Use of technology in library services reflects greater impact on their users.

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**Best Practices in College Libraries:****Subhash Baburao Kul Arts, Commerce and Science College, Kedgaon A Case Study.****Manisha Nimraj Jadhav**

Librarian

Subhash Baburao Kul College, Kedgaon. Tal-Daund Dist.-Pune

**Abstract -**

*College Libraries work to provide information services. While providing information services in the modern era where information is spread rapidly then library departments have to be ready to provide new information. For this some best practices library department are implementing. The paper is a case study Subhash Baburao Kul College Library. The paper highlights some best practices in the library.*

**Keywords- Best Practices, Library, Library Services.**

**Introductions-**

The role of the librarian is very important in the 21<sup>st</sup> century, where information is exploding moment by moment. The role of the librarian is very important when the reader gets the reading materials in the library. Librarian role is very important in how to provide maximum services at minimum cost. Providing the right book at the right time to the right reader is an important task of the librarian and for that what facilities are available in the library this is a must see and which are the best services in the library for that best practices case study has been studied in this paper.

**About College and College Library-**

Kedgaon is an important village is geographically placed at the center of the Daund Taluka and well-connected both by railway as well as State-Highway (Satara-Shirur) and National Highway (Mumbai – Hyderabad). It is well irrigated, well known as green belt, but lacking behind in Education. For this purpose, Late Hon. Waghaji Dagdoji Shelke, established Netaji Shikshan Sanstha and started Jawaharlal Vidyalaya in 1965. Further to address the problems of Higher Education particularly of girl students, Hon. late Mr. Kasandra Maruti Nimbalkar started the college in 2001, which was named after Late Hon. Mr. Subhash Baburao Kul as Subhash Baburao Kul Arts, Commerce and Science College. In the year of establishment of college, the Library started its functioning. Since the establishment year, library has done noticeable growth in its services and facilities. The department of library and information science is totally engaged with overall development of college. The library has its own motto, vision, mission and advisory committee which prepares the action plan for the library department and look after its execution and compliance. The library staff is devotedly completing all the day to day work and launching the innovative ideas.

The library has adequate collections of text books, references book, periodicals. Maps, CD'S and newspapers. The e-resources like e-book and e-journals are also subscribed under N-LIST program of INFLIBNET. Further very exhaustive information of the various e-sources have open access is also provided to reader. The library has membership of various bodies like Jaykar Library, Savitribai Phule Pune University, Pune, National Digital library of India, Shodhganga etc. Further, Library is also having number of different schemes, facilities and services for its account holder. To have social awareness and to provide the platform to the students to share their views and ideas students and teachers, department of library and information science is organizing various regular and innovative activities like guest lecture, seminar on advanced areas of research in library science, library orientation for newer students, vachan prerana divas etc.

The library is thus committed to bestow, sustain and increase the all possible physical and electronic resources to its account holder looking for overall knowledge gaining in advanced age of 21<sup>st</sup> century.

**What is Best Practices?**

“Best practices as quality of most excellent or desirable type of most appropriate, advantageous, highly improved, outstanding, per excellence services or the customary or expected procedure or way of doing something that is usual or expected way in a particular organization or situation, guidelines for good practice. In this process of developing best practices we take action rather than good ideas, and we improve our skills’

**Best Practices in Library**

Following best practices are implemented in the library to increase readership and awareness of the importance of library.

**1. Orientation Programme-**

In our Institute we arrange orientation programme for newly admitted students in that we introduce students to the library. We make them aware of library, library staff, collection, library services, library facilities, library rules and regulations and process to use the library

**2. New Arrival Display-**

Library has regular practice to display new arrivals. We display a single copy of new arrival books on display box of library.

**3. Book Exhibition-**

Library arranges book exhibition on different occasions. i.e. Dr. S.R. Rangnathan Birth Anniversary, Dr. Abdul Kalam Jayanti also Vachan Prerna Din, International Book Day, Marathi Bhasha Din etc. we display some rare books, Biographies, Novels in Marathi languages and books related to that occasion.

**4. Library Automation-**

Our institute has partially Automated Vruddhi Software. Acquisition, Stock Verification, Circulation, and visitor reports are conducted and generated using this software. All books and I cards are barcode based due to which process of circulation is done faster (4th law- Save the time of reader)

**5. OPAC-**

OPAC is made available for students and staff on 10 computers connected to library database with LAN. Through OPAC student can search books by various fields like title, subject, author, class number, publisher, etc. students get to know that is required book is available in library or not with the help of OPAC.

**6. News Paper Clipping –**

Articles from Newspapers are cut and paste in the newspaper cutting file and it is displayed for students and staff. Articles like, Economical, Historical, Banking related, Competitive Exam related, college news etc. articles are displayed in the display box.

**7. Competitions-**

We held competitions where books are given to students to read and write a review. Best Book review writer is a winner declares and also give him award in the college kalamhaostav programme.

**8. Study Tour-**

To inculcate the reading habit of the students, the library department organizes a study tour in the book village “Pustakache Gaon Bhilar” every year. Also Jaykar Library department of Library Savitribai Phule Pune University, Pune.

**9. Best Reader/User Award-**

Every year the Adersh Vachak Award is announced in Kala Mahotsav so that other students are inspired to read books.

**10. Suggestion Box-**

Library has a suggestion Box near the entry of the library. Students and professor put their completed suggestions in the box and it is opened in the every month end in principal cabin and a solution is drawn after discussing the library committee which the suggestions received in the box.

**11. Granth Parivar Yojana-**

Granth Parivar Yojana is implemented in library where students who are interested in reading are given a books and other materials to read at any time and they are asked to review the book they have read.

**Conclusion**

The college library try at their best to sustain above discussed best practices. The practices are reviewed time to time to accommodate the necessary changes to make the initiative more innovative and user centric. Best practice not only helps to increase reader but also helps to do better study, research projects and library objective success.

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**Marketing of Library Services****Mr. Amit Arvind Gurav**

Librarian

Dr. Babasaheb Ambedkar Mahavidyalaya's

Adv. Daulatrao Gulaji Jadhav Library

At. Peth Vadgaon, Tal. Hatkanangale, Dist. Kolhapur, Maharashtra

**Abstract :**

*Library is nonprofit organization it is basically engaged in the production of services rather than goods. Marketing in library sector is required to aware about the library services. This paper enumerates the concept of library promotion and marketing of library services. Libraries are having many types of collections. To promote the collection for use it is necessary to market library products-library services. As librarians we should be actively marketing and promoting our library services. The marketing policy of the libraries needs careful planning, structuring, execution and evaluation with regular review.*

**Keywords :** Libraries, Marketing, Marketing Strategies, Library Services.

**Introduction :**

Marketing is frequently viewed as a set of strategies and techniques that belong to administrators. "Marketing is the management process which identifies, anticipates and supplies customer requirements efficiently". Thus the essence of marketing involves finding out what the users want, then setting out to meet those needs. As librarians we all participate in this process of assessing our users needs and trying to fulfil them. Thus, we are already marketing our library information skills. However, in order to do this effectively librarians need to embrace the total marketing function involving market research and analysis, service planning and promotion. Libraries are considered as treasures of knowledge. It is also known as storehouse of knowledge. It is true that all libraries in the world are full of reading material which consist books, journals, films, images, manuscripts, audio visual materials etc. which has knowledge, recorded by peoples, eminent writers and eminent personalities. However it is a need to market these resources which possess by the libraries.

**Marketing :**

Marketing in the library context, refers to those instrument through which information (both raw and processed) are transmitted to its users.

"Marketing is the analysis, planning, implementation and control of carefully formulated programs designed to bring about voluntary exchanges of values with target markets for the purpose of achieving organizational objectives. It relies heavily on designing the organization's offering in terms of target markets needs and desires, and on using effective pricing, communication, and distribution to inform, motivate, and service the markets." Kotler.

"Marketing is a total system of interacting business activities to plan, price, promote and distribute want satisfying products and services, and present to potential customers." Stanton.

**Concept Of Marketing Of Library Services Through Five Laws Of Library Science :**

Dr. S.R. Ranganathan, father of library and Information Science, philosopher, mathematician devised five laws of library science which promotes the usage of resources.

**i) Books Are For Use :**

This law itself promotes that each book available in the library is for use. If the books kept in lock and key without providing it to the readers, then it is a dead investment of the organization. Hence books should be

freely available to each user coming to the library. Library staff should take initiative to attract their users to read more and more books. But while giving more books to the users, they should see how it come back for further use to other readers. It is a skill of the library staff , how the attract the students/customers towards the library. Books are for user promotes the use of book. Staff should tell the users what are the good books available, it should be placed on the prominent place , may be entrance of the library where every user come and see.

**ii) Every Reader His Book :**

Here Reader of the library is main factor/customer, every staff must see how library users are satisfied with the services by the libraries. We must focus to the needs of such readers and their satisfaction. It is true that library cannot satisfy each and every customer, however efforts should be taken by the staff to satisfy users maximum.

**iii) Every Book Its Reader :**

According to this law Dr. Ranganathan expressed that every book which is purchased by library must get reader. Here we must see what the needs of the readers are. Dr. Ranganathan expect that find a reader for every book. To find a reader for every book library staff should conduct such studies/surveys to obtain the needs of their readers. Once you identify their needs then you can promote the resources and increase the use of it. Here attitude of the library staff is more important. They should be always positive to solve the problems of the users with smiling face.

**iv) Save the Time of Reader :**

The users time is very precious, to save the time of users in the library, staff should organise the information in such a way to fine it promptly. Reader should not waste their time in searching the information, searching the books and journals in the library. Of course arrangement of library material is a scientific method which is taught to the library staff.

**v) Library is A Growing Organism :**

Here more emphasis is on evolutionary growth of the library. However librarian must see how library collection grows with qualitatively not in quantity. Now a days e-books are more popular and easy to access. Hence vendors are promoting and marketing their products in package or pick and choose model where choice of selection of required books are with faculty members.

**The Medium Of Marketing**

Marketing and promotion can take place on a variety of mediums or platforms. The traditional mediums include print, radio, television, direct mail and telephone; while the online mediums include email, social media, pay per click marketing, search engine marketing, and mobile marketing. There are benefits and costs to each type of marketing so it is critical to understand the objectives of each marketing campaign and utilize the medium that best facilitates them.

**i)Print**

Newspapers, magazines, printed telephone directories and billboards all fall within the category of print media. Although many of these media outlets have dwindles in market penetration but retain key importance with certain demographic groups. For example telephone books have become almost antiquated as the majority of the country utilizes online resources to locate contact information, yet a large number of consumers in rural communities and internet starved areas continue to depend on them.

**ii) Newsletters and Leaflets**

Newsletters and leaflets are both a means of delivering information. A newsletter can be used to list interesting new web sites, new journals and online services, and perhaps more general science news of interest. It does not have to be long but should be produced on a regular basis. Leaflets and guides can be handed out, and displayed on notice boards. The library notice board should be in a prominent place.

**iii)Radio**

A broadcast medium like radio can be extremely effective in reaching a key demographic. Because most radio stations are limited to a particular genre of music like pop, classical, urban or country, their listeners often possess similar characteristics. In combination with accurate marketing research, a radio marketing campaign can communicate a promotional message to a target segment with a high degree of success.

**iv)Television**

This is one of the most expensive marketing platforms and requires considerable preparation in researching the peak times for reaching the target consumer as well as in production of the commercial, infomercial or product placement. Television remains the most powerful form of marketing despite the advent of the internet, with most Americans spending more than four hours a day viewing TV programs. Purchasing ad time is a huge investment for many small and mid-size companies, so a well strategized marketing campaign is essential.

**v)Telemarketing**

Telemarketing remains a robust form of marketing due to its push nature and the introduction of new technologies, like automation and cross channel lead generation, which has enhanced conversion effectiveness. There has been a number of consumer protections implemented which have limited telemarketing, but it still remains a highly effective way to connect with consumers and induce sales.

**vi) Search Engine Marketing**

Search engine marketing utilizes paid and unpaid mechanisms for improving visibility on a search engine results page. This increased visibility translates into higher traffic for the ecommerce site and enhanced revenue. These mechanisms may include SEO techniques like keyword insertions, backlink building, and content optimization. Paid techniques include paid inclusion, link farming, and content marketing.

**vii) Pay per click marketing**

Pay per click is often associated with banner ads, pop up ads and sponsored links. This form of marketing is commonly priced upon the number of clicks upon the ad or link. PPC marketing remains important for its ease of use, highly measurable effectiveness and modest ROI, but the PPC model of marketing has diminished in importance as consumers have become inured to ubiquitous use of ads and links.

**viii) E Mail**

Email marketing has been an essential medium for marketing strategies since the inception of online marketing. The use of ads, newsletters and other content that is directly sent to consumers who have expressed interest in the product or business remains a very successful way of generating consumer interest and maintaining a relationship with customers. Due to the narrow window of consumer responses, email conversion rates can be measured with a very high degree of accuracy, which allows marketers to develop very sophisticated metrics and strategies for this important medium.

**ix) Social Media Marketing**

Social media sites like Facebook and Twitter have huge followings that present enormous marketing possibilities for businesses. The ability to gauge consumer interest in products, brands and social trends offers a huge amount of valuable information that marketers can utilize to create effective and narrowly targeted marketing campaigns. There are considerable costs and challenges associated with the use of these platforms, but a highly successful social media marketing campaign can produce enormous consumer interest.

**x) Mobile Marketing**

Mobile marketing is an emerging form of marketing that is wholly dependent on the use of mobile devices like smartphones and tablets. Although all of the previously mentioned mediums of marketing can be applied to mobile devices, due to application and technological constraints, there are critical differences that must be identified and incorporated into a mobile marketing campaign. The growing popularity of this form of marketing is related to the trend line of a steep increase in number of consumers using their mobile devices to acquire marketing information and make online purchases or other online activities.



**Conclusion:**

The value of marketing library's products and services has been recognized and now we as librarian, library staff need to develop and formalize our marketing strategies. Marketing in libraries has gone beyond special days and book displays. We need to give the marketing function a priority within our other library duties. In the case of libraries, technologies have made their activities easier and they have changed them. The work done by the information services is an enterprise that requires commitment and a good disposition to devote time, consideration, and love to all these activities and to become part of the change, delivering and communicating this attitude, converting ordinary things into extraordinary achievements. Marketing library and information services is necessary in order to enlighten the users on the relevance of library use, to encourage the use of library, to identify the information needs of users and to achieve the objectives of the library. Librarians agreed that good communication skills, information technology skills, ability to answer users' query, ability to sell idea/library services, ability to question and evaluate library services as well as interpersonal skills are competences required of librarians for effective marketing of library and information services.

**Acknowledgment :**

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## Understanding Users' Attitude towards Digital Libraries

**Prof. Dr. Varsha Maindargi**

Professor and Head, Department of Commerce,  
Kamala College, Kolhapur

### Abstract

*Digital libraries provide electronic formats of books that can be easily accessed by the users particularly students and teachers simply by logging into an online portal. This system allows the uploading and updating of any content. These documents can be accessed seamlessly from any device and can be shared amongst the users. Students can consult online books, images, videos and all the other educational contents. They don't have to wait for it and go to the physical library. They can access it in either formal or informal environment, for example at school, or at their homes. At a mouse click they get an instant access to the information they need conveniently and comfortably. Various digital formats (eBooks, audiobooks, videos on demand 24 hrs/day) are available for the users anytime and anywhere with their preferred devices. The present paper is an attempt to understand the user attitude towards digital libraries. It suggests some ways to facilitate a user-centered approach.*

*The present paper is an attempt to study the importance of digital libraries and the attitude of users towards it.*

*(Keywords : ebooks, fingertips, accessible)*

### Introduction

With fast changing way of living, the demand for virtual libraries at our fingertips is skyrocketing. Books have a long history. Traditional physical libraries are now changing with the advancement of Information Technology. More traditional members of the global reading community become concerned about obsolescence of books. But with the wonders of the internet, books are still very much alive. Digital libraries are a type of library that houses a centralized collection of digital items like texts, graphics, audio, and video materials, files in electronic media formats, along with the methods for organizing, storing, and retrieving media. Many large libraries, universities and schools worldwide are steadily digitizing their reading collections.

Digital libraries can range in size and scope, and they can be maintained by individuals, organizations, or established physical library buildings or institutions affiliated with approved or academic institutions. Types of digital libraries include Institutional repositories, National library collections, Digital archives etc. The use of e books saves time, energy and money also. Storage requirement is not needed for e books. The importance of digital library is being recognised during Covid-19. Since the outbreak, digital libraries are now well accepted as an uninterrupted access to reading and study materials to millions of users worldwide. The understanding of attitude of the perspective of user and e-book interaction will be helpful in understanding better the determinants of a quality experience.

### Objectives of the Study

- To understand the advantages of digital libraries
- To know the 7Ps of digital library services
- To identify the attitude of users towards digital library
- To offer conclusions and suggestions

### Advantages of Digital Library

**1. Availability of variety of content-** Digital libraries store a wide variety of content in a virtual environment in the form of eBooks, magazines, articles, blogs, papers, videos, podcasts, and audiobooks etc. Modern digital

libraries store their resources in the cloud so that their users can access them at any time and from any location.

**2. Easily Updated –**

Digital libraries can be updated on a regular basis. Many publishers allow digital libraries to make current editions on a pay-per-read basis and the users can be given access to the most recent publications, which will arouse their interest.

**3. Easy and Quick Access-**

The number of people reading books in digital format has been steadily increasing. Younger readers prefer digital book versions because they can read them whenever and wherever they want. Easy and quick access is possible via the internet using devices such as mobiles, computers, tablets or smartphones.

**4. Simplified Search –**

Digital libraries are designed with built-in search capabilities. With the use of popular search engines like Google, Bing, and Yahoo content searches are speeded up and readers can find the information they need quickly. Even just by entering relevant words and phrases, they can find and sort digital resources.

**5. 24/7 Availability –**

Digital libraries allow readers to read eBooks, listen to audiobooks, and watch videos 24/7 without changing their location. Only an Internet-powered device to access and read digital library materials is required for this.

**6. Unlimited Access to Multiple Resources –**

In a digital environment multiple readers can have simultaneous access to the same books, videos, and audiobooks. Many educational institutions are therefore establishing digital libraries to allow a large number of students from various locations to access the same book at the same time.

**7. Automation of Library services –**

Routine library services such as indexing, issuing, tracking, and preservation are automated with the library management software. This has encouraged many institutions and businesses to easily establish digital libraries.

**8. Real-Time Interactions –**

The latest library management software includes features that make the interaction of readers and administrators easier. Through establishment of online communities, many software solutions encourage reader interaction. Readers can quickly gather specific information about a book or article through these real-time interactions.

**9. Reduce Resource Depletion –**

Frequent access and reuse of physical library resources results in deterioration of books, vinyl records, cassette tapes, and other resources. But digitization makes digital resources available to a large number of readers on a consistent basis, with little regard for physical material preservation.

**10. Preservation of Knowledge –**

Physical storage devices, such as CDs, DVDs, and cassette tapes, are prone to damage and loss and valuable research can't be preserved. Digital libraries now store their resources in the cloud. Sophisticated security measures are also used to ensure that only authentic readers have access to the content. Hence digital libraries save important research and studies for future generations.

**Seven Ps of Digital Library services**

<b>7 Ps of Digital library services</b>	<b>Issues</b>	<b>Description</b>
P1. Product	What is the digital library providing?	For reference services, this refers to the types of services provided to users and how they are provided.

P2. Price	What does the digital library users give up in using the services?	For library users, this includes time and the value of the services they receive in response to the role and responsibility of the library.
P3. Place	Where can digital library users use the services? How can they access the services?	This may include places inside the library, such as the reference desk, and virtual reference services via online or other channels.
P4. Promotion	How is the digital library going to tell users about their services and persuade them to use those services?	This includes techniques such as events, direct mail, and banners on web pages and in databases
P5. People	Who will provide the digital library services? Do they have the right disposition? Do they have the right training?	This focuses on the roles and responsibilities of the service providers (reference librarians), and their competency to do their work effectively. Moreover, it is the necessity for service providers to be proactive and have cheerful attitude towards users, and to have a marketing culture when providing various information services to the user to achieve the goals of the library. Other aspects relating to the competencies of personnel – including their knowledge, skills and personal attributes – should be also focused on.
P6. Process	What are the processes and systems for service management to ensure efficiency and effectiveness of digital libraries?	This can be the service management process, such as planning, user studies, operation and evaluation. User satisfaction and feedback on the services are also critical processes.
P7. Physical environment	What does the library do regarding its physical and online appearance of digital library? How does the library organize its infrastructure and facilities to support users in using the services?	This includes service spaces in the library, its appearance, its atmosphere and technological support for the services. Moreover, library space in a form of online service via computers, mobile devices and the Internet, also provides the users' experiences of using reference service.
* Source: Adapted from <u>Leonard and Tedford (2006)</u> and <u>The Marketing Mix (2012)</u>		

**Attitude of users towards digital libraries**

This study aims to study the users' attitude towards digital libraries. This study was carried out by conducting a survey using questionnaire as a tool to find out users' views on using e-books as compared to printed documents. This study was carried out of 125 sample undergraduate students users from different colleges in Kolhapur city with wide range of subject background and computer experience.

**Table No. 1 - Attitude of users towards digital libraries**

Sr.	Particulars	Users	
		Number	%
1	Awareness	75	60.00
2	Willingness	68	54.40



3	Use of digital library	64	51.20
4	Quick source	74	59.20
5	Readiness for payment of online publications	35	28.00
6	Usefulness, desirability, accessibility, credibility	55	44.00
7	Clear idea about online resources	36	28.80
8	Difficulty in searching and navigation	35	28.00
9	Complexity	27	21.60
10	Perceived Usefulness	53	42.40
11	Availability of e books through catalogue	47	37.60
12	Eye strain as a common concern	34	27.20
13	Not suitable for meeting requirements	31	24.80

*(Source – Primary data)*

It is clearly seen from the above table that –

- 1) e-book awareness among students is 60 % . More than half of the students are aware of the availability of e-books from the library.
- 2) 51.2 % of the students have used e-books. They are aware of the advantages and limitations of digital libraries and tailor their choice for digital or physical libraries according to their needs.
- 3) Users often regard e-books as a quick reference tool i.e. 59.20%. According to them e-books help them to find relevant sections and extract information for further use as valuable information resources.
- 4) Of the total, only 28.00 % users are ready to pay the same or slightly lesser price as compared to printed publications.
- 5) 44.00 % respondents find usefulness, desirability, accessibility, credibility of digital libraries.
- 6) 28.80% users may not have a clear concept of e-books or which online resources are considered as e-books. They do not clearly distinguish among types of resources such as online journals, conference proceedings, and e-books they may be accessing e-books without knowing the exact type of the resources.
- 7) Searching and navigation functions are thus critical to 28.00% users' acceptance.
- 8) Only 21.6 % respondents found it complicated to use digital libraries and 78.4 % expressed that digital libraries are user friendly and convenient.
- 9) Nearly 42.4% of participants rated e-books as “need to have” or “nice to have,” showing the perceived usefulness of e-books.
- 10) Not all e-books can be accessed through the library catalogue (only 37.6%) due to the lack of individual machine-readable cataloging (MARC) records;
- 11) For 27.20% users a common concern affecting users' attitudes toward e-books is the perceived eyestrain or fatigue from reading or viewing information on a screen for an extended period of time.
- 12) E-books are sometimes limited in meeting users' requirements of text size and clarity for 24.80% users.

**Findings–**

Students are generally willing to use and read e-books though they continue to prefer and use printed publications. Users view the convenience of online access and search functions as the most important advantages of e-books over print books. They search for relevant e-book titles and identify the ones that they will further examine. The actual use of e-books involves navigating within the e-book structure, seeking targeted information, and reading the content. The top three behaviors with e-books reported by students are brief look, reading from screen, and downloading PDF. Other usability issues of e-books, such as the book layout with limited display area on the screen and slow response, might also affect students' willingness to read e-books online. Users' awareness of e-books varies across different disciplines. Significantly science students are aware of e-books than users in other disciplines. The fragmented nature of e-book collections in libraries may result in missing titles in



library catalogs and in user confusion. However, technical and access barriers still exist in e-book collections and its use.

### Suggestions

- Awareness about digital library should be increased through promotion by local institutions.
- Recent developments in discovery tools should be made to mitigate the e-book discovery issue by indexing metadata from multiple collections.
- The library catalogue should be updated as frequently as the publishers' e-book platforms and publisher platforms may offer table of contents and full-text searching not available in the library catalog.
- The engagement of students should be increased through hosting university events in the library, adding a modern tea or coffee house, conducting workshops and faculty development programs etc. Slogans like Save a trip to the Library, No late fees, Read anytime, anywhere, One device, many books, A dictionary at your fingertips, Search in seconds, Customize how you read, Our collection is always growing E-books help the visually impaired, E-books Can Provide a More Immersive Experience, People Retain More Information from Paper, Traditional Books Help with Eye Strain etc. can also increase the interest of students in e library.
- Other e-book features, such as downloading, printing, text highlighting, annotating, copying, and pasting will be helpful to develop positive attitudes toward e-books.
- New display technologies such as e-ink and high resolution screens should be used for creating interest among the users.
- e-book use should be categorised into four types: finding relevant content, selective reading, fact finding, and extended reading.
- With recent technological development, libraries should implement three major mechanisms for improving e-book discovery and access: e-book vendors' platforms, library catalogs (OPACs), and discovery tools.
- To understand users' interaction with e-books in different phases, traditional transaction log analysis should be integrated with behavioral research methods to generate a comprehensive assessment of users' information-seeking activities.

### Conclusion

Findings of users' attitude and suggestions thereon will definitely be utilized to drive the design of e-book features and the overall interaction between users and the e-book system. understanding user evaluations will be helpful to interface design for iterative refinement and improvement. Digital libraries is a great addition to users' current scholarly information resources.

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## Mobile Applications used in Academic Libraries

Librarian **Anjali. P.Navalkar**

(Asst. Professor)

Modern College of Arts, science and commerce.

(Business Administration Campus) Shivajinagar, Pune-5.

### Abstract:

Digital Technology has provided rapid approach to information and it is also challenging the libraries to redefine and rebuild their services by adopting the technological changes. Today mobile phones are becoming an important part of everyday life and are changing the way one connects and interconnect with the world. In this changing scenario, Mobile Technology will be of great assist to libraries towards build up their relationship and providing no of user oriented services to existing users. Libraries may well connect to the remote users who were reviewed unlikely to connect because of absence of a medium. The paper discusses on the need, advantages, drawbacks, barriers and solutions for optimistic implementation of the mobile technology in libraries. It also searches the type of infrastructure required by the libraries for providing these services in libraries. This paper presents summary of the web app and use of developments in mobile telecommunication systems, web programming (internet/intranet) and geographic systems like GPS supply everywhere, user-friendly, personalized and vital up to date information services to library users.

**Keywords:** Mobile Technology, Mobile document supply, SMS notification services.

### Introduction:

Today we are experiencing huge growth rates in mobile communication systems (mainly in Asia) increasingly mobility awareness in society and the worldwide free competition former monopolized market, while traditional communication paradigms deal with fixed networks, mobility raises a new set of questions, techniques and solutions for many countries mobile communication is the only solution due to the reduction an suitable fixed communication infrastructure. Today more people use mobile phones (over one billion) than traditional fixed phones. There are many new exciting systems currently being developed in research labs. The future will see more and more mobile devices the merging of classical voice and data transmission technologies and the extension of today's internet applications (e.g. World Wide Web) onto mobile and wireless devices. New application and new mobile networks will bring everywhere multimedia computing to the mass market, radios personal digital assistants (PDAs), laptops and mobile phones will converge and many different functions will be available on one device –guide on top of internet technologies. Mobile Technology will help both beginner and experienced librarians to stay applicable in an increasingly mobile society. They need to be cognizant of technological changes, peer forward, and develop for the future of library mobile interaction. Librarians must be equivalent with this trend and integrate themselves into the mobile realm if they wish to deliver enhanced user services.

### Impact of Mobile technology in library services:

Mobile technology has now occurred with “Libraries in hand” trend. Our librarians are in move to firm about these devices are affecting information approach and ensure that they are communicating with subscriber and providing web content in the most appropriate and effective ways. Our librarians must be arranged thing to take this challenge to expand the market and demand for mobile access to customize facts and information anytime, anywhere on one's own portable device. Since mobile handled devices are truly personal devices, search histories and physical locations can be trapped to produce more accurate, personalized information and services. Users don't want to wait for list of web results, typical scenario in libraries today for mobile communication with many wireless devices. Networks with a fixed infrastructure like cellular phones, Personal Digital Assistant, laptops connect with Bluetooth technology universal mobile telecommunication system (UMTS), Global positioning system (GPS), Digital audio Broadcasting, Mobilizing library contents in a portable form appropriate

for small screen and provide short service in the form of contents with multiple searching features. Librarians will need to become expert in using this mechanism to enable user's access available 24/7.

**Objectives:**

- A wide range of computerizing which can bring about meaningful revolution and improvement in information transmission is now available for speedy access and it is also necessary the libraries to redevelop and remodel their services by modify the technological.
- Today mobile phones are becoming an essential part of day to day life and are changing the ways one connects and interconnect with the world.
- In this changing view mobile communication will be the great support towards build up their connection to boost user oriented services to existing as well as new users.
- Libraries may well reach out to the remote users who were considered unlikely to connect because of absence of medium.

**Additional Services are provided by library:**

Thus audio/video collections no longer are composed only of physical units to borrow, but increasingly are streamed on Libraries can better serve their users by embracing the growing capabilities of mobile technology. They can encourage and expand their existing services by offering mobile access to their websites and OPAC (online public access catalogues): by providing on the go mobile reference services: and by giving mobile access to journals, magazines , audio books, video, e books, journals, presentation, animation, image demand or downloaded, Circulating content in urban, suburban, and rural libraries across the country.

**The M-Learning Development in India:**

Libraries in hand' is the latest slogan of the Indian libraries and mobile services in India are quite affordable. The proliferation of mobile phones, PDAs and other mobile devices means that the platform has lot of potential in India, with over two million users being added every week and as per the Telecom Regulatory Authority of India, there were 910.16 million mobile phones and 938.34 telecom service (including landlines) users in India at the end of May 2014, and excellent connectivity across regions. Major mobile manufactures such as Nokia, Sony Ericsson and Motorola in India have linked up with service providers like Airtel, Vodafone and others to provide mobile content, which also includes learning content. Companies that specialize in content aggregation provide the actual content, while mobile value added services providers develop the mobile technology and delivery. The ISRO satellite centre has introduced mobile library services in the first phase to only senior scientists/engineers who are allowed to use mobiles in the campus and in the second phase to the faculty and the students of Indian Institute of Space Technology (IIST). All information services hosted on ISAC library homepage are accessible through intranet and space net can be straight away optimized to mobile based services. Initially library's alert services like information on new books for suggestion, books on display, arrival on indented document, reserved documents ready for collection, books overdue, library circulars, information about important events, etc, are provided via mobile devices and later by allowing users to comment on the items in catalog and letting users to comment directly from their PDAs and mobile phones to library databases.

**Library Services that can be supplied to users via Mobile Technology:**

- ❖ **Books Mobile:** Bookmobiles and direct-delivery outreach services are, and continue to be an integral, important part of libraries globally Consisting hundred years bookmobiles have provided service countryside ,city and tribal areas, Bookmobiles are one of the innovative ways libraries and bookstores bring reading materials and valuable resources to their communities.



Bookmobiles are a primary part of library service. Bookmobiles additional the reach of traditional libraries by transporting books to future readers, providing library services to people in remote areas and circumstances.

#### ❖ **Library SMS Notification:**

Libraries may provide the aware on current news, events and notification via SMS and MMS to users wherever they might be go.

The users can get notified immediate with notice alerts such as- alerts on new arrival books, journals, magazines, new suggestions, new services, suggestion, books circulation, overdue books, communicate of arrival of documents by users, informing availability of reserved books or information for collection, reminders to return library books, reminder for renew books, library circulars, subscription of e journals, change in timings, information about important events etc. Such alert notifications can be generated automatically using fully integrated library management software.

#### ❖ **Emerged Trend: Long distance learning- Education learning - Mobile learning:**

Distance learning is a Correspondence Learning. Where students are not present physically they receive their textbooks, study guides, assignments and other study materials via the post.

Education learning A learning system ground on formalized teaching but with the support of electronic resources is known as E-learning. While teaching can be based in or out of the classrooms, e learning completely refer course, program online for users therefore internet and computers are major components of e learning.

Mobile learning in education system it's also known as m leaning. Mobile learning is a other way to access content via mobile. Students are all rounder in using their mobile phones and several mobile applications. Academic libraries can gear the advantage to guide fulfilling of library services through mobile devices to support long distance learning, formal learning and research activities in e-learning conditions by making the information resources everywhere. Library services should also join with teaching and research application of colleges and universities whom they serve.

#### ❖ **Database Browsing:**

A library database is a variety of exploring electronic index of published and sees results are designed for mobile viewing reliable resources like OPAC, OCLC's Catalogue. Databases provide access to a content of useful research materials from academic journals, newspapers, and magazines. Some databases also cover e-books, applicable web resources, and various multimedia. And mobile applications allows users to find books and other material through smart phone or personal digital assistant's.

#### ❖ **My Library: your library, anywhere, everywhere:**

My library is an iOS and Android app that gives on the go access to all of library's resources, which is a exquisite reply to the mobile nature of library users. My library allows you to store your personal books and to perform a quick search within it.

#### ❖ **Virtual Reference Service:**

Virtual reference is reference service bring out electronically, often in real-time, where user computers or other Internet technology to communicate with reference staff, not having physical presence.

#### ❖ **Library Guide :**

The Library provides vital learning materials within library team up and through the Library Guides, which are online reference guides that support student learning, question answer service and library statistics as well as staff and researchers, at library They will point you to a various of resources available in our Library, inclusive of directory, databases, electronic journals, electronic books, and other online resources.

#### ❖ **Text / SMS Reference Service:**

Text or SMS reference services mobile users all of the assistance of live chat without being tied to a website. All users can't access library website on their phone but they can text most on a librarian number and librarian can provide real time answer or links to articles and references and more user immediately.



❖ **Current Awareness Service (CAS):**

User is obtain Current awareness service. Current awareness service has been broad in the part for keeping the users update in their subject or areas of interest. Libraries now organize current awareness bulletins using prearranged search strategy and running on the database. A large number of gateways offering CAS through list serve weblog, webzines, e-newsletters, etc.

❖ **Selective Dissemination of Information (SDI):**

SDI is an alerting service which informs the users that some documents are available in the library ,which may satisfy their requirements. Alerts can be received through a number of ways, including email, RSS feeds, voice mail, instant messaging and text messaging.

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SDI is an alerting service which notifies the users that documents are available in the library, which may useful for their demands. Notification can be received through a number of ways, including email, RSS feeds, voice mail, instant messaging and text messaging. it is a customized service meant for the individuals or group of users having identical information needs or demands.

❖ **QR code:**

A quick response (QR) code is a type of barcode that can be read simply by a digital device and which stores information as a series of pixels in a square-shaped framework. QR codes are constant used to track information about products in a supply chain and frequently used in marketing and advertising campaigns. QR Codes can link immense information. So, you link your library catalogue to a QR Code. All you require to create is a Website URL QR Code and place it at a appropriate place such as book, DVD...etc.

❖ **Mobile Document Supply:**

The mobile environment and technology perform new opportunities for redirect document requisition and scanned images and monitoring the use of collections as well as the computerization of administrative operations. It can support electronic funds transfer, supply chain management, e-marketing, online marketing, online transaction processing, electronic data interchange, and automated inventory management systems A user can have requested document on his mobile phone by SMS, Email etc.

❖ **Information Literacy (IL):**

Information literacy can be used for academic purposes, like research papers and group presentations. They are used by the library and Information Science (LIS) professionals have ability to search, analyses , use and share information is an Important skill. LIS professionals also use skills by involve fully in a democratic society as an informed citizen by understanding major issues and popular voting.

❖ **Social Media:**

Several types of social media channels can be operate by library for various purposes. Some of them are like information communication (Face book, twitter, blog etc.), Content creation (YouTube, Wikipedia etc.) and knowledge organization (Net vibe, Delicious etc.). The most obvious benefit of having a social media account is that users have a direct line to communicate with users People can reach out to ask about available books, services, and office hours. Feedback is vital for library and through social media libraries get direct feedback as well.

❖ **Mobile Printing:**

Library can supply user with the facility of printing through their mobile phone for any instant demand on user.

However, the fulfillment of this technology is hindered because of its dependence on the capabilities of mobile devices.

#### ❖ **Marketing:**

The information explosion is the quick increase in the amount of published information or data and the effects of this plenty. Due to information explosion libraries are necessary to meet information needs of users. The world in which libraries exist has switched dramatically. It moves speedy, depends on technology and competes more hard.

Marketing through mobile technologies:

- ❖ Online Library Tours
- ❖ SMS
- ❖ Email
- ❖ Blogs
- ❖ Social Media (Instagram, Twitter, LinkedIn, Youtube, Facebook, Whatsapp etc)
- ❖ Voice marketing
- ❖ Mobile search ads
- ❖ Location based marketing
- ❖ QR Code marketing

#### **Pros and cons of Mobile Devices application of Academic library service :**

**Easily Operated:** Easy to understand their own devices and technology helps the users in reachable information quickly and not require any special orientation and trail.

**Personalized Experience:** Personalized service help users to link with library staff to find specific information or reference away from library.

**Flexibility and Freedom to Access Information:** Information access from anywhere at any time will be of great help for users who can't visit library in person and provides a constant link to required information resources.

**Save the time:** Users need not record information about resources while browsing and searching library resources or library circulation (issue-return) counter to renew or issue books and hence the time of the user saved.

**User Contribution:** Libraries can improve OPAC by grant users to incorporated user created content like notes or images uploaded by users.

**Geo located:** Mobile communication permit libraries to offer location-based content through global positioning system (GPS) capabilities. Libraries can direct the users to the location of specific document or service through maps and operate.

**Limitless Access:** All online resources approachable on their mobile devices without any Fear of storage capacity.

#### **Cons of Mobile Devices application of Academic library service:**

**Technical man power need:** Highly man power needed to handle all the things. Need more capable and elevated server and more bandwidth for access.

**High price:** The infrastructure cost of mobile device i.e. the cost of hardware, software; leasing communication circuit is generally very top. Need more knowledge for preservation and archiving the materials.

**Environment:** Mobile device cannot reproduce the environment of a traditional library. Many people also search reading printed material to be easier than reading material on a mobile small screen.

**Conclusion:**

The mobile technology devices of the future will be more powerful less heavy and comprise new interfaces to the user and new networks; however, one big problem which has not yet been solved is the energy supply. Top performance of the device, the faster it channel the batteries (assuming the same technology) additionally wireless data transmission consumes a lot of energy. However the area of mobile computing and mobile communication is developing continuously the devices typically used today still exhibit some major drawbacks compared to desktop systems in addition to the energy problems interfaces have to be small enough to make the device portable, so smaller key-boards are used. This makes typing difficult because of their limited key size. Small screen are often useless for graphical display. Mobile technology is greatly influenced by the merging of telecommunication and computer network.

Library strategy and services have to be flexible and open so that new information needs of users in pursuit of organizational needs are met with new mobile technologies. The mission of libraries is to utilize new technology in a more productive way to advertise and combine them into the design of future library services in a cost efficient manner. Although one cannot forsake the strategy and excellence of information security of the organization. Since, the feature like reliable and continuous connectivity makes new devices more at risk to security threats, the same need to be addressed cautiously before setting up the library services for mobile devices. While the financial institutions like banks are making use of such technologies without exposing the customer to much risk, it may not be an impossible task for the libraries to overcome such security threats in providing library and information services on mobile devices. It is very essential for libraries to be dynamic and change their outlook to adopt new technologies and to develop new kind of relationships with users.

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**Information and Communication Services Based on Mobile Application Technology****Dr.Prakash Nilkanthrao Chondikar**

Librarian

Sahir Anna Bahu Sathe Mahavidyalaya Mukhed Dist.Nanded

**Abstract**

Nowadays Mobile phones have become the essential part of human life for communication and it also helps to student in e-learning. In this paper we have discussed about mobile technology and focused on its application and library services. With help of mobile devices, libraries can produce new services and provide faster access to its collection. The implication of mobile library services.

**Keywords;** Digital technology, mobile applications, services, mobile devices etc.

**Introduction**

Digital Technology has provided faster access to information and it is also challenging the libraries to rethink and remodel their services by adopting the technological changes. Today mobile phones are becoming an integral part of everyday life and are changing the way one connects and interacts with the world. In this changing scenario, Mobile Technology will be of great help to libraries towards strengthening their relationship and providing enhanced user oriented services to existing users. It explores the type of infrastructure required by the libraries for providing these services in libraries.

**Mobile Application Technology: Academic**

Mobile phones are seen as key means for improving access to education. Mobile devices in general and smart phones in particular establish a potential for a ubiquitous learner engagement that is often referred to as “learn anything at anytime and anywhere” There are a number of ways to learn to use mobile technologies, leading to the description of mobile technologies as a gateway to tools and resources.

Development of Mobile apps in State and National Level in all education Era

**Voter ID Card**

The Indian voter ID card is issued by the Election Commission of India. Its main purpose is as identity proof while casting votes. It also serves as general identity proof, address proof, and age proof for casting votes as well as for other purposes such as buying a mobile phone SIM or applying for a passport. It serves as a ID in Elections.

**Features:**

1. Check voter card status
2. Search voter name in Electoral Roll
3. Apply online for Registration of New Voter
4. Apply online for Registration of Overseas Voter
5. Correction of Entries in Electoral Roll
6. Know your Booth, AC and PC
7. Know your BLO, ERO and DEO
8. Link to STATE/UT CEO's
9. Voter Education Channel
10. Polling Process
11. Electronic Voting Machines
12. Complaint / Sugestions
13. Indian voter list 2016
14. Help



**National Digital India ( NDL)**

Ministry of Human Resource Development under its National Mission of Education Through information and communication technology has initiated the National Digital Library of India.



The National Digital Library of India's Android mobile app 'NDL India'

"It is a movement to reach out to people at every corner of the country with educational content of not just books, papers or theses but with class lectures, audio books and lectures, tutorials, assignments and solutions, simulations, animations, data sets, etc. through a single window access," South Asia Award 2017 – Best Mobile Application

**ePathshala**

The ePathshala, a joint initiative of Ministry of Human Resource Development (MHRD), Govt. of India and National Council of Educational Research and Training (NCERT) has been developed for showcasing and disseminating all educational e-resources. ePathshala also allows user to carry us many books as their device supports. Features of these books allow users to pinch, select, zoom, bookmark, highlight, navigate, share and make notes digitally.

**SWAYAM**

SWAYAM (Study Webs Active Learning for Young Aspiring Minds) is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy.

**Free Books - Apps (Digital Press Publishing):**

Many books that you know, many books that you've missed, many books that you want to read! That's Free Books – the door to unlimited reading. Download any of our 23,469 classic books, and read with our fully featured-reader. Browse our handpicked collections and download & read as much as you wish completely for free.

**This is a The Learning App:**

Engaging Video Lessons: Designed by India's Best Teachers, these unique video class modules will give you complete understanding of even the most complicated concepts in such a simple way that you will fall in love with learning. Special Modules on ICSE, CBSE Sample Papers for Class 7-10 students and AIPMT & IITJEE coaching for Class 11-12 students.

**Oodles**

Free eBooks & Free Audio Books Features:

- \* Read books and stories in English and Hindi for free
- \* Discover the great classics and some of world's best authors
- \* Import books from your phone and read in Oodles reader
- \* Take your library anywhere in your phone and read offline
- \* Personalise your reading experience
- \* Share e-book files with friends through email

**Book Catalogue**

An open source book cataloguing application (source on github). Books can be added manually, by ISBN, or barcode. Remember to backup and export your existing catalogue before you upgrade Book Catalogue is NOT a book reader.

**Features**

- \* Sorting by author (last name), title, series, etc.
- \* user-defined sort and list styles
- \* Search Amazon, Google Books, good reads and Library Thing for data Searching
- \* Thumbnails (download, gallery or camera)
- \* Loaning books
- \* good reads synchronization
- \* Export and Backup
- \* Bookshelves (books can be on multiple shelves)

**RX – RefXplore**

Search Science Direct database with over 12 million citations from 3,500 academic journals and 34,000 e-books.

The journals are grouped into four main sections:

Physical Sciences and Engineering, Life Sciences, Health Sciences, and Social Sciences and Humanities.

Article abstracts are freely available. Currently over 250,000 articles on Science Direct are open access. Read the PDFs directly in the App.

**Research Tools**

The Application in title "Research Tools" would be very helpful to researchers. This Application contains four famous research web, that is Research gate, Google Scholars, Publons and Shodganga. Research Gate, is a social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. This Application also contains many popular search website, as ScienceDirect, Springer data base, DOAJ, Plis One, BioOne, IEEE Xplore etc.

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**PubMed Mobile**

Search PubMed database with over 21 million citations for biomedical articles and life science journals.

**Features:**

- \* Keyword search with options
- \* Save citations
- \* View abstract
- \* Save search query
- \* Email citations
- \* link to full article if available

**MA QoD**

MedicoAid Quiz of the Day (QoD) free app is designed to challenge learners with complex questions (MCQs) about medical topics that they will encounter in medical PG entrance exams. The app is useful for students preparing for exams such as NEET PG, AIIMS, PGIMER, JIPMER, AFMC, NIMHANS, FMGE (MCI Screening Test), UPSC, USMLE and Medicos pursuing MBBS Course and other Medical Competitive Entrance Exam Aspirants.

**Some mobile apps for books**

- Google Play Books
- Goodreads
- Scribd
- Moon+ Reader
- \* Wattpad
- \* Flipkart Ebooks
- \* Aldiko
- \* Comicrack

**Library services from mobile apps:**

1. SMS notification services
2. Distance Learning and E-learning
3. Database Browsing
4. E-resources with Mobile Interfaces
5. Library guide
6. Mobile document supply
7. Text reference service
8. Library Virtual/ Audio Tours

**Advantages mobile technology in libraries:**

1. User-friendly Aid
2. Personalised Service
3. Ability to Access Information
4. Time Saving
5. User Participation
6. Location Awareness
7. Limitless Access
8. Access to Print-disabled Users

**Drawbacks of mobile technology:**

- compared to wired Internet service, has relatively slow transmission speed
- limited computational power
- inconvenient input and output interface
- insufficient contents
- high price

**Conclusion**

There is a growing influence of mobile technology in Libraries, especially as network access becomes more affordable and reliable, and mobile applications have seen mainstream acceptance in teaching, learning, and research. This trend will likely continue, and one way libraries can respond to this emerging trend is to make the library's website easily accessible via web-enabled mobile devices. Libraries should make conscious choices about what they want to offer in this arena and act accordingly and only time will tell if a completely mobile-accessible library, in terms of its services and collections, will become common place.

"By going mobile, a library takes a giant step toward becoming a round-the-clock service".

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## Re-Orientalion of Academic Library Professionals in Digital Era

**R. G. Baheti**

Librarian

Smt. Radhadevi Goenka College for Women, Akola

### Abstract

*Today we have seen that the era we are living in is digital era. All types of libraries, museums and archives have changing their role and also collection to digitize format and place it on the web. The potential of the digital resources to present information in new digital era is very easy to academic library professionals. Due to these changes definitely academic library professional need to accept the challenges and re orient themselves by attending the various webinar, conferences and courses. This paper deals with why the re-orientation is necessary for academic library professional in changing era of digital age.*

**Keywords** Academic Library Professionals, Digital Age

### Introduction

The term 'Digitizing' and 'Digital Library' are less transparent that one might expect and have evoked a wide range of responses among the academic library professionals in digital information. In last two decade developments in various libraries are take place by changes in information and communication technology and also significant impact on academic library professionals. Due to various technological developments the information world is switched from conventional print to digital information age. Digital resources determine the information handling activities most costly. Thus it is most essential for academic professionals to investigate, participate in orientation program related to digitization of resources and need to understand the various parameter and process of digital library

### Digital Library

Library is obviously source of power of knowledge. In academic libraries various and hundreds of thousands learning resources, databases are available in electronic formats. Users are now more independent than before, they can access to electronic formats from their home computer and also from cell phones. Academic library professionals are knows that terminology proves to be barrier in describing a digital library. Library professionals need to take initiative to organize various courses, seminar, webinar, workshops or conference and to update themselves to face the various changes and challenges due to changes in ICT and digital era. They should arrange training program which are helpful to them how to work in digital era. Some important points should be included in while arranging the training as below.

- The course content should be modulated on the nature of work.
- The topic of training program should be specific and practical.
- Review the training methods and its suitability.
- Group discussion should be conducted during the training program.
- Ask the professionals to write down the problems which they are facing.
- Assign them to various practical assignments.

### Planning and Implementation

Academic library professional should plan how they should organize and implement the training program for the development of the profession and also how they able to understand the changes of traditional libraries to digital libraries. The action plan should formulate the essential needs, purpose and objectives of digitization and options to overcome the constraints that keep coming in the future. There are many formats are available in the market to digitize the reading material so academic library professional needs to arrange the various activities or program accordingly. They need to think and plan about user requirements while they are going to digitize the



resources. They should need to plan how to prefer and stick to technical and administrative feasibility of the entire library staff. Academic library professional should need to plan on three major things when they go to digitize the various resources.

1. Why to digitize?
2. What to digitize?
3. How to digitize?

### **1. Why to digitize?**

Digitization of the available resources is the most important task for any academic library professionals. It is more important to decide academic library professionals why they go for to digitize the reading material? Due to the significant developments of information and communication technology have brought tremendous changes for academic library professionals. To deliver the various e services to the user and need of hour it very much essential for academic library professional to digitize the reading material. It is also real question of 'to be or not to be' for academic library professionals for digitizing library resources. Library professional should know that digitized material can be easily search and retrieved which is helpful to save the time of the users. It is very easy to share digitized resources among the user in less time.

### **2. What to digitize?**

As growing the use of digitize material it is very much needed to make a policy on what types of material digitize and also need to take a sequence of resources which are to be digitized? The transformation from paper based material to digital based material need of the hour. Academic library professional needed make a micro planning about what types of material they wish to digitized?

### **3. How to digitize?**

Digitization is very key task that involves various things such as skilled staff, financial management, developments of technologies etc. While academic library professional goes for digitization they must have to do following things.

1. Create digital images
2. Clean the PDF
3. Image resolution
4. Color management
5. Run a quality control check
6. Index your digital books
7. Store the collection on cloud

### **Re-orientation**

In this digital world, digitization of the reading material is need of hour. Digitization of resources helps to academic library professionals to tap a wider audience, across the geographical area with to less time and less cost also. Therefore re-orientation of the academic library professional is much needed work to deliver effective services to the user. It is also necessary to satisfy the users need of their information seek. The trained human resources are most important to complete the digitalization of traditional resources. Skillful human resources required for editing, inspecting, correcting and tagging etc. in traditional libraries to convert into digital libraries. Therefore the entire staff of the library should require various training program from they able to know the various things about the digitalization. They must have to know about the software and hardware, copyright act, protocols while they are going for digitalization. A main challenge will be for the academic library professionals to more effectively support the information needs of a diverse in a changing information environment. Orientation about various skills regarding digitization is more essential for library professionals. There are three things for which library professional organization should organized re-orientation program for academic library professionals.

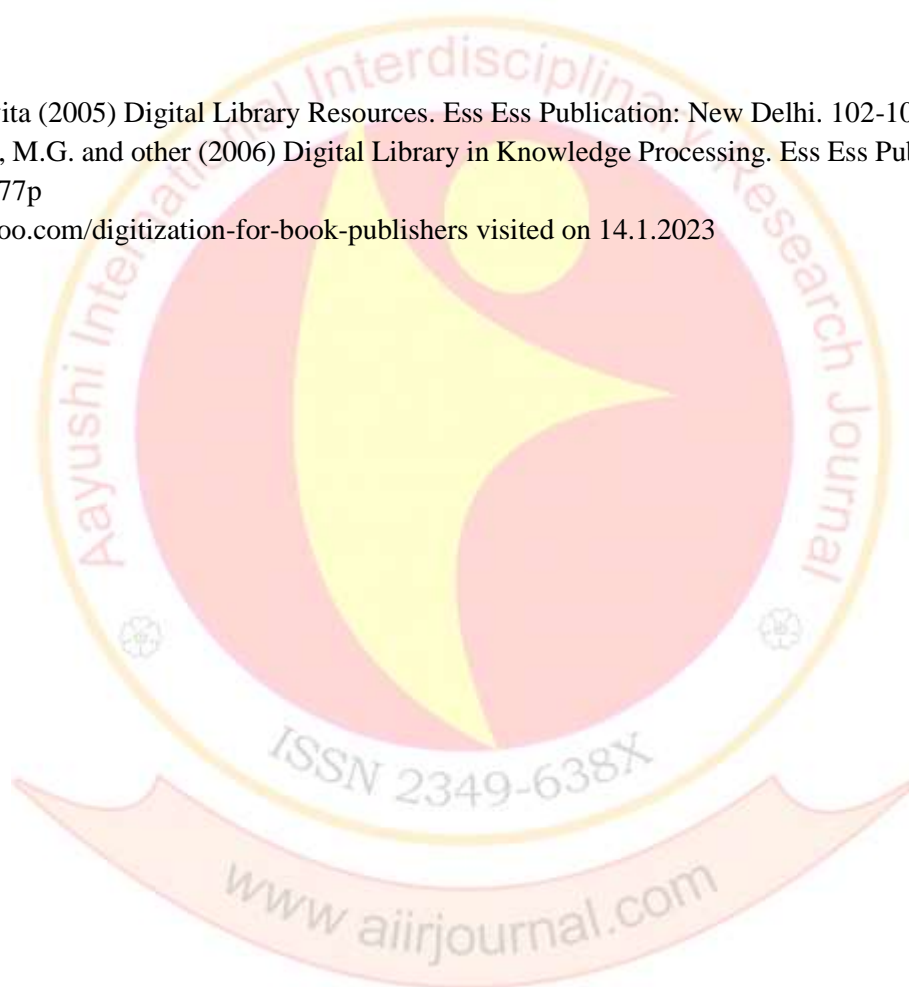
- New opportunity in library profession
- Information Management System
- How to manage e-content
- Cluster of various academic library
- Issues and challenges of digitization

**Conclusion**

Library professionals seen that development in the technologies has change the work of libraries. Mainly the function to deliver the information to the user is changed. Academic libraries are facing a shortage of contents like books or journals there is a wide spectrum of formal and informal sources available with them could be converted into digital form by devising suitable action plan. Digitization of the resources is very big challenge for academic library professionals. For the same they required re-orientation of various skills about the digitization. Academic library professionals must have to attend various seminar and workshop of digitation of resources.

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**Usage of Social Media for Digital Library: Thinking on Mobile Application****Dr.Salunkhe S.P**

Librarian, BVDU,IMRDA,Sangli

**Mr.Ghate Ganesh Mohanrao**

SJJTU

**Summary**

Now that we live in the digital era, social media platforms are an essential part of our daily life. Humanity These days, most individuals get in touch with one another through some kind of electronic media. These days, almost everyone uses social media or some other kind of online networking or communication. Social media has evolved from a merely communicative function to one of public library's primary advertising strategies nowadays. This research aims to investigate and analyse the level of contentment patrons feel while making use of library-provided social media platforms. For Therefore, the purpose of this article is to evaluate the most recent trends in social media participation. The goal of the library poll is to gauge overall customer satisfaction.

**Keywords:** Digital Library, Social Media, User Satisfaction and Library User

**Introduction**

User-generated content (UGC) is a feature of many social media sites, including Facebook, Twitter, YouTube, Instagram, and others. Communications with others by facilitating the public display of thought and feeling via the mediums of images, sounds, and moving pictures, media facilitates a wide range of social interactions. This list of top websites has exploded in popularity over the last several years, according to studies (Alexa, 2008). Statista Study (statista.com) 81% of the Indian populace will apparently be dynamic social media clients constantly 2020, with the majority of these users logging on to Facebook. Social media are "websites and A PC programming that empowers people to interface and offer data by means of the Internet utilizing a PC or cell phone," as defined by the Cambridge Dictionary (2020). The World Wide Web was the first Internet service. The vast majority of websites simply provide unchanging, one-sided information (Goh et al., 2013).



While this was true in the 1990s and early 2000s, people's online communication shifted toward more active participation, including typing out responses as well as reading aloud. They are big fans of Web 2.0 (also known as Internet Social Networking) and often provide comments, queries, and original content on its many sites (Kaplan & Heinlein, 2010).

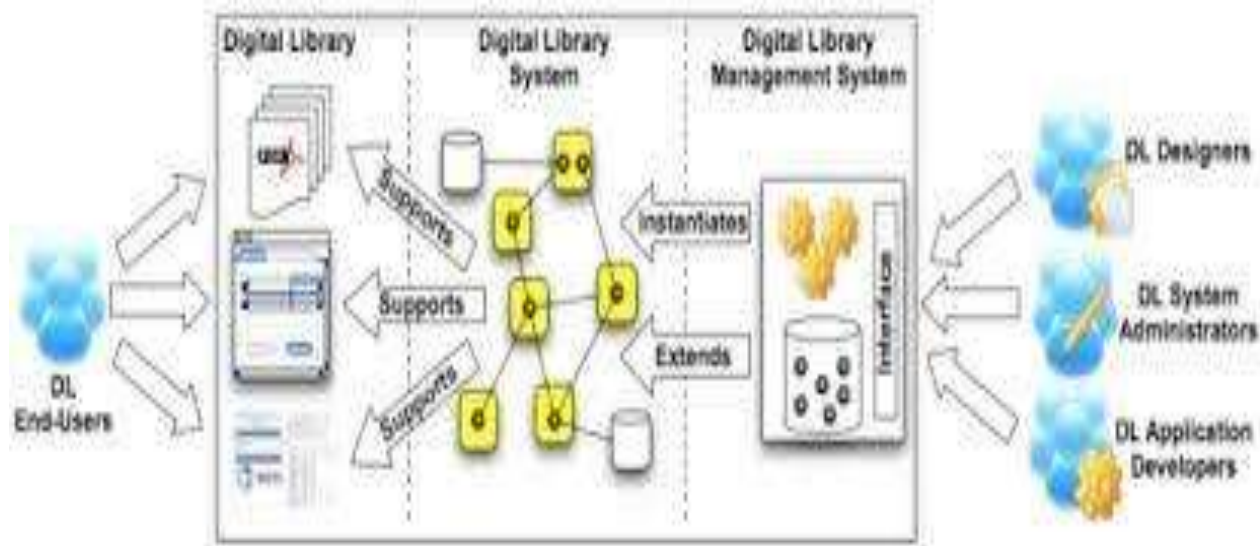
**Privacy Concerns in Social Media**

Concerns of public confidence are inextricably intertwined with discussions about individual privacy. Safety, relevance, repute, and "coolness" are the four pillars on which Gomes and Gold's (2010) trust pyramid rests. These scholars claim that libraries provide the widest range of ICT services to their communities (ICT). Even yet, library safety measures are mostly in place. Despite libraries' generally positive reputation for safety, there are surprisingly few that cater to women and children. When applied to the realm of social media, Ur and Wang's (2013) study reveals that user trust affects both user privacy behaviours and attitudes. Policies used by governments and social media companies to ensure the privacy of users' information.



## Digital Literacy

In addition, Khan (2020) stressed the importance of computer training programmes in his research. In order to get people to utilise social media in libraries, literacy is crucial. This is because his investigation has shown that the journalist has very rudimentary levels of digital information literacy. In the same vein, public libraries are places where people may come together. Implications for Information and Digital Literacy from Network Analysis Reveal Six Overarching Topics (Carlson, 2015). However, that is not the point. Using social media as a new facet of public library service, this is a void that must be addressed.



## Passive Library Social Media Sites

According to studies, many library accounts on social media platforms are dormant. Since their initial creation, several profiles have not been updated (Fasola, 2015). These are social media sites that affect user satisfaction may lead to library unfollowing. Xie and Stevenson (2014) also raised this issue in their study. They likewise expressed absence of guidelines for feeling of personality can undoubtedly confound clients in the context of social interactions. Media posts with cross-linking agencies.

## Discussion and Contribution

Improvements and new breakthroughs in theory are the foundation of this work. Some reasoning and evidence. Created an analytical structure to back up the hypothesis, and justify the need for the study's central question. User expectations for assistance Libraries to improve their services and meet user satisfaction. Because this study A user-centered category that analyzes expectations and perceptions from the user's perspective. Therefore, the results of this research will help libraries to develop guidelines for libraries. Methods for effectively disseminating content through social media. While conducting this research, the needs of the users can be identified, which help Libraries will understand their users better and use their needs to improve services. Libraries can develop services based on research findings to meet user needs. Each location of the Sabah State Library will have its digital collection catalogued as part of this research. It will serve as a manual for libraries to follow in order to maintain open lines of communication and information. Facilitate the use of information and communication technologies. Libraries may foster a help to limit computerized disparity and computerized education among clients nearby.





Help identify appropriate media or platforms for public libraries to engage with user. This research will provide light on what kinds of social media messages resonate most strongly with users. Spreading information through social media may be done in a variety of ways, including via text, images, and videos, among others. As a result, libraries may cater to individual tastes. One of the major contributions is increased user satisfaction through social media platforms this research. The results pinpoint causes of failure. Communicate through social media, which might result in user unhappiness on both sides. The library may make use of the data gleaned from user feedback. Take whatever necessary steps to make them better. Improving the quality of service to users from time to time is as important as improving user experience Satisfied. Therefore, the findings of this study will help to analyze the services provided to libraries and improve the quality of their services. Services should also be updated from time to time Timing is based on user requirements. If libraries do this, the user can be satisfied undoubtedly increased.

## Conclusion

In conclusion, social media is one of the communication tools and advertising tool. This chapter discusses issues related to public libraries and social media today. Privacy issues, the digital gap, a lack of digital knowledge, and social media apathy all fall under this category. Library-based social media accounts. The goal of the research is to learn more about the participant. Happy customers of the public library's social media pages. The authors conclude their analysis by discussing the implications their findings have for public libraries in general and for the, India in particular. The research's goals and questions will be shaped around the perspectives of the people who will ultimately benefit from the study: the people who make use of library reference materials.

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**E- Resources and Its Importance in Pandemic Situation****Mrs. Sunanda Vikas Patil**

Librarian,

Shakarbhushan S. K. Patil College Kurundwad

**Introduction:-**

The Government of India under prime minister Narendra Modi ordered lockdown from 24<sup>th</sup> March 2020. However there lockdown came with severe economic and social consequences, which has also presented unique challenges in the education sector. In response to the nation wide lockdown during march & April 2020, the school education sector was quick enough to shift its whole affair to online platform. Sudden developments of lockdown and shutdown many students to prepare for the examinations. This situation challenged the ways academic libraries used to function.

**Role of Librarian:-**

The sudden and unexpected outbreak of the virus forced, the library professionals to ascertain ways of working in a rapid time frame like shifting to digital platform .In fact library professionals have demonstrated their skills, empathy, and flexibility during lockdown to respond to the rapidly evolving situation. And in such circumstances the website an essential and dynamic platform to connect and serve the targeted users. But technology can not do this alone. In this unique and urgent situation the role of library professionals is very crucial to make their users aware about the facilities and services provided by them. All librarians have promoted their digital services during this pandemic situation. The future prospects of smart librarian would involve utilization of skill and knowledge where as the information is also recorded stored, retrieved and disseminated in the e-format at a large scale.

**What are E-Resources:-**

E-Resources is an electronic document . E-resources in which information is stored in electronically and it can be assessable thorough electronic system and new work environment. Instant access is quite possible with E-resources within a fraction of second E-resources have changed the whole nature of publication storage ,Transmission, delivery and use of information at academic libraries.

**Types of E-Resources:-**

- 1. E-Book:-** E-books is the many formats competing for prime time, including Adobe PDF, Microsoft Reader, eReader, Mobipocket Reader, EPUB, Kindle and iPad .
- 2. E-Journal :-** An e-journal is very important part of every library collection. E-journals are one application of information technology.
- 3. E-Newspaper :-** An E- newspaper is also known as online newspaper or web newspaper that exists on the World Wide Web or internet.
- 4. E-Magazines:-** An E-Magazine is very important part of every library collection. E-Magazines are one application of information technology.
- 5. Indexing and Abstracting Databases:-**These are the reference sources which provide bibliographic information about journal including abstracts of the articles.
- 6.Reference database :-**These are many Dictionaries, Almanacs, and Encyclopedias, which are available on internet in electronic format.
- 7. Statistical database:-** These databases contain the numerical data useful for the mass community.
- 8.Image Collection:-**Due to adventure of e-images facility this type of databases is developed.

**9.Multimedia products:-**This type of database are include images, Video's audio's and text etc.

**10.E-Thesis :-** These databases are contained with PhD thesis and Dissertation published through e-format.

**11.E-Clipping:-** The main objective of e-clipping is retrospective search and comprehensive analysis of new items.

**12.E-Patents:-** E-patents is the exclusive right granted by the government to make use of an invention for a specific period of time.

**13.E-Standards :-**Written definition, limit rule, approved and monitors for complains by authoritative agency.

**14.Full text database:-**Today's there are number of databases available on the network. They are either free or with charges. E-databases is an organized collection of information of a particular subject or multidisciplinary subject areas, information within e-databases can be searched and retrieved electronically.

### **Features of E-Resources:-**

- Easy access to information any where any time to any one without physical existence.
- Retrieval of e-resources is quicker than print resources.
- The user can be guided to the document by providing a link.
- Easy to search the text.
- The collection available in electronic format can be of any media.
- Ownership not that important.
- In electronic environment the interaction between user and librarian is frequent.
- The information preserves at standard interval and can be reserved always up to date in electronic media.
- Incorporation of special media (Image, sound, video) etc.
- Afford hyper links to related additional resources.
- It allocates interactive facility.
- The user can get the data in digitalized format so there is no need for printing & binding.

### **Need of E-Resources:-**

E- Resources enable the librarian to provide better service to user community.

- To get access to an information source by the more than one users.
- E-Resource can be found easily by the users.
- These resources can be stored in huge amount.
- Analyses the purpose of using e-resources by respondent.
- To collect, store, organize information in digital form.
- To promote efficient delivery of formation economically to all the users.
- To encourage co-operative efforts to save and share the investment in research resources, computing and communication network.

### **Advantage of E-Resources:-**

- It allows remote access.
- It can be used by many user simultaneously .
- It is interactive and allows interaction between author, publisher and users.
- It eliminates printing and postage cost.
- It does not require physical processing.
- It save the time of user.

### **Importance of E-resources in Today's environment :-**

- Special feature of E-Resource is easy access it helps students, researchers, scientist, lecturers to collect information& data from their personal computer or smart phone that keeps social distance and control spread of virus.



- E-Resources are helpful for teachers, lectures for online education , they delivered their lectures with the help of zoom, meet, Google meet, Google classroom etc. i. e. keeping social distance.
- Medical researcher can take information about virus from internet, news channel, you tube etc. it helps to find vaccination without going library.
- E-Journals publishing articles about washing method of hands, how to sanitize home, offices etc. This information helps people for prevention & control of spreading virus.
- E-News, you tube, whatsapp etc. sharing information about covid-19 speedily to aware the people about symptoms, social distance, use of mask, sanitization, quarantine method etc.
- E-Resource provide pleasure reading to all through E-Book, PDF books, Story books etc.

**Social networking sites:-**

In lockdown period social networking sites are also becoming useful for people & students for sharing their personal or social comments , images, video, thoughts, schedules to friends and relatives in their network. Social networking sites are use to share hobbies, stories, activities or real life incident. In this pandemic situation social networking sites playing vital role to develop better relation in library staff and users. It helps not only share information but also personal thoughts. i.e. Whats App, You tube, Face book, Twitter, Blogs, Linkendin, Orkut, Instagram, Googal etc.

**Conclusion:-**

E-Resources or Technological advancements have revaluation. The library services in this pandemic situation, information societies are seeking information in digital format, all types of libraries have promoted their digital services during the corona virus pandemic situation. The whole world is suffering with covid-19 pandemic every institution, industry and public domain has been affected with the corona virus. In this Situation E-resources have been a gateway of relevant information and knowledge for conducting research and development in the related subject areas. E-Resources playing a vital role in pandemic situation.

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**Application of Content Management System in Libraries****Smt. Sunita Jayant Shinde**

Librarian,

Arts and Commerce College, Kasegaon. Tal. Walva . Dist. Sangli

**Abstract :**

*The growth of Internet, the increased sophistication of web based tools, the intranet and campus networks within the organization have changed the role of libraries. Huge volumes of data are available in this networked environment for academic sharing. The success of the library depends on how effectively and efficiently they capture, create, manage and deliver the information contained in internal and external databases and websites. Most libraries do not have an effective way of making relevant, valuable digital content available to users. In this context, librarian can apply content management techniques that are designed to manage the content of websites and other databases. This paper provides an overview of Content management which includes concepts related to library created content, components of CMS. Using the content management system library professionals can create and update the website's. Attempt has been made here to focus more on Joomla Content Management System for library building website.*

**Keywords :** Content management Systems, Web Content Management, Joomla.

**1. Introduction :**

Libraries are repositories of knowledge and the tremendous growth in digital resources has forced library professionals to use various information technology tools to manage and render services to the users. To achieve greater efficiency in the rapidly changing environment libraries are increasingly looking for new paradigms to deliver services to users on their desktops. Library patrons appreciate the timely dissemination of information about library activities through the libraries websites. Creating and maintaining dynamic content on a website is great challenge for information professionals and library authorities, it requires money and professionals manpower. Compared to traditional website development, open –source content management systems are really viable in terms of functionality, cost and maintenance.

**2. What is Content Management System ( CMS ) ? :**

The definition of CMS is an application ( web-based ) that provides capabilities for multiple users with different permission levels to manage ( all or a section of ) content , data or information of a website project, or intranet application.

A Content Management System is publishing, editing, and changing content displayed on a web site's web pages. These types of web pages are commonly referred to as dynamic instead of static web pages because the HTML is assembled and served to the end user only when requested. Dynamic web pages are generated by using some type of built-in-functionality for managing and displaying the HTML content items as well as a variety of other data types , such as menus, contacts and web links.

“ A Content Management System is a combination of large database and file system which are used to store and later retrieve huge amounts of data. It is a system used to organize and facilitate collaborative content creation. Recently, the term has been associated almost entirely with programs for managing the content of web sites.

Managing content refers to creating , editing, archiving, publishing, collaborating on reporting, distributing website content data and information.

**2.1 Components of CMS :**

The Content Component database is stored .prior to being stored in the component database , the individual components (texts, pictures, videos etc ) are enriched with additional information ( metadata ) which facilitates their classification and their retrieval. The following are the components of CMS

- Portal
- Search
- Collaboration
- Business Processes
- Online Community
- Knowledge Sharing

### 3. Content Management Process:

Content Management is an inherently collaborative process. It often consists of the following stages

#### 3.1 Organization:

The first stage where categories are created, taxonomies designed and classification schemes developed.

#### 3.2 Content Creation:

Content is classified into architectural categories Content creator is responsible for creating and editing content.

#### 3.3 Storage :

Content format and storage decisions are made based on ease of access, delivery, security and other factors dependent on the organization's needs

#### 3.4 Workflow:

Rules are designed to keep content moving through various roles while maintaining consistency with the organization's policies. The workflow capabilities enable the co-ordination of collaborative web-based work, such as the collaborative creative and management of a website.

#### 3.5 Editing.

This step involves managing multiple content versions and presentation changes. Editor is responsible for turning the content message and the style of delivery, including translation and localization.

#### 3.6 Publishing:

Information stored in the repository is distributed or delivery to users this is called publishing. Web content management system comprises so-called publishing engines which generate web pages from the content stored in the repository and publish them to users. Publisher is responsible for releasing the content for use.

#### 3.7 Content Presentation:

The functional area of presentation is concerned with the standardized appearance of a website. The published pages must meet certain standards in order to be of value to the users.

#### 3.8 CMS Integrated Modules / Applications :

It is normally offer a wide range of integrated ready-to—use applications or features which are either available directly after installation of the Content Management System .

### 4. Joomla Content Management Systems:

Joomla is a free and open –source content management system (CMS) for publishing web content. It is built on a model-view-controller web application framework that can be used independently of the CMS that allow you to build powerful online application.

Joomla is one of the most popular website software's thanks to its global community of developers and volunteers. Who makes sure that the platform is user friendly, extendable, multilingual, accessible, responsive, search engine optimized and so much more.

It is a PHP based system for creating dynamic web pages. Joomla's Flexible and extensible structure allows functionality to be added using extension changing the display ( appearance and layout ) of the content to the 'end user' ( someone viewing a web site ) is achieved through the use of templates and modules.

Joomla is used all over the world to power millions of websites of all shapes and sizes.

Joomla can be used for

- Corporate websites or portals, intranet and extranets.
- Online magazines, newspapers and publications
- Small business websites
- E-Commerce and online reservations
- Community based , school and church websites on portals
- Personal or family homepages
- Government non-profit and organisational websites.

### 5. Characteristics of Content Management System using Joomla:

The following characteristics of CMS using Joomla are below

- 5.1 Protected Content :** It can make certain pages viewable only to people you choose. For example, you can allow visitors to your website to view all of your basic articles but require registration for them to view premium content.
- 5.2 Quick and Easy to Update. :** Content Management Systems allow users to add new pages to a website with minimal effort. Your entire website is managed via your administration control panel where you can add new articles, images polls and many other features via an intuitive interface.
- 5.3 Fast Search:** Using a CMS will allow your entire website to be searchable enabling people to find content fast
- 5.4 No need of Web Experience. :** Traditionally you would need to hire a web designer/developer to manage your website. Using a CMS eliminates the need to do this. Everything from the look and feel of your website to article management can be handled via your control panel.
- 5.5 Extendible:** Such as Joomla, have excellent resources of extensions allowing you to develop your website further and offer more functionality. There are hundreds of extensions available, including e commerce, Forums, Galleries classified Advertisement and so much more.
- 5.6 Scheduled Content :** With most Content Management System you can post date articles allowing you to publish them on a certain time or day of the work.
- 5.7 Consistent Design :** The article page will be created from a single template and no matter how much content you add, you can rest assured the look of your web site will stay the same.

### 6. Application of Content Management System in Libraries :

Low –cost computer and high –speed scanners make it faster and cheaper to digitize local collections, newspapers, photos, archives and documents and to post them on the Internet. At the college level , The Library content management stores and manages the college’s electronic documents, journals, magazines and other resources so that the students and faculty members of the college can reuse the information across different applications. The basic idea behind a library CMS is to separate the content management from design. Page designs are stored in templates while the content may be stored in a database or separates files.

Library Content Management Systems is a Web content Management system. A web content management system is a bundled or stand-alone application to create, manage, store and deploy content on web pages. Web content includes text and embedded, graphics, photos, and video, audio and code that displays content or interacts with the user. The following factors need to be considered to understand the application of content management in library environment.

#### 6.1 Collection development of digital content:

Digital content is being delivered in libraries that derive from different sources. Some of the digital data acquired by libraries includes purchased data bases on CD-ROM ,Online data sets are subscribed ,electronic publications with paper equivalent like indexes and abstracts, electronic journals, electronic reference works with or without paper equivalents, e-books etc.



**6.2 Organizing Information resources:**

Organization of the content involves provision of orderly structure that links relevant information of the content available and accessible. The manipulation of the captured content can be done by using metadata formats that provides a range of powerful solutions. The metadata can be used for capturing relationships and links between different pieces of information or related web pages. This of course is what exactly information professions are trained to do.

**6.3 Providing human and technologically moderated access to information:**

Library Content Management Software will be a web Content Management System and this will provide an online and easy access to all the library for the users wanting to access the resources that are store online. The students and teachers will no longer to have unavailability of resources and thus they can get an easy access whenever they want.

**6.4 Assisting users to identify, locate, obtain and evaluate information**

The library Content Management System has been designed and developed to fulfil all the requirements and needs for archiving the resources of a library. It will also come handy when the resources elsewhere for supervised learning as the user can save the articles of their area of interest for learning and research purposes. It will be very beneficial for those students who wants to read magazines or journals .but unable to do so because of the unavailability of the same.

**6.5 Digitization of in-house publication:**

Digital library services are originated from the Collection development and management practices implemented by library. They are acquiring digital content, content creation by digitization of in-house publications and copy righted literature, providing integrated access etc.Thus it will allow the digitization and archiving of magazines, digital video and audio materials so that users may annotate, analyse, evaluate and share materials.

**Conclusion:**

Content management is relatively a new concept in Library and information Centres The development of content and organization of the information sources using digital technology and disseminating the knowledge through ICT which plays a vital role in teaching, learning and research. The Content Management system in library improves productivity of staff , provides better experience and service to the library patrons. The scope for future work is wide open for the Library Content Management System .As the content management system have a wide range of applications, we can implement these features of CMS to this Library Content Management system .

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**Emerging Technology used in Libraries****Mrs. Sunita Shivaji Patil**Librarian, Arts and Commerce College, Ashta  
Tal-Walwa. Dist-Sangali (Maharashtra) 416301**Abstract**

*Advancement of Technology has more impact on library services from time to time. The emergence of technology has many solutions for libraries and the last decade is evidence for introducing latest technologies in library 1.0 Library 2.0, Library 3.0 has radically shifted the libraries from traditional to modern library services. Imagining the Library 4.0 technologies trends creates a model for future libraries and its user services. Emerging technology helps in trends creates a model for future libraries and user services. emerging technology helps in improving the quality products and services among the library and professionals. So to introduce and adopt the latest trends in libraries and libraries and library professionals. Knowledge and understanding the technology is more important. So this paper is an attempt to find out some of the major emerging technology trends for libraries and library.*

**Keywords :** Technology trends, libraries, library services

**Introduction**

Emerging technology can change libraries and library professionals and helps in stay up-to-date with recent technology trends which helps in developing the libraries. Benjamin Franklin, founder of one of the earliest lending libraries in America, once said, "When you're finished changing, you're finished." Fortunate for all of use, academic and research libraries (ARLs) are not finished just yet. At least, they are not finished according to NMC horizon Report 2017 Library Edition. In this report education and technology, experts identify six trends and predicated influence technology -related decision -making by academic and research libraries over the next five years, as they evolve into the libraries of the future. The professional library associations like ALA, ACRL and LITA have been working on the top technology initiatives that help for academic libraries to grow in higher education. ACRL Research planning and Review Committee has defined the top trends in higher education as they also related to the academic librarianship in 2018. The trends are related to current technological and educational environment including the impact of market forces, technology and the political environment on the libraries. Top trends of ACRL includes publisher and vendor landscape, fake news and information literacy, project management approach in libraries, text books affordability, and OER, learning analytics, data collection and ethical concerns research database acquisition, text mining and data science, collection management including acquisition, open access collection development, legacy print Collection etc.

American Library Association (ALA), center for the future of Libraries has been works to identify emerging trends relevant to libraries and the communities they serve promote future and innovation techniques to help librarians and library professionals shape their future and build connections with experts and innovative thinkers to help libraries address emerging issues. Till now, there are 37 seven trends ("Aging Advances Anonymity, Budgeting, Basic Income Block chain, Co-Working / Co-Living, Collective Impact, Connected Learning, Connected Toys Corporate Influence, Creative Place making, Data Everywhere, Design Thinking, Digital Natives, Drones, Emerging Adulthood Experimental Retails, Inequality, Internet of Things, Maker Movement, Micro-Mobility, Privacy shifting, Resilience, Robots, Sharing Economy, Short Reading, Smart Cities, Unplugged, Urbanization, Virtual Reality and voice Control") These trends are available to help libraries and library professionals to understand how technology advances library user services that can increase the value of libraries.

**Technology Trends in Libraries**

The Traditional library users ask question at the reference desk and check out physical books. But now library also has a new type of its users who brings number of electronic device and experts those devices to work

with the library's technology. They want to plug into the public computers, connect to their library's Wi-Fi network and upload and download content from their device to Face book, Integra or You Tube. They want to download eBooks, digital audio books, and music, recharge their devices etc. . The users love to read books, magazines, and newspapers are moving from to digital formats. Library professionals must be ready to help these customers find their news and entertainment sources in online and digital formats. Today, library professionals continuously involved in introducing technology-oriented services such as 3-D printing, RFID technology, digital storytelling, maker space, and artificial intelligence to needs of user diversity. The most important things is the library professional start thinking about current trends as every trends can be library trends and trends don't work in isolation. The future of libraries will be defined by the leading library professional who can understand the larger context of technology trends in which libraries operate.

### **Major Technology Trends For Library**

The study illustrates the major technology trends identified by the American Library Association (ALA), Center for the future of libraries. The major technology trends are Block chain, Connected Toys, Data Everywhere, Drones, Facial Recognition, Hap tic Technology , Robots, Unplugged, Virtual Reality and Voice Control. The world is constantly changing and adapting the new technologies from time to time. Identifying and understanding the technology trends for future libraries is essential for library professionals to plan and incorporate new solutions . The focus of technology trends to impact on society similar it also on libraries too. Some of the major technologies trends are briefly discussed below.

#### **Blockchain**

Block chain technology trends was used to distribute the database that organize data into recodes. It helps in improving digital badges, facilitating the transfer, authority, and reputation of awarded and another digital credentials. It promotes more secure and trusted, certification and it could expand across formal and informal learning that happens in academic, public, school, and special libraries American Library Accession.

#### **Connected Toys**

A New crop of toys takes advantage of trends in wireless connectivity, the interest of things, artificial intelligence, and machine learning to create highly personalized exchange between object and child. connected Toys, technology trends developed in response to children engagement in digital screens. IT builds the expert knowledge platform and rebuts education where children established the interaction. Connected toys support children digital educational goal

#### **Data Everywhere**

Data collection and management is an essential task in modern libraries, new technologies have great opportunity to collect, store, and analysis accurate user data and personal information. Data can be exposed to device such as mobile, iPod and other internet based devices. Data collection can use in the news to develop products and services, improve marketing and promote the content. Data services become valuable information services for libraries to content. Data services become valuable information services for libraries to connect the researchers with research across studies.

#### **Drones**

Drones are part of research, transpiration and delivery, artistic production, news coverage and reporting, law enforcement and surveillance, and entertainment. It will provide new opportunities for content creation and research. Users may expect drones to be part of the technology resources available from libraries. Additionally, video or survey content produced by drones may become content collected and managed by libraries. Drones can be used for creating content for library, collection data or as port mentions in his article, the drone can be used for delivery service for the library users who don't have the possibility to go to the library, be it because of the long distance to the library.

#### **Facial Recognition**

Facial recognition is a type of biometric technology that uses statically measurements of people's features to determine identify digitally. The facial recognition technology can be used in library to the identifying the

library walk-ins, it could replace the traditional library cards and who they are, Where they live, what books they checked out, and if any overdue etc. Though facial recognition allow for more ease in day-to-day life, it comes with significant security and privacy issues that might cause concerns for users.

### **Haptic Technology**

Haptic technology were first developed and introduced in the 1970s' and it become of home gaming consoles controllers, joysticks and starring wheels. Haptic technologies required for libraries to rethink their systems for describing, classifying, or even retrieving resources. Haptic technologies wil help libraries to make text-based or image resources available to broader audience, including those with visual or audio disabilities. Haptic technologies provide be the wearable technologies in which library users presumably were them into the library.

### **Internet Of Things**

Internet of Things is most influenced technology for the library services in the current days. Smaller computing, radio devices, cloud, user interface, gateway, analytical intelligence will sense and transmit the data(ALA, Internet of things,2018). IOT refers to the possibility of connecting everyday device and transferring data between them. It provides "opportunities for library applications, from tracking room usages and program attendance to monitoring humidity levels for special collections and more". Therefore , the library can offer a better use experience by enriching its service and collections.

### **Robots**

Robots were initially introduced into industrial and factory setting to accomplish task that were deemed too dangerous or difficult for humans and moved work, educational, research, and living spaces. There are the number of library who have already successfully implemented Robots, for example, the joe and Rika Mansueto Library in Chicago, Connecticut's Westport Library Which recently acquired two robots. "Robotic is the next disruptive technology coming into it... From an economic development perspective and job-and career-development perspective, it's so important ALA Robots. Libraries and other educational institutions may have a role in developing new skills for displaced workers and improving skills so that workers and improving skills to that workers can transition to new roles and responsibilities in environments where robots assume significant portions of the Workflow.

### **Unplugged**

Unplugged technology provides the constant connect with an immense amount of information news, e-mail, social network etc. Modern libraries are capable of using the unplugged technology in the quiet spaces to marketing at least some spaces in the library building as unplug, concentrate and focus. It may be renamed as "Quiet reading spaces "quiet reading spaces" to "unplug zones" or "digital escape spaces" in the technology trend's languages. Unplugged benefiting for both professional and personal experiences and it more essential for reflective, or quietly focus on specific work activities and it more essential for reflective, or quietly focus on specific work activities.

### **Virtual Reality**

Virtual Reality technology is the computer-generated simulation that provides users with the headset which transports them to immersive destination . Today's libraries have an opportunity to offer the Virtual Reality services to their users bring virtual reality to education with many innovators focusing on two of key services of libraries: collection and spaces. In the Wonder Lab at the Ferguson Library in Stamford, Connecticut, Connecticut, and California State Library, users are getting to play with virtual reality, and even learn how to code entire VR games from scratch.

### **Voice Control**

Voice Control technology provides a new options for interacting with computers and technologies through advanced machine learning, speech recognition natural language. Voice-controlled technology could also change the way people access and "read" content. Library children users and young users will grow with voice-controlled technology, becoming more accustomed to having these device answer homework questions, settle disputes, and



entertain them. The virtual assistants of voice control become more intellectual equalizers, substituting in for a superb memory or acting as an on-hand reference.

### Conclusion

The rang of technology trends have presented about and these trends useful to implement innovative technological library services. As the 21<sup>st</sup> the roles of libraries play in the connecting communities and users with knowledge creators. Information becomes more digitized and omnipresent; technological advance makes an impact with social change on the skills required of virtual library professional to deliver the value users services against traditional library services. Most of the virtual libraries exist, without physical space and there is massive technology developed that can be great addition to the user's experiences. The main mission for every user through digital use and implementation of emerging technologies. The main mission of the libraries to offer the best library services and provide the equal access to information for every user through digital use and implementation of emerging technologies. The rise in popularity of electronic resource access including e-books , digital libraries transforming the traditional libraries to digital centers featuring computer and Wi-Fi access. Technology trends have the potential impact on the higher education and can be used be in primary, secondary and higher education. The future libraries will become an intelligent library .Where no only inference and research are available, but the system will information by itself and discuss finding with users like a colleague.

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## Emerging Technologies Used in Libraries

**Swapnil Chhogalal Sonawane**

Librarian, Hon'ble Judges' Library,  
High Court of Bombay, Bench at Aurangabad

**Dr. Sudesh Nasiket Dongare,**

Librarian, Deogiri College, Aurangabad

### Abstract:-

*Application and execution of new trends and technologies in different areas of libraries, innovative changes in working system of library with the help of new trends. Though we are in the era of information & technology, there are very few libraries implementing the new technologies. There are various problem for the execution of these technologies such as money, unskilled staff, sufficient space, etc. Librarians are expected to familiar with the system in order to adapt the technologies to provide the best services to the users. Emerging technology identity, evaluate and implement the application of current and emerging technologies for the use in the library services and management. Technological advancement has brought tremendous change in library and information services. Application and execution of new trends & technologies in libraries have resulted in a meaningful, effective and substantive change in libraries, their collections, services and method of delivery of services.*

**Keywords:-** Emerging technology, librarian, global trends, networking of libraries, RFID, ICT (Information & Communication technology), innovation, Artificial intelligence, Blogs, covid-19.

### 1] Introduction: -

Today, technology plays a vital role in every field of our day to day life. It changed the world by the impact on every individual, organisation, Government and non-government bodies etc. Though it is the fact, in this world of information and technology very few libraries are using the various technology for its users. We can say only academic libraries mostly seen by using technological advancement. This picture was seen in the last decade, but after the covid-19 (post corona period), suddenly it has changed. The new trends and technologies, the rapid growth of information communication technology (ICT) has put a great impact on librarians also. This technology has changed the libraries from traditional to digital library, virtual library, hybrid library, library without walls, library 2.0 etc. As a result in post covid-19 era, libraries have been exploring the collections of potential e-resources and providing remote access to the users.

### 2] Method:-

The method of this paper is the collection of literature of earlier research as an information and data sources. This information is collected from various earlier research papers, conferences, thesis and other relevant material. Author collected it by searching on the internet, some other reference books also plays an important role for this paper.

The study findings will provide an accurate picture of current hiring trends & the opportunities through the review of related literature.

Conclusion from this study will inform the recent trends and technologies in libraries and the scope of development in the neglected areas.

### 3] Emerging Technologies in libraries :-

Application of ICT gives a birth to many new technologies. With the application of these new technologies in the libraries the working of libraries has totally been changed. Now a days libraries are providing the unrestricted access of information in many ways and from many resources. Libraries have also started to provide the services of specialists who are expert in the fields of information and communication. Emerging technologies has affected the libraries in the many different ways

Following are some of the important emerging trends and technologies which can be used in libraries. We will discuss in brief.

**1) Instant messaging (IM) -**

Instant messaging or IM is a form of real-time, virtually instantaneous communication between two or more people using textual format. Libraries are already deploying IM for providing “real-time reference” services, where patrons can synchronously communicate with librarians much as they would in a face-to-face reference context. Software used in libraries for “live reference services” are usually much more robust than the simplistic IM applications. This software often allows co-browsing, file-sharing, screen capturing, and data sharing and mining of previous transcripts. Libraries can benefit greatly by adopting this technology as it evolves since it facilitates reference services in an online mode quite similar to traditional reference services of the physical library.

**2) RSS Feed ( Real Simple Syndication or Rich Site Summary)-**

RSS stands for Real Simple Syndication or Rich Site Summary. The technology, on one hand allows a web site (or e-publisher) to list the newest published updates (like table of contents of journals, new articles) through a technology called XML; on the other hand, it facilitates a web user to keep track of new updates on chosen website (s). Like a personal search assistant, RSS feed readers visit pre-defined web sites, look for updated information and fetch it automatically on to the user’s desktop. It provides users a way to syndicate and republish content on the Web. Users republish content from other sites or blogs on their sites or blogs, aggregate content on other sites in a single place, and ostensibly distil the Web for their personal use. Libraries are already creating RSS feeds for users to subscribe to, including updates on new items in a collection, new services, and new content in subscription databases. They are also republishing content on their sites.

**3) HTML Feeds -**

HTML feeds are basically RSS feeds converted into HTML codes so as to facilitate peer-to-peer interaction amongst researchers and sharing of RSS search results. The HTML codes can be placed onto the web sites and the resulting HTML feed can be customised to compliment the page. HTML feeds allows quicker access information to visiting users. The Elsevier Science has implemented HTML feeds for Scopus, the citation database from Elsevier.

**4) Streaming Media -**

Streaming multimedia is sequential delivery of multimedia content over a computer network that is displayed (or played back) to the end-user as it is being delivered by the provider. The streaming of video and audio media is an important application that existed before Web and finds its application in Web too. With availability of computer and network infrastructure to support multimedia streaming, library instruction delivered online began incorporating more interactive, media-rich facets. The static, text-based tutorials are being transformed to multimedia-based interactive tutorials. Several tutorials use Flash programming, screen-cast software, or streaming audio or video, and couple the media presentation with interactive quizzing; users respond to questions and the system responds in kind. Tutorials were the first library applications to migrate into more socially rich Web. Besides its applications in computer-generated instructions, streaming media would also be available increasingly in its collections. As media is created, libraries will be responsible for archiving and providing access to them. Libraries are already beginning to explore providing such through digital repository applications and digital asset management technologies.

**5) Podcasting-**

The word “pod casting” is derived from two words, namely “broadcasting” and “iPod” (popular MP3 player from Apple Computer). Pod casting is defined as “process of capturing audio digital-media files that can be distributed over the Internet using RSS feeds for playing-back on portable media players as well as computers. Users can subscribe to such feeds and automatically download these files directly into an audio management program on their PCs. A podcast is distinguished from other digital media formats by its ability to be syndicated, subscribed to, and downloaded automatically when new content is added, using an aggregator or feed reader capable of reading feed formats such as RSS or Atom. Several libraries use podcasts to support library orientations programmes. Taking advantage of podcasting and other consumer technologies as a deliver media of Library’s content and services is a great leap forward for library profession.

**6) Vodcasting-**

The “VOD” in Vodcasting stands for “video-on-demand”. It is identical to podcasting. While podcasting is used for delivering audio files, vodcasting is used for delivering video content. Like podcast content, vodcasts content can be played either on a laptop or on personal media assistant device (PMA).

**7) SMS Enquiry Service-**

Short Message Service (SMS) is a mechanism of delivery of short messages over the mobile networks. The SMS enquiry services in a library allow patrons to use their mobile phones to SMS their inquiries to the library. The reference staff deployed to attend to such queries can respond immediately with answers or with links to more in-depth answers.

**8) Blogs-**

A blog is a website, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other material such as graphics or video. Entries are commonly displayed in reverse chronological order and they are usually considered as lightweight publishing tools. Blogs provide control to an individual or group of individuals for publishing contents or making commentary on it. Technologically, blogs are easier to use, platform-independent, and accessible online over the Internet. Broadly, blogs can be said to be online dairies, however, thousands of blogs are maintained by experts in different subject areas who are willing to share their knowledge, understanding and opinions with other people. Michael Casey, who coined the term Library for example maintains a blog called Library Crunch on Library. The most obvious application of blogs for libraries is to use it as a tool for promotion, publicity and for outreach services. Libraries can disseminate information to their users; make announcements for its new resources and events through its blogs. Blogs can be used to initiate debates and interaction amongst users and staff. Moreover, library staff and user can be encouraged to use Library blogs to get to know each other and interact at personal level.

**9) Wikis-**

A wiki is a collection of web pages designed to enable anyone who accesses it to contribute or modify content, using a simplified mark up language. Wikis are often used to create collaborative websites and to power community websites (Wikipedia, 2008). For example, the collaborative encyclopedia, Wikipedia is one of the best-known wikis, that has broken down one of the golden rules of librarianship, i.e. content validation and authenticity of information. Wikis are also used in businesses to provide affordable and effective Intranets and for knowledge management. Wikis can essentially be equated to open web-pages, where anyone registered with it can publish on to it, add to it, amend it and change it. As in case of blogs, Wikis do not have reliability as traditional resources. In spite of this, their value as information resource cannot be undermined. Libraries can use wiki as a communication tool to enable social interaction among librarians and patrons. Users can share information, ask and answer questions, and librarians can do the same within a wiki. Moreover, a record of these transactions can be archived for perpetuity. Transcripts of such question answer sessions would serve as a resource for the library to provide as reference. Furthermore, wikis will ultimately evolve into a multimedia environment, where both synchronous and asynchronous audio and video collaborations will take place.

**10) Social Networks-**

A social network service is web-based software that facilitates creation of virtual social networks for communities of people who share interests and activities or who are interested in exploring the interests and activities of others. Most social network services are web-based interfaces that facilitate community of users to interact with each other deploying tools such as chat, messaging, email, video, voice chat, file sharing, blogging, discussion groups, etc. FaceBook, WhatSapp, YouTube, e.t.c. while FaceBook and WhatSappenable users to share themselves with one another (detailed profiles of users' lives and personalities), YouTube enables users to share Videos on the web resources. Social networking services could enable librarians and patrons not only to interact, but to share and exchange resources dynamically in electronic environment. Users can create accounts with the library network service; see what other users have in common to their information needs, recommend resources to one another. Besides, libraries can also recommend resources to users through their network, based on similar profiles, demographics, previously accessed resources, and a host of data that users provide.

**11) Tagging-**

A tag is a keyword or term or subject heading assigned to a piece of information (a picture, a geographic map, a blog entry, a video clip etc.), thus describing the item and enabling keyword-based classification and search of information. Tags are usually chosen informally and personally by author/creator or by its consumer/viewers/community. Tags are typically used for resources such as computer files, web pages, digital images,



and Internet bookmarks. While cataloguing is a fundamental skill of librarians, but the art of tagging is essentially a prerogative of user which enables them to assign keywords to a piece of information or object. The user can define and categorize information based on his or her own perception of given piece of information. In Library, users could tag the library's collection and thereby participate in the cataloguing process. The best thing about tagging is that everyone is allowed to categorize the information the way they want. The catalogues of Library would enable users to follow both standardized and user-tagged subjects, whichever is more convenient or makes better sense to a user. In turn, they can add tags to resources. The user responds to the system, the system to the user. This tagged catalogue would be an open catalogue, a customized, user-centered catalogue.

#### **12) Social Bookmarking Services -**

Social bookmarking is a method of storing, organizing, searching and managing bookmarks of web sites using descriptive metadata. In a social bookmarking system, users can save links to web pages that they want to remember and /or share with other users. These bookmarks can be made public, or saved privately or shared only with specified people or groups of people. The authorized people can usually view these bookmarks chronologically, by category or tags, or via a search engine. Most social bookmark services encourage users to organize their bookmarks with informal tags instead of traditional browser-based system of folders, although some services feature categories/folders or a combination of folders and tags. These services also enable viewing of bookmarks associated with a chosen tag, and include information about the number of users who have bookmarked them. Some social bookmarking services also draw inferences from the relationship of tags to create clusters of tags or bookmarks. Libraries can make use of social bookmarking sites using RSS feeds for subject disciplines or in areas of specialization relevant to them.

#### **13) Hybrid Library-**

The hybrid library is a term used to describe libraries containing a mix of traditional print library resources and the growing number of electronic resources. Hybrid libraries are mixes of printed books and magazines, as well as electronic materials such as downloadable audio books, electronic journals, e-books, etc. Hybrid libraries are the new norm in most public and academic libraries.

#### **14) Automated Library-**

A library where access points and housekeeping operations are computerized is called an automated library. The graphic records are still print-on-paper publication.

#### **15) Digital Library -**

A library in which a significant proportion of the resources are available in machine-readable format (as opposed to print or microform), accessible by means of computers.

#### **16) Block chain-**

It is a chain of blocks or a list of linked records by using cryptography. The concept of Block chain was introduced in 2008 proposed by Satoshi Nakamoto to create a purely peer-to-peer version of electronic cash which would become the digital bitcoin currency in 2009. Applications of Block chain in Library

- To build a metadata system for libraries
- To protect digital first sale right
- To connect the network of libraries
- To host digital peer to peer sharing
- To share partnership across organisations.

#### **17) Cloud computing-**

Information Technology plays a vital role in handling library resources management. Libraries are shifting their services with the attachment of the cloud with the facilities to access anytime, anywhere. Cloud computing offers many exciting possibilities for libraries that may help to increase performance for some technology activities. With the help of this technology, library staff will be free from managing the servers. It is commonly seen that it is difficult for library professionals to work with the technologies. Cloud computing technology can be of immense importance in helping libraries undertake library activities' automation.



**18) Artificial Intelligence-**

Computers provide the perfect medium for the experimentation and application of Artificial Intelligence technology in the present Era. Artificial Intelligence has more success at intellectual tasks such as computer-based game playing and theorem proving than perceptual tasks. Sometimes, these computer programs are intended to stimulate human behaviour and are built for technological applications, such as Computer-aided instruction. In many cases, the main goal is to find any technique that does the task quickly in a better way.

**19) Remote Access an E-resources-**

This type of library service was provided during pandemic. During the Covid-19, when one cannot go anywhere and it was a slogan "stay home stay safe", at that time dissemination of knowledge was not stopped at all. E-resources have paved a way to enhance educational standards, especially during this pandemic. Many Universities and Colleges have widened their E-resources to access remote areas, especially outside the Campus of the educational institutions.

**20) SWAYAM online courses -**

During the lockdown time, the UGC has taken initiatives to strengthen the academic community of our country. All the resources are available in the digital platforms that can be accessed by teachers, students and researchers in various colleges and universities for widening their areas of learning..SWAYAM is India's national MOOC platform. It offers over 2,150 courses taught by close to 1,300 instructors from over 135 Indian universities.

**21) Web based services-**

Modern libraries have also started the web based services to provide the more comfortable services to the library users. These services include web access of e-materials like e-books, e-journals, e-thesis etc. Users can get the user id and password from the library and can access the material on the library website by filling the user id and password. Even the users can make queries, see any notification from the librarian, and make chatting with the librarian etc on the web by using the Web2.0 services. Author in7 Web 2.0 has make a revolution in the field of library and made the Traditional Libraries to Library 2.0. Web 2.0 is a two way web technology in which user can read and even write any information on the web. Web 2.0 services include: Folksonomies and social tagging, Video Sharing, Photo Sharing, Instant Messaging, Social Networking, Blogs and Wikis, Scencasting, RSS Feeds, Web Mashups, Podcasting With the help of above said services user can read and write the important information anytime and at anywhere without the constraint of time and place. These services have challenged the working of librarians because now librarians should be very much known to these technologies otherwise they can provide the latest services to the users.

**22) Web OPAC-**

Web OPAC (Online Public Access Catalogue) has also changed the working of libraries to much extend. Now with the help of Web OPAC users can check the availability of any library material on the Web without leaving the place. Web OPAC is a catalogue of library material which tells us that the required material is availability or not. Users can fill the Username and Password on the Library Web site and can use the OPAC.

**23) Intelligent Return and Sorter System-**

In conventional Library System the entire library functions such as check in/ check out of items and shelving of items is done manually. This is time consuming task and also misplacement of books and other items is quite common. With the automation, all these problems can be avoided. There is an Intelligent Return and Sorter System which is used in libraries for automating their check-in and sorting process<sup>8</sup>. Users can quickly self return their issued items with "real-time check-in". Users can be assured that items have been returned by receiving return slips from the machine. These systems are designed specifically for libraries with limited space. The technology utilized by the sorter for directing items into the bins reducing damage to items. It is easy to use and can also perform administrative tasks such as configuring receipts, generating statistics and system diagnostics. The Intelligent Return and Sorter System help in decreasing the time, helping to increase staff productivity while enhancing user satisfaction.

**24) Networking of Libraries -**

ICT has made possible of networking of libraries within the country or even throughout the world. Networking of libraries has increased the services of libraries for the users. With the help of networking, users can use the material of other libraries with whom the present library is connected<sup>9</sup>. With the help 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 Delivery and Access to Digital Material etc. They can also arrange the combine

Tutorials, Workshops, Lectures, and Training Programs etc. There is much professional news which can be share by the librarian. There are many more benefits of networking also like libraries can take the advantage of Library Consortia, in which libraries can make collective purchasing of library material and can avail higher discounts on bulk purchasing. So, networking of libraries also help in saving the money. here are many Indian library networks are present e.g., INFLIBNET, DELNET, CALIBNET, ADINET, SIRNET etc.

#### **25) RFID -**

RFID (Radio Frequency Identification) is the latest wireless technology to be used in library theft detection systems. It is another form of automated identification system. Earlier EM (Electro-Mechanical) and RF (Radio Frequency) systems were used in libraries for decades but RFID-based systems move beyond security. They provide tracking systems that combine security with more efficient tracking of materials throughout the library. Besides security they provide easier and faster charge and discharge, inventorying, and materials handling. RFID in India was developed in the 1940's for defense applications. Ist time it was used for commercial purpose in 1980 for cattle tracking applications. Recent interest is in making RFID technology more ubiquitous in the global value chain. The first Library suppliers started to market their systems in the mid 1990's. RFID has automatically checkout, anti theft and inventory control system. It contains two parts one is integrated circuit for storing and processing information. Another is antenna for receiving and transmitting the signals. In RFID system, RFID tags are placed on the library items when these items comes under the range of antenna without requiring a line of sight, it transfer the information to the computer system, if it is not issued then a siren is burst out. This technology is same as bar-coding system but it is very much refined and improved then bar-coding system.

#### **4] Conclusion :-**

Information technologies are already a firm part of daily life. Rather than trying to assess how tenhnologies wil change our lives, we should accept these technologies as another set of tools and proceed to make the best use of them for the library and all of its users. We must, however, seize the initiative to ensure that we control and are not controlled by, the technologies of the future. Applications of new technologies in libraries have resulted in a meaningful and substantive change in libraries, their collection, services and methods of delivery of services. The concept and practice of providing remote access to e-resources by libraries are not new. Still, the user-friendly way adopted by many libraries and the number of resources made available by them during the pandemic is exemplary. The above mentioned new technologies that comes in the field of library and its uses in the different librareis, these technologies have given a challenge to the library professionals. i.e they should have proper knowledge of these new trends and technologies and should be well qualified so that they could use it easily. But these new technoloiges don't reach to every library mainly because of money and awareness.

Emerging technologies provide libraries with a uniqe opportunity to substantially enhance user centred services and to facilitate and promote collaborations between libraries and their users in this digital era. These new trends, services and emerging changes are likely to make libraries more interesting, more relevant. With the growing intervention of technology, challenges related ot it also grows equally. Therefore it is necessary for library resources and servies to go in sync with the emerging library technologies.

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**Changing Nature of Academic Libraries & Librarians****Mrs. Patil Ulka Arun**

Librarian,

Bharati Vidyapeeth's M.B.S.K. Kanya Mahavidyalaya,  
Kadegaon, Dist. Sangli 415 304 (Maharashtra)**Abstract:**

*Library is considered „the heart“ of an institute offering higher education. The role of library in higher education is much more important since library is considered a prime requirement in Education. Academic library is the vital component which develops the teaching-learning and research activity. The fundamental objective of a library is to make available reliable information to their clientele in a timely, accurate, pertinent manner. The traditional methods of accessing library services are being altered. Academic libraries are changing their methods of service delivery; they are experimenting with mobile devices and providing services to support the information needs of their users irrespective of time or distance. The new technology has important role to play in academic libraries. By using this technology, academic libraries are helping users access the vast amount of library resources, evaluate and select the best information for their specific needs. E-learning is adapted readily adapted by teachers and library plays important role in providing them authentic resources.*

**Keywords:** Academic Libraries, Librarians, information literacy, critical information literacy, student Success, academic success

**Introduction:**

The digital age has changed the way libraries operation. In the case of the academic library renovate the collection and the space in which the library operation has been a constant follow to keep up with the changing goals and roles of information communication and technology. The main change to happen to the academic library was a change in the way of compilation were curated and expanded. The electronic information age, we all need to learn how to use efficiently and effectively the huge variety of information and communication technology for information search, discovery, organization, investigation and assessment Information and knowledge Technologies are changing and becoming more complicated day by day and librarians need to approve them for providing better services to their users. Here we see the changes in the role of library and librarian in education due to ICT. Librarians assist faculties and students to search out their information needs, critically evaluate the materials they locate, and use technological means to synthesize their findings into new knowledge. Librarians must become skillful in the use of the new technologies to promote them and educate students and teachers in their use. As students become more self-learners, the librarian acts as a resource person in the mission for supporting information and the development of appropriate presentation strategies. Mobile technologies refer to handheld devices which can be accessed through a mobile device ranging from a cellular phone to an iPod Touch. Mobile technologies are distinguishable by their small size and portability, their portable nature and communication options provide easy access to the Internet from a single device<sup>2</sup>. The invention of mobile phones such as smart phones, tablets, iPads, iPhones, e-book readers and netbooks which have advanced computing abilities, complete operating systems and Internet connectivity has enabled seamless access to information irrespective of time or distance.

With the advent of the computer, the nature of libraries has changed dramatically. Computers are being used in libraries to process, store, retrieve and disseminate information. As a result, the traditional concept of the library is being redefined from a place to access books to one which houses the most advanced media, including CD-ROM, internet, and remote access to a wide range of resources. Today libraries are surrounded by networked data that is connected to the vast ocean of internet-based services. Moreover, electronic resources relevant to the



professions are developing at an unprecedented pace. Academic libraries are considered to be the nerve centers of academic institutions which support teaching, research, and other academic programs in various ways.

### **Changing Role of Academic Libraries:**

Academic libraries have always been regarded to be the nerve center of universities as these are responsible to support the teaching, research and other academic programs of the university. Now these libraries are passing through a phase of great transition being influenced by social, political, economic and technological developments that are taking place in the society. The era is over when academic librarians were involved in housekeeping jobs like classification and cataloging, etc. Now they have to act as the knowledge navigators and change facilitators to fulfill the clientele's specialized needs. For this, it has become essential to use cutting edge Technology tools and techniques. The re-engineering of the teaching and learning framework is under way in the progressive universities worldwide. This provides a window of opportunity for their libraries to demonstrate their existing and potential contribution to educational change.

- Literacy programs
- Outreach programs
- Library exchange activities
- Support and input of members of the community

### **Special Features of the 21<sup>st</sup> century libraries they are as follows.**

#### **1. Library Automation –**

Libraries have automated adapting library software's. At the initial stage these software's were homemade, prepared by the ICT department of the parent organization. This software's played very important role in library advancement. They were cost effective & therefore implemented easily. Some libraries have chosen the option of (free) software's available on internet.

#### **2. Library support software's –**

The software are gaining importance day by day as they are adding a huge value for the library services. Now libraries are adopting multiple software's for different library tasks as well as enhancing library function. This software's play quite important role as they improve the quality & efficiency of special information services in the library usually these software's are available free of cost on the internet & quite user friendly.

Training programs are also organized for them. There are software's like D-Space, Greenstone are used for digitizing library material. The software Zotero is useful in literature search and organization essential for research purpose. To develop information literacy modules software Moodle is useful.

#### **3. Electronic Resources –**

They are the books, periodicals, reference sources etc. converted or produced into electronic formats. Audios, Videos, different kinds of presentations are also included in them. They reduce storage space in the library, save paper and can easily send at distinct places also. E resources can be stored and communicated in different forms like audio, video, computer CD's, pen drives, portable hard discs etc. Internet technologies, Wi-Fi, Bluetooth technology are the most commonly used technologies used to share the information. A digital library is emerging in the academics day by day that serve the archival function of the libraries also. Many libraries are developing their own institutional repositories in E format. A library webpage gives all these links and services are provided to the remote users.

#### **4. Library Organization –**

The role of library is changing from administration of stock house to the service providing industry. The staff has to work accordingly and to be in the mode of continuous advancement. There is a significant change in library services, library facilities and thus a change is required in the library rules, regulations, and facilities and even in the timings. As discussed earlier users may not be dependent on the libraries as they used to be till last

century to get their required information. In academic environment the libraries has to play vital role in other institutional activities. In such situation they have a challenge to attract the users and maintain their importance in the organizational structure. They have to influence students by providing extensive study material and other value base facilities. In such situation providing maximum services is a challenge. Libraries having stack room, counter and office at least should maintain reading area, a computer section having communication facilities like Wi-Fi, data browsing and transfer etc. This is the changing organizational pattern of the library.

#### **5. Inter – Library co operations –**

Libraries are started working in groups with easy linkages and developing themselves as giant providers of information services. In academics environment projects like INFLIBNET, DELENET have proved very helpful. Library consortia are boon for small low budge libraries. Library professionals having different designations like information officer, knowledge manager, documentation officers etc. have joined together and formed their groups like ‘Indian Librarians online study Circle’, Professional Librarians’, etc. Many such groups are created by using mobile technologies like ‘Whatsapp’. These groups play important role in exchanging ideas, solving problems, updating knowledge and serving to library users also.

#### **6. Information communication Technology in Libraries -**

Libraries which were considered only as the storehouses of knowledge have got a new outlook in the modern information communication Technology era. The activities which were carried out manually in libraries with so much of pain and strain are being carried out smoothly with the help of information Communication Technology with greater effectiveness. Library organization, administration and other technical processing have become easier and more quantum of work can be done in relaxes mood.

- InformationCommunicationTechnology enables one:
- To capture, store, manipulate, and distribute information
- To introduce and provide new services, Revitalize the existing services by providing faster access to the resources, by overcoming the space and time barriers;
- To provide need- based, browsing and retrospective search services to the users;
- To have large number of databases in CDs;
- To utilize the staff for providing better information services;
- To develop/ upgrade the abilities to professionals;
- To encourage networking and resources sharing at local level;
- To digitize the documents for preservation and for space saving;
- To supports library functions such as circulation, serials control, acquisition control, stockmaintenance and other routing office works and developing in house database;
- Ti access library catalogues databases of other libraries through library networks;
- To improve the efficiency of library functions; and improve the cost effectiveness of library operations.

#### **Conclusion -**

In the last century the professionals tried to adopt the new technology and tried to move ahead. The present situation the changes are veryfast and to keep a pace with them is a real challenge. In the era of information explosion there is a big struggle of existence .The libraries need administrative as well as financial support. The librarians have to orient themselves through short term or long term courses, workshops and seminars. Information Communication Technology is a key technology. Therefore in the age of information, every librarian should aware the latest trends in library and information science theory as well as in practically.

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**Green Libraries A New Portfolio for Librarian****Mr.Balaji A.Kamble**

Librarian

Hon.Shri.AnnasahebDange ACS College, Hatkanangale

**Dr.Shivaji Narayanrao Sontakke**

Librarian and Vice Principal

Kai Rasika Mahavidyalaya, Deoni

**Abstract**

*'Green concept' has become a trendy discussion not only among the library professionals but also in other fields as a result of severe environmental issues faced by the entire mankind. Besides other countries have already taken better solutions based on green concept and done various researches but rarely seen in the library Science field in Sri Lanka. Therefore, the purpose of this article is to examine the green library concept as a new vision to the library science field. This article will be a supportive document to fill the knowledge gap of articles on green library concept in Sri Lanka library system.*

*Keywords: Library Building, Green Library, Sustainable Library, Green Concept,*

**Environmental Issues****1. Introduction -**

It has something to be wondered, in this information and technology seeking era why it is necessary to discuss and go back to the "Stone Age" in which period of time the whole life of human beings fully depended on the environment. Not only Sri Lanka but also the whole world faces severe environmental issues with the rapid change of modern technology. With the industrial revolution, the ruling authority went to the fascists' hands. The capitalism emerged in the world resulting huge gap between developed and developing regions and countries. This gap could create an inferiority complex in the people of developing countries. Even self-sufficient countries such as Sri Lanka, could not protect themselves from this trap. Next, the powerful countries which owned only tactful and foreseeing sapience as well as marine technology were able to migrate and establish the colonialism. This was the tap-root of today's environmental issues. Construction of railways, expressways, plantation of extrinsic crops such as tea, rubber instead of valuable compatible crops was major causes for these long-term environmental issues. The green library or sustainable library is a new concept and it is gaining popularity among the library professionals. Green Library Movement which comprises of librarians, libraries, cities, towns, and college and university campuses committed to greening libraries and reducing eco-degradation. Environmental destruction sets of a downward spiral of ecological deterioration. The paramount goal of green buildings is to develop and use sustainable energy-efficient resources in construction, maintenance and overall life of the structure. Green Libraries can serve the way libraries have always served as landmarks in their communities and in a way provide pleasant environment to the user community. Libraries must respond to this increasing focus on Green Movement and should simultaneously act as role models for sustainability by reeling of suitable and relevant information related to green issues and concerns. The "Green Library" movement came out in the 1990s and gained instigation in 2003. A green library also called a sustainable library that's designed, constructed, repaired, and operated with environmental enterprises in mind. It refers to a structure that certifies the library as an environmentally friendly structure. It's concerted trouble of all mortal beings to make green earth by lessening global warming. Green libraries contribute towards supporting the natural ecological balance in the terrain and conserving the earth as well as natural coffers. It also improves the diurnal operations and processes of the library and intimates the community about responsible environmental practices.

**2. Review of related literature-**

W. W. S. Thrishala Warnasooriya (2019) published a article entitled 'A New Vision to LIS field: An Overview of Green Library Concept University of Kelaniya' the researcher explained the green library concept and existence of green libraries in , Sri Lanka Machhindra S. Bangar (2018 ) discussed in the article title as 'Green Libraries in India: An Overview' the researcher stated that green library is need of time to build a image libraries



in different manner appeared in the 1990s. February 1991 issue of The Wilson Library Bulletin had a special section on “Libraries and the Environment.” LeRue and LeRue (1991) in that article, the LeRues explained in detail how to be environmentally supportive at home and in the library. Brown (2003) studied that the emerging trend of green libraries and proclaimed that libraries were on the cutting edge of green design. The Oregon Library Association dedicated that the entire winter 2007 issue of the "OLA Quarterly" to published on “Going Green: Libraries and Sustainability.” Pinkowski (2007) in the article “Keeping Track of Green Libraries”, discussed the Green Libraries concept. Neale (2008) in a paper “Go Green”, explained how libraries can be more eco-friendly. Antonelli (2008) explained that the different web page and websites related to Green Library Building. Trotter (2008) in a paper entitled “Going for Green”, discussed that the few green libraries and provided tips for green libraries. Sahavirta (2012) in the article revealed that

### 3. What is a Green Library?

The consideration of the role of humanity in climate change and the notion of sustainable development are core concerns of society, and consequently of libraries.” According to the Online Dictionary for Library and Information Science (ODLIS), Green Libraries are “designed to minimize negative impact on the natural environment and maximize indoor environmental quality by means of careful site selection, use of natural construction materials and biodegradable products, conservation of resources (water, energy, paper), and responsible waste disposal (recycling, etc.)” They also focus on related services, activities, events, literature and projects, demonstrating the social role and responsibility of libraries as leaders in environmental sustainability. Under the US Green Building Council's LEED performance system, a green building is one that is built incorporating the following design elements. Sustainable site selection and development Waterconservation Energy efficiency Local resources, material conservation and waste reduction Indoor environmental quality Innovation in design W. W. S. ThrishalaWarnasooriya (2019)

**Green building** - Green library buildings support to use energy sources effectively, and reduce carbon footprints. This also ecologically and resource efficiently designed, rebuilt, operated and reused. When designing or rebuilding a green library, the librarian, architecture and the engineers are responsible to pay their attention on natural lightening, ventilation, heating and cooling, interior fitting, installing solar and geothermal energy systems, water harvesting systems, water and electricity efficiency and the use of sustainable environmentally friendly materials. When being eco-friendly, the librarian should consider about the conservation of library collection too.

### 4. Parameters for Green Library

- Management of the design and construction
- Indoor environmental quality
- Energy
- Transport
- Water
- Materials
- Land use and ecology
- Emission
- Innovation

### 5. Green operations and practices –

Operations and practices in a green library can be vary depending on the type of the users, type of the library, rules and regulations of the mother institution or country. The fundamental practices of ‘reduce, recycle and reuse’ are important for a sustainable library system. The library should not be limited to the above 3 practices. The managerial staff should ensure that entire staff involves in planning, implementation and management of new procedures and practices. Educating the staff about green library concept is essential for the best continuity of green practices. Some of practices are mentioned below. But the library should not be limited to the followings.

**6. Guidelines for Developing a Green Collection**

6.1 The first effort towards developing a green collection is when librarians educate themselves about green practices, green collection resources and green programming materials.

6.2 The second effort is to gather green information in the library for its patrons. ALA (2009) suggests some ways to support community needs for green information. These are:

- Offer open forums for green book clubs and amenities for environmental video viewings or lecture presentations.
- Create occasions for children to get to know their environment and its impact through poster competitions or poems or essays on the subject of environment.
- Offer open forums for green book clubs and amenities for environmental video viewings or lecture presentations.
- Create occasions for children to get to know their environment and its impact through poster competitions or poems or essays on the subject of environment.
- Select collection materials on organic gardening and composting or green computing and energy conservation.
- Create outreach relationships with local groups interested in environmental concerns and inquire about their information needs.
- Work with local schools to support green curriculum and projects, such as murals or models of ecosystems.

**7. Portfolio and services of Green Library –**

Green concept pushes the libraries to offer green library services in addition to the sustainable constructions and buildings. The green message should be transferred to the society not only through green library resources but also through educational outreach programs and workshops to broaden their awareness. This will be a platform for them to adopt green practices in their own lives, office environment, activities, and events. The green education and green literacy play a major role to reach the ultimate goal of green world. The library can offer portfolio programs as given below.

- Providing information to cultivate food and herbal plants.
- Maintaining community gardens to educate patrons with practical experiences.
- Maintaining a depository of genetic materials like seeds and plants

**8. Conclusion –**

Green image is a good image for the libraries and should use their way of going green to promote a powerful green image towards their stakeholders and users. The librarians should take some decisions to make green library. The paper concludes that librarians have to be keen on updating themselves on sustainability trends in the field of librarianship and should provide awareness and create the space in the libraries to exemplify the Green practices. Even though green library concept is widely spread in other regions, countries like Australia, USA, India and Sri Lanka are still in its infant stage. Application of the green concept to the library is extremely important rather than having discussions. This can be started from academic and special libraries in the area of world. Then the green library concept can be widely spoken through library seminars, workshops, guest speeches, handbooks, websites, notices, leaflets so forth. Then the library professionals should make this a point to communicate this message in national and international level. Each person should bear their individual duty and should do a justice to the world by their side. In simple terms, it is quite clear that 'going green' should be started from its primary level. Then the whole mission will be a great success. The librarians have to take immediate and durable decision to establish the green concept to overcome the current environmental issues and to play the best librarian's role in the mission of making the world green.

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**Increasing Role of social media in Academic Library****Vijay Bajirao Jadhav**

Librarian

Late Annasaheb R. D. Deore Arts & Science College,  
Mhasadi, Tal-Sakri, Dist- Dhule**Abstract-**

*The growing role of social media in academic libraries has led to increased communication and engagement with students, faculty, and other members of the academic community. Social media platforms such as Facebook, Twitter, Instagram, and YouTube are being used to promote library services, events, and resources, as well as to provide information and assistance to users. The objective of a study on the use of social media in academic libraries may be to understand the current usage and effectiveness of social media in academic libraries, identify best practices and strategies, and provide recommendations for effectively using social media to connect with users, promote resources and services, and gather feedback. Overall, social media can be a powerful tool for academic libraries when used strategically and with consideration for the potential challenges and limitations.*

*Keywords- Academic libraries, Importance, Social media, Services, Tool, etc.*

**Introduction-**

Social media has played an increasingly important role in academic libraries as it allows libraries to connect with patrons and promote their services in a more dynamic and interactive way. This can include promoting events, highlighting new resources and collections, and providing updates on library hours and closures. Additionally, social media can be used as a tool for outreach and engagement, to provide support and assistance to users, and to solicit feedback and suggestions. Overall, social media is a valuable tool for academic libraries to connect with their users and promote their services in a more dynamic and interactive way.

The growing role of social media in academic libraries has led to increased communication and engagement with students, faculty, and other members of the academic community. Social media platforms such as Facebook, Twitter, Instagram, and YouTube are being used to promote library services, events, and resources, as well as to provide information and assistance to users. They can also be used to share news, events, and updates, and to create virtual communities around specific topics or interests. Additionally, libraries are using social media to gather feedback and to stay informed about the needs and interests of their users, which can help improve services and resources. Overall, social media has become an important tool for academic libraries to connect with their communities, to promote their services and to support teaching, learning, and research.

**Objective of the study-**

The objectives of a study on the use of social media in academic libraries may vary depending on the specific research question and goals of the study.

Overall, the objective of a study on the use of social media in academic libraries may be to understand the current usage and effectiveness of social media in academic libraries, identify best practices and strategies, and provide recommendations for effectively using social media to connect with users, promote resources and services, and gather feedback.

**Important role of social media in academic library-**

The growing importance of social media in academic libraries is due to the fact that it allows libraries to reach a wider audience and engage with users in new and dynamic ways. Social media platforms provide opportunities for libraries to connect with students, faculty, and staff, promote library resources and services, and provide virtual reference assistance. Additionally, social media can be used as a tool for research, such as collecting data and surveying users. Additionally, Social media also allows academic libraries to increase their visibility and promote their brand. By sharing news and updates, creating online communities, and collaborating



with other libraries and institutions, academic libraries can enhance communication and collaboration and improve the user experience. Overall, social media plays a vital role in academic libraries, by enabling them to reach new audiences and connect with users in new and innovative ways.

The growing importance of social media in academic libraries can be seen in its ability to:

1. Increase visibility: Social media platforms allow libraries to reach a wider audience and promote their resources and services to students, faculty, and staff.
2. Enhance communication and collaboration: Social media can be used to create online communities and facilitate communication and collaboration between library staff, students, and faculty.
3. Improve user experience: Social media can be used to provide virtual reference assistance and support, as well as gather user feedback to improve library services.
4. Support research and learning: Social media can be used as a tool for research and learning, such as collecting data and surveying users, and sharing information and resources related to academic research and study.
5. Provide outreach: Social media can be used to reach out to potential students, faculty, and researchers and also attract funding opportunities.

Overall, the use of social media in academic libraries can help to improve the library's overall effectiveness and support the academic mission of the institution.

Social media can also help academic libraries to connect with and engage with their users in new and innovative ways. Additionally, social media can be used to promote library resources and services, increase visibility, and gather feedback from users, which can help to improve the library's offerings and user experience. Furthermore, social media can provide a platform for virtual reference assistance and collaboration with other libraries and institutions. Overall, social media is becoming an essential tool for academic libraries to stay relevant and connected to their users in the digital age.

#### **Need of social media in academic libraries-**

The need for social media in academic libraries has grown in recent years as the use of social media has become more widespread among students, faculty, and staff. Social media can help academic libraries to connect with and engage with their users in new and innovative ways. Here are a few reasons why social media is important for academic libraries:

1. Reaching new audiences: Social media can help libraries reach new audiences and connect with users who may not have been reached through traditional methods.
2. Enhancing communication: Social media can be used to enhance communication with users and provide timely information about library resources and services.
3. Providing virtual reference assistance: Social media can be used to provide virtual reference assistance, answering user questions in real time and providing access to information at any time.
4. Gathering feedback: Social media can be used to gather feedback from users, which can help to improve the library's offerings and user experience.
5. Collaboration: Social media can be used to collaborate with other libraries and institutions, and to share best practices and ideas.
6. Cost-effective: Social media can be a cost-effective way to communicate and promote library services, as most platforms are free to use.
7. Keeping up with the times: With the rise of digital technologies, social media has become a crucial means of communication and information-seeking, and libraries need to keep up with these trends to stay relevant to their users.

In short, social media is a powerful tool that can help academic libraries to stay connected with their users, promote their resources and services, and gather feedback, which can help to improve the user experience and stay relevant in the digital age.

**Types of growing social media in academic library-**

There are several types of social media that are being used by academic libraries, including: Social networking sites such as Facebook, Twitter, and Instagram: These platforms are used to connect with students and faculties, promote library resources and services, and provide virtual reference assistance. Video sharing platforms such as YouTube, Blogging platforms such as WordPress and Blogger. Online community platforms such as Slack and Discord, Survey and feedback platforms such as SurveyMonkey and Google Forms. Overall, academic libraries are using a variety of social media platforms to connect with users, promote resources and services, and gather feedback to improve the overall library experience.

There are several types of social media that academic libraries are using to connect with students and faculty, promote library resources and services, and provide virtual reference assistance. Some of the most popular social media platforms used by academic libraries include:

**Facebook:** Academic libraries use Facebook to post updates, share news, and create online communities.

**Twitter:** Academic libraries use Twitter to share news, updates, and provide virtual reference assistance.

**Instagram:** Academic libraries use Instagram to showcase library resources and services, highlight library events, and engage with students and faculty.

**YouTube:** Academic libraries use YouTube to create and share instructional videos, tutorials, and webinars.

**LinkedIn:** Academic libraries use LinkedIn to connect with alumni, share library news, and engage with the professional community.

**Zoom:** Academic libraries use Zoom to provide virtual reference assistance, and host online events, workshops, and webinars

**Blogs:** Academic libraries use blogs to provide a platform for library staff to share their expertise and insights, and to provide a platform for users to share their own experiences and thoughts on library services.

These are some of the most common types of social media that academic libraries are using, but many libraries are also experimenting with new and emerging platforms to connect with users and promote their resources and services.

**Advantages of social media in academic libraries-**

There are several advantages of using social media in academic libraries, including:

1. Connecting with users: Social media can be used to connect with students, faculty, and staff in new and innovative ways. This can help to increase engagement and promote library resources and services.
2. Promoting library resources: Social media can be used to promote library resources such as books, journals, and databases. This can help to increase awareness of library offerings and encourage users to take advantage of them.
3. Providing virtual reference assistance: Social media can be used to provide virtual reference assistance and answer user questions in real time.
4. Gathering feedback: Social media can be used to gather feedback from users, which can help to improve the library's offerings and user experience.
5. Collaboration: Social media can be used to collaborate with other libraries and institutions, and to share best practices and ideas.
6. Cost-effective: Social media can be a cost-effective way to communicate and promote library services, as most platforms are free to use.
7. Reach: Social media can help to reach a wider audience and connect with users who may not have been reached through traditional methods.

8. Analytics and measurement: Social media platforms provide access to detailed analytics and measurement tools, allowing libraries to track their reach and impact, and adjust their strategy accordingly.

Overall, social media can be an effective tool for academic libraries to connect with users, promote resources and services, and gather feedback, which can help to improve the user experience and stay relevant in the digital age.

#### Disadvantages of social media in academic libraries-

There are also some disadvantages of using social media in academic libraries, including: Time-consuming, Cyberbullying and harassment, Privacy concerns, Limited audience reach, Legal and copyright issues, etc. Overall, social media can be a powerful tool for academic libraries, but it also comes with its own set of challenges and limitations. It is important for libraries to weigh the pros and cons and develop a strategic approach that takes into account their goals, resources, and audience.

#### Conclusion-

Social media has become a valuable tool for academic libraries to connect with students and faculty, promote library resources and services, and provide virtual reference assistance. Social media can also be used to share news and updates, create online communities, and collaborate with other libraries and institutions. Additionally, social media can be used as a tool for research, such as collecting data and surveying users. However, it is important for libraries to be aware of the potential disadvantages of using social media, such as the time and resources needed to manage social media accounts, the potential for cyberbullying and harassment, privacy concerns, and misinformation. It is also important to be aware of the legal and copyright issues that may arise when posting content on social media platforms. Overall, social media can be a powerful tool for academic libraries when used strategically and with consideration for the potential challenges and limitations.

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## Application of QR Code Technology for College Library Services

Jitendra R. Gavit

Librarian

GES, N.B.Mehta (Valwada) Science College, Bordi Tal-Dahanu, Dist-Palghar (MS)

### Abstract:

*This paper shows that how QR Code is useful for college library services by using Smartphone technology. QR Code has not only save the time of the peoples in the society and library user in their routine activities but also made available various online activities in figure tips. By using QR Code technology these types of services Library Membership Registration, Library Contact, Full text databases, Full text databases, Bibliographic databases, E-books & E-Journals, E-Thesis: /E-dissertations, News clipping Services, and WebOPAC. All these services are possible to college to the user by college libraries.*

**Keyword:** QR Code, WebOPAC, E-books, FASTtag

### Introduction

The impacts of Information and communication technology are not just the changing the way of the lives of the people but the change is in the communication, activities and seeking the information. The Smartphone technology has not only save the time of the people in various field in the society from their routine activities but also made available various online activities in their figure tips. The forth law of library and information science given by Dr. S.R. Ranganathan that is 'Save the time of the Reader' is applicable here.<sup>1</sup> The Smartphone device has given this facility to fast access of any information from any ware.

Quick Response Code (QR Code) is used for money transfer, mobile & TV recharge, online shopping, FASTtag and product information details within a seconds. Which cater to the user's requirements to access e-resources through Smartphone and other portable devices.

### What is Quick Response Code

The Quick Response Code (QR Code) is one of the technology which convert physical mode to digital/virtual mode through android mobile phone cameras and Hyperlinked content at the speedy rate. It is also similar to barcode technology. They have two dimensional pictographic images scanning that their hyperlinked that page.

According to Encyclopaedia Britannica "QR Code, in full Quick Response Code, a type of bar code that consists of a printed square pattern of small black and white squares that encode data which can be scanned into a computer system."<sup>2</sup>

### QR Code Structure and Size

Each QR Code is a regular square array prepared of several nominally square modules, including an encoding region and function patterns, timing patterns, namely finder, separator, and alignment patterns. The QR Code symbol is surrounded by quiet zone on all four sides. The function patterns cannot be used to encode data.<sup>3</sup>



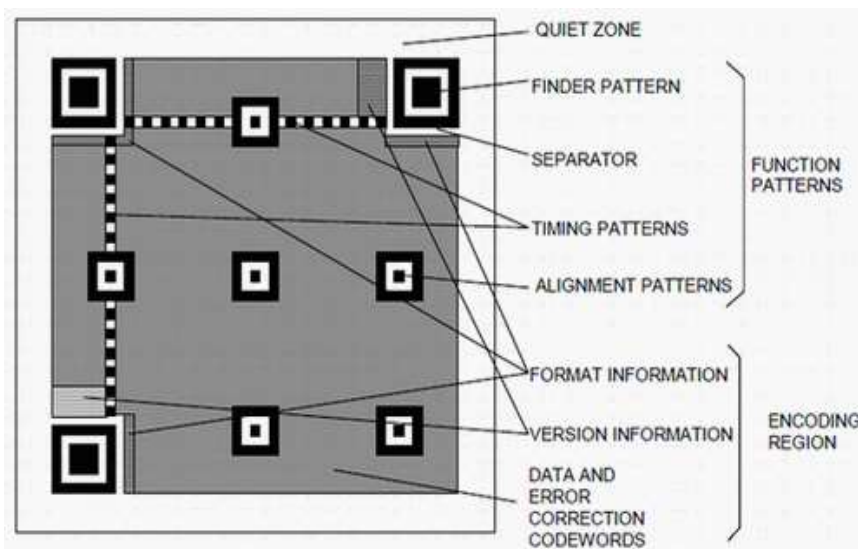


Figure No.: 01

The image QR Code has 40 Versions, ranging from Version 1 to Version 40. So, there are 40 sizes of QR Code in all and the size begins from 21 X 21 modules and up to 177 X 177 modules (not including quiet zone), increasing in steps of 4 modules per side.

### Application of QR Code Technology for College Library Services

Following library services can be possible for application of QR Code technology in college library services

- **Library Membership Registration:** The new member can take membership by register through QR Code from anywhere or library website.
- **Library Contact:** Applying QR Code technology any member of the college library can direct contact to the library person email, website, and phone no, address.
- **Full text databases:** Through QR Code user can just scan it and they get data from their relevant subject without any delay.
- **Bibliographic databases:** Relevant bibliographical data easily can get the user by just scan QR Code by his/her Smartphone. They can get direct link of the bibliographic data.
- **E-books & E-Journals:** Any user can access e-books & e-journals on their mobile/Smartphone using QR Code. It will show to the user in his devices which are subscribed by his/her library or institute, just scan code and user can download it.
- **E-Thesis/ E-dissertations:** The user can get e-thesis and e-dissertation in his/her mobile phone. eg. Shodhganga and Shodhgangotri.
- **News clipping Services:** Library can provide multiple newspapers clipping in single QR Code to the user. Which newspapers subscribed by the library.
- **Library WebOPAC:** Through QR Code the users can easily get the information about catalogue record the particular library record of books.
- **Old Examination Question Paper:** Old examination question paper required to every students for reference purpose for their upcoming examination. By scanning QR Code and they can access it from anywhere and download it.
- **Library Overdue charges payment:** If the users have not cash in hand they can pay library overdue charges through scanning QR Code in direct library or college account.
- **Library Websites:** Now a day the number of websites is available of the institutions. The library website QR Code made available to the students/user. They can scan QR Code and they can direct visit to the library websites.

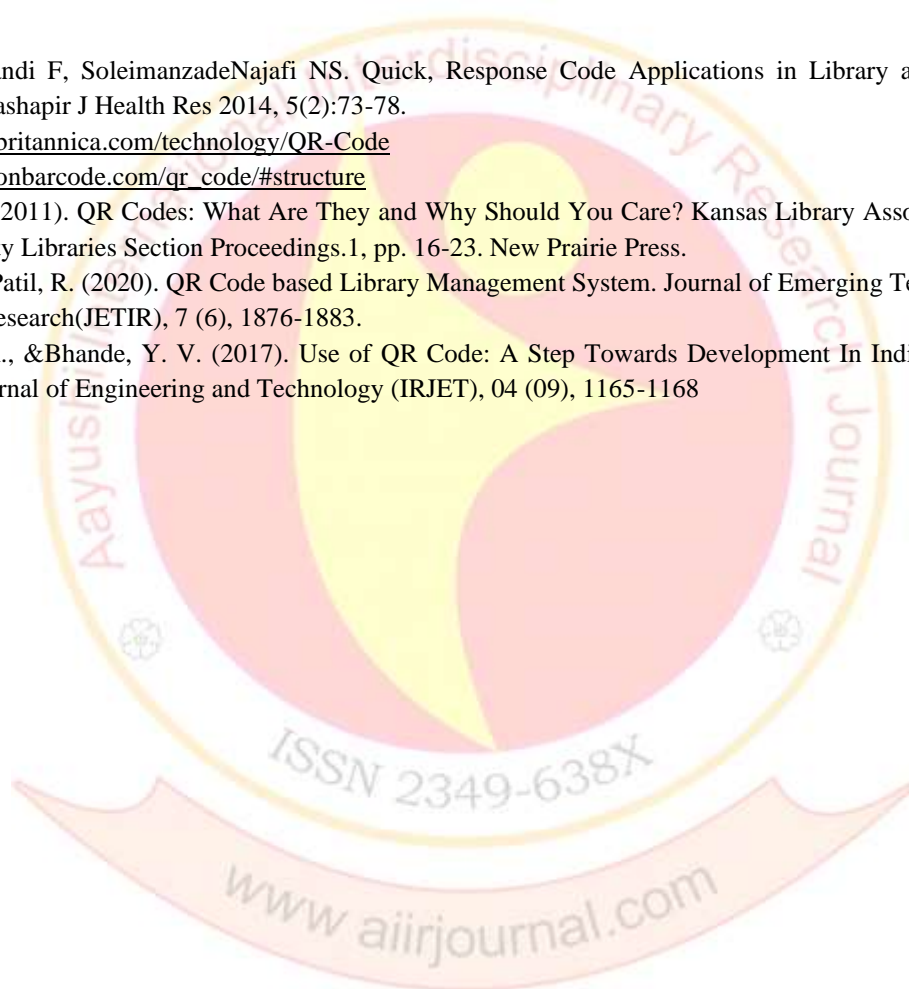
The college libraries can make available different types of services by using QR Code technology in college library and information centre.<sup>4</sup> The QR Code not only saves the time of the user but also save the time of the library staff. All the college libraries must application of QR Code technology for fast and smart library services to the user.

### Conclusion

The QR Code technology is useful technology that their users are increasing day by day in various field to provides various types of services such as such as money transfer, mobile & TV recharge, online/offline shopping, FASTag to fulfil the user's information need. It is only possible that those have their own android app and cameras. The use of QR Code technology in college libraries is very useful to provides library services such as library membership, important e-books, e-journals, e-theses & dissertations, Library Websites, Multi URLs, Library Contact, Full text databases, Scan & download article files, Bibliographic databases, newspaper clipping and old examination question papers can be provided with the use of QR code technology in college libraries.

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**Transformation of a College Library with the help ICT:  
A Case study of Adarsh College Library, Hingoli**

**Jyoti Ramesh Shankpale**

Adarsh Education Society's  
Arts, Commerce & Science College, Hingoli

**Dr. Jagdish N. Kulkarni**

Librarian & Director (Additional Charge)  
Knowledge Resource Center SRTMU Nanded

**Abstract:**

*Information access and its services are changing day by day with access of Internet and electronic devices. The major challenge with digital transformation is how fast and how far should organizations go on their digital transformation path.*

*The journey of Digital transformation is complicated and involves wide-ranging objectives, complexities, and covers a huge area. It requires a logical and well-organized digital strategy to effectively report technology and process transformation together with supporting governance and delivery models.*

**Keywords:** Library, Automation, Transformation, Adarsh College, digital.

**Introduction:**

A library is nothing but a place where ideas can be switched and from that anyone can come the idea of progress and upliftment of a society and revolution can take place. A library is the central responsibility for functioning of an any institution. Academic libraries have an important role in providing equal access to information. Librarians and Librarianship have observed the revolutions in the LIS system and libraries are transformed from the manuscript libraries to virtual and cloud libraries or digital libraries.

The changes have brought revolution in the professional activities as well as manpower requirement. There are many challenges also to be faced by the library profession also while adapting the rapidly changing environment in which librarians are expected to work differently than before. The information society is moving from industrial age to information age due to more usage of ICT.

The main objective of the any library is to reach all the users by collecting information and knowledge on various subjects from all over the world. The library has a wide variety of reading materials. This literature allows the reader to develop his intellectual, political, socio-economic condition from This it accomplish that overall development can happen through the library.

The role of library is very important in today's age of technology. Due to the ever-increasing advancement of this technology, the service facilities available to libraries also change according to the situation.

**Adarsh College**

Hingoli is situated at the northern part of Marathwada in Maharashtra. Borders of Hingoli are surrounded by Washim and Yevotmal in northern side, Parbhani in western side and Nanded at south-eastern side. The district came into existence by division of Parbhani district on 1st may 1999.

Adarsh College is a reputed college in Marathwada. The college is affiliated to Swami Ramanand Tirtha Marathwada University, Nanded. The College of Arts, Commerce and Science was established in the year 1967 under the auspices of Adarsh Shikshan Sanstha by the distinguished business class of Hingoli district to provide higher education to the rural and backward sections. The college has received B plus grade from the net committee in 2016. The college has maintained the tradition of success.

To adopt and intensify the desire of knowledge among the students addressing from rural area and to achieve their sustainable multi-dimensional development & also to expand progressively the horizons of academic activities. keep pace with latest developments and innovations being made in every sphere of knowledge and emerge as an ideal and pre-eminent Educational Foundation having institutions imparting quality education in diverse fields, thereby providing winning edge to the aspirants.

The focus of college is on integrated and multidimensional development of student's personality.



- Excellence in education with social relevance, dissemination of knowledge keeping pace with time.
- To introduce employment oriented/applied courses/subjects as and when required.
- To plan, supplement and evaluate teaching and learning process at micro level using modern teaching technologies
- To organize educational programmes like conferences, seminars, workshops, guest lecturers of eminent personalities, educational tours etc.
- To promote and encourage research and consultancy activities among the students and + faculties.
- To organize various extension programmes for the development of the values like National Integration, Patriotism, Humanism, Equality, Socialism, Secularism, Scientific temper, Democratic attitude etc.
- To organize social, cultural and sports activities and encourage students to participate in such activities.

Almost everything in the world is changing Similar changes were taking place in the library sectoring the early days, libraries functioned in a traditional manner. But with the advent of information, things that seem impossible to man have become possible through the Internet in the computer age. Finding and collecting information has now become much easier. So, the reader's time also began to save. This information can be stored through various means of electronics.

Libraries are being transformed into digital libraries and virtual ones. In a digital library, all the work done in digital format. In this type of library, the collection of material is in numerical form and it is also managed in numerical manner. Such a library is a collection of all kinds of information from around the world. This information can be made available through the Internet

### **Library Transformation**

Libraries themselves are undergoing transformative changes using technologies. With a much greater focus on technology integration, new media, and 21st Century Learning themes such as collaboration, the traditional concept of what a library can be is evolving. These advancements are fundamentally changing the libraries. Libraries of all types are currently undergoing changes that most agree are transformative in nature.

While the dramatic growth in the use of eBooks and other digital content has attracted the greatest media attention regarding library services in the past couple of years, equally dramatic changes are occurring in almost every dimension of our work.

### **Components of Transformation:**

The transformation of the library system is due to mainly following developments:

- Computer technology
- Library automation
- Networking of libraries and information resources
- Bar code, RFID and Smart card technology
- Web and Internet technology
- Social networking (Blogs, Facebook, Twitter, Apps, Skype, Wikipedia) etc.

### **Functions of Library Staff in Changing Environment:**

- To provide easy access to information available in various electronic formats.
- To identify the user's needs
- To subscribe online journals, e-books, databases and provide internet facility for the utilization of resources to gain knowledge.
- To automate the library with library software and provide faster access and reference service to the users.



**Need of transformation**

In today's world, library and information services delivery are being transformed from their manual operations to new ways using technology. This is identified as the paradigm shift in libraries and information services as a direct consequence of innovation technologies. The new technology and communication tools are employed in rendering services to the users through appropriate channels for access to information with cluster of technologies referred to as the internet. Information technology has brought in sweeping changes in the way libraries function. Libraries need to access, evaluate, and measure the impact of information technology on them. Such effort will equip them with knowledge of turning IT into a boon for improving their services. The continuous shift in libraries from manual approach brought about positive impact over library and information services.

**Library:**

Adarsh College Library is well equipped with various sections such as circulation section, Reference section, periodical section, Reading room. At present there are 89 thousand plus reading material is available. Encyclopedia, geographical, biography, reference books as well as periodicals on various topics are available. At the same time, a total of twenty-two newspapers in Marathi, Hindi and English are running regularly. A Library Advisory Committee has been set up to make the work of the library transparent. 2-3 meetings are held regularly in an academic year.

**Objectives of the library**

- To meet the information needs of educational and social elements.
- Procurement of various types of educational and reference texts.
- Provide reading material required for various courses.
- To provide reading room facility to the readers.
- To provide information and reference services to the readers.

**Library Automation:**

Adarsh college Library is automated with soul (software for university libraries) to perform various functions like Acquisition, Circulation, Cataloguing, OPAC, Serial control etc. based on requirements of college and university libraries. Soul is designed and developed by the INFLIBNET Centre. It is a user-friendly software developed to work under client-server environment. The software is compliant to international standards for bibliographic formats, networking and circulation protocols.

Cataloguing: Cataloguing is the most important module of the LMS. In soul bibliographic details such as Title, Author, Publisher, Edition etc. are able to enter in MARC 21 format.

Using Catalogue module user can add bibliographic and authority records in the library catalog, the database of books, serials, sound recordings, moving images, cartographic materials, computer files, CD/DVDs-resources etc. that are owned by a library.

Circulation: Circulation module allows us to create or edit or delete or search User records. Renew membership and also establish relationship between the user and resources by creating transaction records is possible. Reserve the item, issue the item on ILL, Book bank transaction facility and get number of routine reports and some management reports.

This module actually deals with all operation related to library members i.e., creation, deletion and modification. Apart from these users may copy an existing membership record update it with a new membership code. User can able to search membership records by using the option search member by using different searching parameter such as code, name, department, designation, entry date, category and if user want to delete any member there are two options to delete membership record, either single member or Group member deletion.

**OPAC:** It has simple and advanced search facility with the minimum information for each item including author, title, corporate body, conference name, subject headings, keywords, class number, series name, accession number or combination of any of two or more information regarding the item.

**Internet:** as internet is very important component in case of libraries. it is mainly used to improve the services & facilities provided by libraries. Internet is a medium for digital communication. so internet service is provided by Adarsh college library at free of cost.

#### **Webpage:**

A Web page is nothing but a representation of a document that is actually located at a remote site. required information on a Web page is displayed online with the help of a Web browser such as Internet Explorer, Mozilla Firefox or Google Chrome. A Web page can be accessed and displayed on a monitor as well as on mobile device through a Web browser. As Adarsh collegelibrary has itswebpage as <http://sites.google.com/view/aeslibrarywebpage/home> which includes information regarding library, like services and facilities, rules and regulations, about staff and library advisory committee, gallery as well as contact information of library. This library is make available on library website.

#### **E-Resources:**

All types of Libraries are implementing digital collections, although most libraries will continue to offer both printing and digital collections. purchases of journals, magazines, and abstracting and indexing services are heavily weighted toward digital, while E-books are only beginning to become a presence in library collections for many reasons.

e-resource refers to the products which a library provides through a computer network. The electronic resources are also known as online information resources covering bibliographic databases, electronic reference books, search engines for full text books, and digital collections of data. The following e resources are available in the library these are explained as follows.

**NLIST:** This project basically provides access to e-resources to students, researchers and faculty from colleges and other beneficiary institutions through server installed at the INFLIBNET Centre. Only The authorized users from colleges can now access e-resources and download articles required by them directly from the publisher's website once they are duly authenticated as authorized users through servers deployed at the INFLIBNET Centre.

**NDL:** The National Digital library of India is a nothing but virtual repository of learning resources which is not only just a repository with a search or browse facility but also provides a host of services containing textbooks, articles, videos, audio books, lectures, simulations, fiction and all other kinds of learning media for the learners/user's community.

**SWAYAM:** Swayam is a programme initiated by government of india and designed to achieve the 3 cardinal principles of education policy for ex. access, equity and quality. The objectives of this effort are to take the best teaching learning resources to all.

#### **Virtual book exhibition:**

To develop the reading habits among users, Adarsh college library frequently arranges virtual or online book exhibition. In the Virtual Book Exhibition, the empaneled users are showcasing the subject-wise list of books including title, author, publisher, ISBN, year, price, and URL etc. The list of books is being obtained from vendors and updating the virtual book exhibition collections on regular basis. as well as books in PDF format.

#### **Group on social media**

Social media is nothing but internet-based and gives users quick electronic communication of content, such as personal information, documents, videos, and photos. Social media refers to the means of interactions among people in which they create, share, and/or exchange information and ideas in virtual communities and networks. Adarsh college library has a social media group

Which is named as “Adarsh Mahavidyalay Library”

**Gmail**

A single Gmail account is specific to a particular user and he is the administrator of that account. It is a method of exchanging digital messages via the internet within few seconds. There are various email service providers. Gmail is the email service provider by Google. The user can log in to his Gmail account using electronic devices. Adarsh college library has a mail account as “aeslibrary2018@gmail.com”

**Biometric for staff:**

This biometric technology is mainly used for identification for individuals and access control who are under surveillance. The basic premise of biometric authentication is that every person can be accurately identified by intrinsic physical or behavioral traits. There is biometric attendance is compulsory for the staff in Adarsh college library, which is done by giving finger impression.

**Closed Circuit Television:**

It is nothing but a closed system comprising of video cameras, screen and wired or wireless data networks which allows users to transfer images from video cameras to screen. The video surveillance systems are designed to ensure security at protected sites, monitor personnel activities, keep track of production processes, etc. There are near about four close circuit cameras available in the library. Which are very supportive to cope up with inadequate library staff.

**Conclusion**

From above explanation it concludes that now a days libraries are transforming to serve its users best only. Libraries are playing an important role in rural areas. Information technology is making a significant difference in the field of education.

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19. <https://www.techtarget.com/searchsecurity/definition/biometrics>



**Innovative Practices in Academic Libraries****Ravindra R Mangale**

Librarian

Yashwantrao Chavan (KMC ) College Kolhapur

**Abstract**

*The present paper is an honest attempt to show the innovative practices that can help to enhance the quality of work in academic library. Sky is limit and it is applicable in the all field of education. Library is source and resource of knowledge. Already many researchers and expert have put their theories and researches in this field. But changing paradigm of education and role of library in academic field also requires new innovative ideas. The researcher has kept this notion and venture to shed light on the innovative practices in the academic library. The present world is the world of science and technology that affect every section of society. New ideas to be implemented in the changing role of library. Library is the main support of all the academic activities of any education institutions. In this paper highlights the innovative practices in libraries for enhancing the quality of teaching learning process and also suggests the new initiatives and practices. The paper review of innovative academic Library practices. The present paper also highlights innovative practices in academic libraries. Paper also mention IT based best practices like Web page, Blogs, Wikis Virtual library tour, E-alert services, library face book etc. This paper is useful guide to other libraries to get an idea about various ways and practices in their libraries for creating an effective library management.*

**Keywords :** Innovate Practices, Libraries, E-resource

**Introduction:**

Innovate practices are an activity that leads to a superior performance. Successfully identifying and applying best practices can reduce cost and improve quality. These practices will help to inculcate good environment among the user community. Joseph M. Jaran, says that 21<sup>st</sup> Century is devoted to 'Quality' whereas 20<sup>th</sup> Centaury was for 'Production.' We have to discuss the issue of quality to improve library customer satisfaction. Higher education's experts are much concerned about quality of education provided by the universities and colleges in India. There is apprehension that education received in these institution is not commensurate with the fees charged from the students. Education experts feel that this is cheating with the people. It is because of this reason Government of India, UGC and NAAC are seriously concerned as how to improve standards of education and establish best practices in the universities and colleges and their libraries.

**Best Practice: - Definition and Meaning**

Oxford Advanced Learners Dictionary Best practices as a quality of high standard, excellence, highly improved outstanding par excellence service. It means way of doing something that is usual or expected way in particular organization or situation, guidelines for good practices. In this process of developing best practices we taken action rather than good ideas and we improve our skills."According to Wikipedia "Best practices are guidelines which are used to obtain the most efficient and effective way of completing a task using repeatable and proven procedures."According to National Board of Accreditation and Assessment (NAAC). "Best practice may be innovative and be a philosophy, policy, strategy, program, process or practice that solve a problem or create new opportunities and positively impact on organizations. Institutional excellence is the aggregate of the best practices followed in different areas of institutional activities."From above definition, best practice means, it is a method or technique used to improve the current workflow of an organization to obtain its objectives effectively and with predetermined standards. In simple works the practice that is giving best results in terms of its usefulness and appreciation feedback from its user group.

**NAAC: - Best Practices for academic Libraries.**

While assessing the quality of Higher Education in the country, NAAC has providing the useful guidelines to improve the overall quality of Library & Information Center and services offered by these centers. In order to effectively meet the challenges posed by the global changes of technology, and to satisfy the



multidimensional information needs of the library end users, NAAC has developed the set of forty eight best practices for the library and information centers. The data on best practices have been collected from the libraries across the country on a specific format developed by NAAC. The best practices are proudly divided into four categories such as

- Management and Administration of Library.
- Collection and Services.
- Use of Information Technology in Libraries.
- Extent of the user of services.

**Innovate Practices in Libraries**

- Computerization of Library with standard Software.
- Inclusion of Sufficient information about the library in the college prospectus.
- Compiling user statistics.
- Displaying newspaper clipping on the notice board periodically.
- Career/ Employment information services.
- Internet facilities to different user groups.
- Information Literacy programs.
- Suggestion box and timely response.
- Displaying new arrivals and circulating a list of those to academic departments.
- Conducting book exhibitions on different occasions.
- Organizing book talks.
- Instituting Annual Best User Award for students.
- Organizing competitions annually.
- Conducting user surveys periodically.

**Practices in Academic Libraries: -**

With the increasing impact of ICT on Higher Education, Academic Libraries on the ways of radical changes. The traditional role of libraries as custodian of recorded knowledge is convened into the gateways of the knowledge. In the era of IT, due to information explosion the information needs of the library users are drastically changed and the nature of information needs became multidimensional. It has great impact on the overall management of library activities and services. In order to cope with this changing environment and to meet the user's expectation effectively, it became necessary for the college library to adopt some best practices in their overall management and service areas. Here following are the best practices which is to be adopted in College libraries are in briefly. For convenience we can group best practices in to five categories.

- Traditional practices.
- IT based Practices.
- Other practices.
- Library Extension services.
- General Practices.

**A) Traditional Practices. :-****Book Exhibition:-**

Arrange book exhibition on different occasion display rare books, newly added books or books of particular subject which are available in the library. This will lead to increased awareness among readers about knowledge wealth the library possess they can demand the books accordingly.

**Orientation Plan :-**

Orientation is one of the best practices to create awareness among the students about the library resources, services good reading habits and activities for maximum utilization of the library. The orientation helps and useful to the fresh students at the beginning of each academic year about the importance of the library, exposing the students to its various library services. Librarian should highlight his collection and services.

**Book Display Programme :-**

Book display programme is the best activity of library which helps & provide an opportunity for users to know the various types of information resources available on a particular aspect in library.

**Library Halls :-**

Library should start Library hour for students, It made compulsory for all the students by adding it in their daily class schedule. In Library hour students should. Visit the library for spending an hour in the library for reading materials. By keeping an hour in their time table students spend an hour in the library which brings them closer to the reading Materials, indirectly it helps to increase reading habits to of students.

**Putting the list of newly available books on notice board :-**

Putting the list of newly available books on notice board will make the reader aware about the new reading material so that accordingly he could demand for those new books get it.

**Staff User Meet :-**

The libraries may organize activities to staff users, which involving to work and share their ideas with each other relating to the new information services and their requirements. This helps to keep abreast the staff and the users about the latest developments and trends in library principles and practices, there by bridging the gap between the staff and users for this

arrange various activities such as guest lectures, movie show etc.:

**Library Information Broachers:-**

It is one of important sources for creating accurateness about the faculties, services & collection of the library students can be provided the information broacher at the time of Admission. The information brochures include information about the library facilities, like Xerox, internet etc, latest publications, late additions to the library, CD / DVD list, book bank facilities, library rules and regulations, electronic resources and online information services etc.

**Library short Term course :-**

The aim of this practice is to create understanding about library, use of ICT in library to know the mechanics of library. For this library should organize a two to three months duration course for the benefit of student community. In this course, feeding of data entry for books, creating reader books, generating barcode and scanning the broilers, generating barcode & scanning the photo of reducers etc training should be given.

**Training to use E-Resources :-**

Training programmes should be conduct for student, teacher every year for two to there day as per their need. In this programme, how to find out library books by using Library OPAC, use of N- list database, free online journals (such as DOAJ), link to various useful websites etc. training should be given so that library resources, services use more effectively and efficiently.

**Review of Book :-**

User should asked to read all the book and give his review on book. At the end Librarian should collect it & displays it on notice board under the name of reviewer.

**Book Talk program :-**

Student should discuss on a specific book or writer which they have selected. Script reading sessions are also arranged on a specific book users also comment about books they have read.

**Readers Club :-**

Library should give its facility to outside reader campus. Library also establish reader club. This club maintains good relation between library & outside users.

**GranthadanYojana :-**

In this scheme user can donate any number of books which he likes more on his birthday.

**Interaction with Author: -**

This is practical base programme which should organized by Library once in a year; for this program, Library should invites a author to interact with student. Author share his Experience how to get inspiration to write a good book.

**Best Library user Award :-**

This practice should encourage students to make maximum use of library resources and services.

**Counseling Center Regarding Competitive Examination. :-**

All of us very well know that library is soul of every educational institutes, users are also main part of library. User comes to library for searching information regarding their carrier or educational development. Today competition is going on top level, students must aware of this situation. In this context Library and Librarian should play a important role to solve their problems. Library should have very rich collection of competitive examination. Library should invites to gets lecturer for guiding to students for preparing the competitive exam.

**Innovative Practices in Academic Libraries:-**

- 1) Computerized Library with some software.
- 2) Develop Dynamic Library Webpage
- 3) Virtual Library Tour should be developed and linked to Library website.
- 4) Develop Web OPAC to know the status of library collection with 24 x 7 accesses.
- 5) Poster Presentation
- 6) Library Tour
- 7) Days Celebration
- 8) Library WhatsApp groups for Students
- 9) Digital Reference Service :-

This is new form of traditional reference service. In this type service users may get the answers of their queries online. Users can submit their queries through online or may directly chat with concerned Library staff.

E-Alerting services: - With the help of E-mail or SMS.

E-Resources :-Make available facility of free E-Books, E-Databases, Newspapers for students & indexed them properly, it will help the users in searching information.

Institutional Repository: - Library should develop institutional repository of Question paper, Syllabus, Research papers, Notes etc can be made available for students.

Following IT based practices should be provided to the users.

- On line Assistance
- Information Download.
- Printing facility
- Remote Access to e-resources
- Wi-Fi Access can be given, so that users can use the e-resources anywhere from the institute.



**Other Best Practices :-****Book Bank Facility :-**

Under this scheme the students who are from very weak economical back ground and promising can be granted two books free of cost for the complete academic years, so that it will result in increased performance in academic, by them.

**Special Facility Scheme:-**

In this scheme Librarian may provide special concession to students like for the students getting more than 75% marks in the previous examination he can allow to take 5 books for the whole semester to study, accordingly 3 books for students getting 60 to 75% of marks and 2 books for students with 50 to 60% marks. This will lead to the Increased merit and student's environment

**Reading Room Facility:-**

Reading Room can be kept open for 24 x 7 or else at least late hours in night during examination time. Librarian also make an arrangement to keep the question papers of previous examination of every class in the reading hall so that it will be beneficial for the students to study properly, reflecting into increased result of the college, because of Which every element of college becomes happy and satisfied.

**Compilation of Bibliography** for students & staff for reference.

**Apart from regular study book, additional book** such as Fiction, Novel etc. can be issued to students to motivate their extracurricular reading habits.

**Library Extension Services:-**

Following are the Library extension services which should be provided by Library.<sup>22</sup>

- External Membership Facility: - To provide service to the society, this facility is useful, in which membership facility for general users can be given for some nominal fees.
- Inter Library loan
- Document Delivery Service
- Earn and learn Scheme
- Reprography.
- Provision separate desk for Discussion.
- Suggestion Box
- Newspaper clipping services
- Career Notification
- Feedback register
- Departmental Library
- Journal Alert
- Current Awareness service Specially for research students & staff.
- Library Help Desk : - To Guide the users about Library resources.
- Library security:- CCTV camera, 3M technology at entry gate, separate property counter.
- Special Facility for Differently able persons.

**Conclusion:-**

Innovative practices in libraries for enhancing the quality of teaching learning process and also suggests the new initiatives and practices. Use of technology in the marketing of information products and services is always made good results. All higher education institutions are now in the process of digitization in all their services and sections like admission of students, examination. The Innovative practices help for improving quality of library services. The web based services are essential for providing up-to-date information to all users. The development of any new research is based on the timely and accurate information given to the users, so the libraries must follow innovative practices. Thus undertaking all above innovative practices by every college Library creates its own image in the mind of students and society. The nature of the students to look Librarian became as not only the Teacher but as Information finder. It is observed that the above mentioned innovative ideas can help to enhance the quality of work in academic library.



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## Digital Library

**Dr. Sangita Gulabrao Katle**

Librarian

Arts & Commerce Mahila College, Ambajogai.

### Abstract:

*This paper gives an overview of current trends in digital library research consists of digital library definitions, advantages, functions and services. To develop and implement a successful digital library resources system, it is to identify the most important technological aspects of digital library resources the use of digital databases makes it possible to understand rational growth, research productivity, planning and identification of user information needs. To envision the role and the functioning of digital libraries in India to respond and meet the changing needs of communities.*

**Key words:** Digital library definition, digital library services Purposes, limitations.

### Introduction:

Today we are living in the age of information. The information is a dynamic and unding resource that affects all disciplines and all walks of life. Information also supports education, research and development. The main functions of a library are to acquire information form various sources and arrange process and disseminate them to satisfy the needs of students, academicians and researchers in the right form and at the right time. Communication and information technology has made a dramatic input in the process of information management. It has changed the role of the libraries to a greater extent and with a direct impact on the working condition of the informational Professional and user's information needs. The developments provided ample new tools or improving access to need based information and sharing of knowledge. Libraries have taken advantages of the new information technologist. To provided a wide range of services and Products. Today CD-ROM Library services to users. Library networks and resource sharing programs have been developed in recent yeas. The Library issuing computer for housekeeping services management support activities, networking, fax, e-mail and internet.

### What is digital Library:

A digital library is a collection of documents in organized electronic form, available on the internet or on CD-ROM (compact-disk read-only memory) disks Depending of the specific library, a user may be able to access magazine articles, books, images, sound files, and videos.

### Definition of Digital Library:

A digital Library, also called an online library, an internet library, a digital repository, or a digital collection is an online database of digital objects that can include text, still, images, audio, video, digital documents other digital media formats or a library accessible through the internet.

### Main purpose of digital library:

The purpose of a digital library is to provide coherent organization and convenient access to typically large amounts of digital information.

### History of digital library:

The early history of digital libraries is not well documented, but several key thinkers are connected to the emergence of the can concept. Predecessors include paul of let and Henri La fontanel's Mundane, an attempt begun in 1895 to gather and systematically catalogue the word's knowledge, with the hope of bringing about world peace. The visions of the digital library were largely realized a century later during the great expansion of

the internet, with access to the books and searching the documents by millions of individuals on and the world wide web (www)

Vannevar Bush and J.C.R. Licklider are two contributors that advanced this idea into then current technology. Bush had supported research that led to the bomb that was dropped on Hiroshima. After seeing the disaster, he wanted to create a machine that would show how technology can lead to understanding instead of destruction. This machine would include a disk with two screens, switches and buttons, and a keyboard. He named this the "Memex". This way individual would be able to access stored books and files at a rapid speed, in 1956, Ford Foundation funded Licklider to analyze how library could be improved with technology. Almost a decade later, his book entitled "Libraries of the future" included his vision. He wanted to create a system that would use computers and networks so human knowledge would be accessible for human needs and feedback would be automatic for machine purposes. This system contained three components, the corpus of knowledge, the question, and the answer. Licklider called it a precognitive system. Early projects centered on the creation of an electronic card catalog, now known as online public access catalog (OPAC). By the 1980s, the success of these endeavors resulted in OPAC replacing the traditional card catalog in many academic, public and special libraries. This permitted libraries to undertake additional rewarding co-operative efforts to support resource sharing and expand access to library materials beyond and individual library.

An early example of a digital library is the Education Resources Information Center (ERIC), a database of Education citations, abstracts and texts that was created in 1964 and made available online through DIALOG in 1967.

In 1994, digital libraries became widely visible in the research community due to a 24.4 million NSF managed program supported jointly by DARPA's Intelligent Integration of Information program, NASA, and NSF itself. Successful research proposals came from size U.S. universities. The universities included Carnegie Mellon University, University of Michigan, University of Illinois, and University of California. Stanford University, Stanford research, by Sergey Brin and Larry Page, led to the founding of Google.

### **Characteristics of Digital Library:**

There are some major characteristics that are

- Variety of Digital information resources.
- Digital libraries reduce the need for physical space.
- Users at Remote
- Provide access to distributed information resources.
- Paradigm shift both in use and ownership
- Ability to handle multilingual content.
- Digital Library breaks the time, space and language barrier.
- Digital information can be used and viewed differently by different.

### **Digital Library Services:**

Digital Library services provide a wide array of services to assist members of the Library with organizing collections of materials or making them more widely available. The following services are offered by the Digital Libraries.

- Catalogue Databases.
- Current Awareness Bulletins,
- Electronically purchased databases,
- CD-ROM Databases.
- Remote Information services
- Internally published Newsletters, Reports & Journals.



- Internet Information sources Mirroring & cataloguing.
- E-mail
- Bulletin Board service,
- Netnews system,
- Audio and video communication,
- Electronic Documents Delivery service
- Electronic table of contents,
- Electronic Theses and Dissertations.
- Reference service.
- Electronic publishing
- Discussion groups and forums
- Central storage facilities for Hosting Digital collections and indexes
- Tools for loading, storing, searching and displaying digital object
- Special collections service.

**Advantages of Digital Library:**

- Digital Library needs no physical boundary you can get access to information whole over the world through the internet connection.
- It can be accessed at any time 24/7
- Same resources can be used at the same time by a lot of users which is called multiple access.
- It provides the right to use much richer content in a more structured manner i.e. you can easily move from one particular catalog to another particular chapter
- An exact copy of the original can be made multiple times without any waste in quality.
- It does not need much more space because digital information requires very little physical space to content them
- One digital library can create a link to any other resources of other digital libraries in a very convenient way.
- The maintenance cost of a digital library is cheaper than a traditional library
- It gives user friendly interfaces, giving clickable access to it resources.

**Limitations of digital Library:**

There are also some limitations of a digital Library as below.

- Lock of screening or validation
- Lock of preservation of a fixed copy.
- Job loss for traditional publishers and librarians.
- Copy right, initial high cost, bond width, speed of access and preservation.

**Conclusion:**

- In short we can say that digital Libraries can save the time and money of the society by its services. We can use this time and money in services. We can use this time and money in other developmental work.
- So digital Libraries other development work so digital library play a major roll in the development of the country of the country. Although this perspective of the "Digital Library" is Predictable because of existing library models, there remains an anachronistic quality to it. Reading the costs, technologies legal issues and Administration of "Digital Libraries" militate against achieving this old paradigm vision.



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**A Study: Awareness of Academic Digital library in Higher Education with respect to Arts and commerce students.****Prof.Major Varsha Sathe**

M.Sc.M.phil.

Head ,Department of Home Science Kamala College Kolhapur

**ABSTRACT**

*Digital Libraries are the best way to upgrade yourself, especially during the COVID time. Digital libraries are the need of the hour, As gateways to knowledge and culture, libraries play a fundamental role in society. The resources and services they offer create opportunities for learning, support literacy and education, and help shape the new ideas and perspectives that are central to a creative and innovative society.*

*Digital Libraries are a blessing to students, schools, universities, and everyone who loves learning. They are proving helpful, especially today when the coronavirus has badly hit us. With all physical sources of knowledge shut down, there is one thing that has not impeded expertise, and that's Digital Libraries.*

**Introduction**

A digital library, also called an online library, an internet library, a digital repository, or a digital collection is an online database of digital objects that can include text, still images, audio, video, digital documents, or other digital media formats or a library accessible through the internet. Objects can consist of digitized content like print or photographs, as well as originally produced digital content like word processor files or social media posts. In addition to storing content, digital libraries provide means for organizing, searching, and retrieving the content contained in the collection. Digital libraries can vary immensely in size and scope, and can be maintained by individuals or organizations. The digital content may be stored locally, or accessed remotely via computer networks. These information retrieval systems are able to exchange information with each other through interoperability and sustainability. The purpose of a digital library is to provide coherent organization and convenient access to typically large amounts of digital information.

Promote independent learning by providing a separate space with books of different interests, authors, and publishers. Access knowledge through different ways and principles. Develop the habit of reading and understanding things. Develop intellectual level through genuine information and fictional stories.

As gateways to knowledge and culture, libraries play a fundamental role in society. The resources and services they offer create opportunities for learning, support literacy and education, and help shape the new ideas and perspectives that are central to a creative and innovative society.

Libraries play an essential role in local communities by providing access to information and resources, supporting literacy and education, promoting lifelong learning, and serving as a community gathering space. So the importance of libraries can be experienced by all community members.

**Importance of digital library**

Digital education helps learners build the skills they need to navigate technology and to get the best out of it. Students of digital education become comfortable with finding, accessing, consuming and sharing content online.

Digital Libraries are the new face of the traditional walk-in library. They are an online database of various digital objects like images, texts, video, audio, etc. Although digital libraries' service has been prevalent since the last few years, the recent pandemic has made the students more aware of this service. During the lockdown, when students were locked up in their houses, they started exploring the digital platforms, and thus the popularity of

Digital Libraries rose amongst other digital services. Many digital libraries like the National Digital Library of India reached out to students with 3.5 Crore content to enable them to study from their homes.

Digital Libraries certainly have a much broader scope; there are no physical restrictions and have low maintenance costs compared to the old traditional libraries. We shall delve into a little detail and explore the features of a digital library and what makes them different from traditional libraries.

### **Features of a Academic digital library**

#### **1) No Physical walls:**

With the traditional libraries, one has to physically make arrangements and go to a library to access books or other documents. There are no such physical restrictions in the case of digital libraries. One can access it from anywhere, even from the comfort of their homes! All that is required is a good Internet connection.

#### **2)Multiple Access:**

One main problem in traditional libraries is the restriction in using the same resource by multiple people simultaneously. It is not a problem in the case of digital libraries. Several individuals and institutions can access the same resource at the same time. Mintbook is one such digital library where resources are available to universities, training centers, banking, and even schools. It has a variety of content that matches everybody's choice.

#### **3) User friendly :**

DLs are more comfortable to use as compared to physical libraries. All you have to do is search for the title or the author, and you'll get your book in no time. You don't have to go from shelf to shelf looking for a book. Moreover, their digital libraries are customizable. Such DLs can be easily customized with your academic requirements by getting integrated with your setup.

#### **4)Conservation and Preservation:**

Physical books get damaged after being used and reused again. Their pages get torn, and print disappears with time. Thus, DLs have an advantageous position in this area. No matter how many times a resource is being accessed, it will not affect its condition. It remains preserved in its original form for a more extended period. However, it is still debatable whether DLs are the ultimate preservation solution for physical books.

#### **5)No storage Space:**

The storage capacity of the traditional libraries is restricted due to the limited amount of physical space. On the other hand, there is no such limitation in the case of DLs. DLs can store thousands of resources without facing any difficulties because media storage is very affordable. Mintbook Digital Library has about 10 lakh content stored in more than ten regional languages!

Their resources are in the form of videos, e-books, magazines, quizzes, simulation labs, media clippings, etc. They also have annotation features such as notes, highlighter, dictionary, etc. In a nutshell, it has everything you can wish for from a library during this pandemic.

#### **6)Scope of Improvement:**

Digital Libraries have improved and advanced due to technological changes. In the future, too, we'll see the improved version of these DLs. For instance, the quality of pictures might improve, removal of visible flaws like discoloration and stains.

#### **7)More Than a Library:**

Another exciting feature of digital libraries is that it's not just a library. Its spectrum is broader than the old school libraries. For instance, digital libraries engage with their clients via formal as well as informal mode.

#### **8)Not Time-Bound:**

The one thing we are all lazy at doing is returning the book to the library. Admit it that we always return the book late, and then what? We pay the late fee. In some libraries, the time you can issue a book is as low as a week. Who can finish a book in a week? Nobody! (unless you're an avid reader).

Digital libraries also solve this problem. All you need is to pay a minimum subscription price, and then you'll have access to all of their material until the subscription expires. There is no headache of returning the book on time!

**9)Unlimited Knowledge:**

Digital Libraries reduce the regional and national boundaries of knowledge. For instance, if someone from one country wants to access books from another country. In that case, he or she can easily access the book via a digital library. A walk-in library can't include every book in the world, but that's not the case with Digital Libraries. You can access any text from any corner of the world!

**10)No Language Bar:**

Apart from having a wide variety of texts and books, a digital library also has texts in many languages. Language isn't a hindrance to DLs.

**11)360-Degree Virtual Learning Experience:**

Some technologically advanced Digital Libraries have a 360-degree Virtual Learning experience. It allows customers to land up in a versatile training program. Apart from academic resources, digital libraries also have vocational content. It indeed does have something for everyone!

Digital Libraries are a blessing to students, schools, universities, and everyone who loves learning. They are proving helpful, especially today when the coronavirus has badly hit us. With all physical sources of knowledge shut down, there is one thing that has not impeded expertise, and that's Digital Libraries. If you are interested in seeking knowledge, you should not restrict yourself to physical books or resources. Here are 10 advantages of digital libraries that you should know about.

Digital Libraries are the best way to upgrade yourself, especially during the COVID time. It has thousands of resources; it's economical, easy to use, and easily accessible. Digital libraries are the need of the hour, and switching to them is a decision that you will not regret!

**Objective of the Study---**

To study the awareness of digital libraries in higher education with respect to Arts and commerce students.

**Sub Objective of the study -**

- To study the awareness of digital libraries in higher education.
- To study the use of digital libraries in higher education.
- To study the Arts and commerce students participate in searching related materials on digital libraries.

**Methodology –**

- This research study was based on interview and questionnaire technique.

**Sampling—**

The sample size was 50 Students of Arts and commerce UG classes from Kamala college were selected for the study.

The questionnaire form was prepared and filled by the students.

Each student was interviewed by asking some questions personally.

**Result and Discussions**

Digital Libraries are the best way to upgrade yourself, especially during the COVID time  
Digital libraries are the need of the hour,



According to findings the result was -

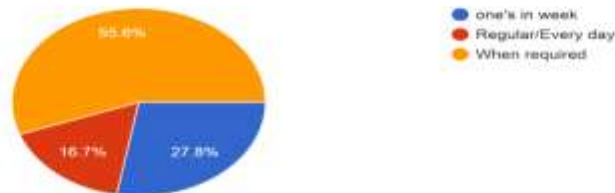
1. Selected students are studied under regular mode .
2. 83.3 % student search there course material with illustrations and videos and are available and use for study.
3. 80.6 % students use the digital library
4. 41.7 % student search course subject on various digital libraries.and 52.8% students use digital library when required.
5. 63.9% student feel that digital library meet the required course material.

The decline in visits to conventional libraries suggests that patrons these days want to access information and read content without visiting a library in person. Many large libraries and universities have already started the digitization process to make the materials accessible to members and the general public. Also, Google has launched the Library Project with the aim to help universities and libraries digitize millions of books. Corporates, of various sizes, have also started analyzing the digital library advantages and have started adopting digital libraries for their employees. Digital Libraries are the new face of the traditional walk-in library. They are an online database of various digital objects like images, texts, video, audio, etc. Although digital libraries' service has been prevalent since the last few years, the recent pandemic has made the users more aware of this service.

6. 61.1% of students trust the information on digital libraries and 38.9 % trust sometimes.

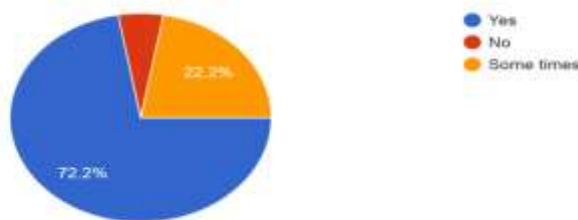
7. Students visited the digital library

How many times you visit the digital library?  
36 responses



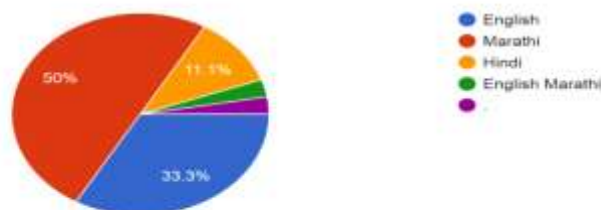
8. 72.2 % student feel comfortable with the language of digital library

Do you feel comfortable with the language of digital library ?  
36 responses



9. Language material preferred to search for study is

Which language material you preferred to search for your study?  
36 responses



10. From the point of view of student ,The importance of digital library is–

- To search and Collect the information
- Digital library is available to every student .
- Go green.
- Every time book available ,
- It is important for educational sector
- It's very convenient for use!...,
- Easy to explain subjects .
- It is a very easy concept & learning easy ,
- Digital libraries give access to multiple contents with a potentially infinite number of resources and selections at hand.
- .To get more information about subject.
- Unlimited words are there in digital library

**11. Limitations of digital library is –**

- Sometimes information is wrong so please aware.
- Computer viruses, a lack of standardization for digitized information, rapidly degrading properties of digitized material,
- Different display standards of digital products and their associated problems,
- The health hazard nature of monitor radiation, and other factors make digital libraries handicapped at times.
- Some time confused about the information got from the digital library
- .Computer viruses.
- No internet no study

**Conclusion –**

Digital Libraries are a blessing to students, schools, universities, and everyone who loves learning. They are proving helpful, especially today when the coronavirus has badly hit us. With all physical sources of knowledge shut down, there is one thing that has not impeded expertise, and that's Digital Libraries. If you are interested in seeking knowledge, you should not restrict yourself to physical books or resources.

The decline in visits to conventional libraries suggests that patrons these days want to access information and read content without visiting a library in person. Many large libraries and universities have already started the digitization process to make the materials accessible to members and the general public. Also, Google has launched the Library Project with the aim to help universities and libraries digitize millions of books. Corporates, of various sizes, have also started analyzing the digital library advantages and have started adopting digital libraries for their employees. Digital Libraries are the new face of the traditional walk-in library. They are an online database of various digital objects like images, texts, video, audio, etc. Although digital libraries' service has been prevalent since the last few years, the recent pandemic has made the users more aware of this service.

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**Data Mining, Data Warehousing and Bibliomining****Sunil P. Patil**

DNCVPS Shirish Madhukarrao Chaudhari College, Jalgaon

**Abstract:**

*The present paper discusses how the library can use the technique of data mining, warehousing at different levels in libraries. The concept and similarities between of data mining, secondary data analysis, and Knowledge discovery are explained. The use of data mining and data warehousing techniques in libraries has discussed how the new concept of Bibliomining has emerged. Various steps in datamining process explain with the example.*

**Keywords:** Data Mining, Data Warehousing, Bibliomining

**Introduction:**

Each day, modern library management systems generate a considerable volume of information and data. These data have grown into invaluable sources for data mining and machine learning. The library's resources play a crucial part in a user's acquiring knowledge. However, with the development of information technology and the widespread use of the Internet, libraries are now able to provide the public more and more e-book materials in addition to traditional paper books. The library system also keeps track of the readers' information sources and updates existing data to make things easier for users. However, as time goes on, the amount of information will grow, the size of books' contents will increase, and reader-library interactions will become more challenging. In order to provide data support for library creation, a better system is therefore required to process information data. The issue of enormous data has been resolved by the development of data mining technology. It can rapidly find the books that readers want, as well as assess readers' reading preferences to suggest literature and make sensible buying recommendations and other problem in libraries.

**Data Mining:**

The term "Data Mining" describes the process of "Mining" knowledge from massive amounts of data or a data warehouse. Data mining attempts to extract knowledge from stored data by combining artificial intelligence, statistical analysis, and database management systems (Dwivedi & Bajpai, 2004).

The Word Data Mining consist of data and mining. Mining means searching the valuable things means here is searching the Data or information or Knowledge from large amount of data or from big data. In other word It is the process of discovering or mining the knowledge from large amount of data. Another term for datamining is knowledge discovery form data (KDD). According to Online Dictionary of library And information science the definition of data mining is "The process of using database applications to identify previously undetected patterns and relationships within an existing set of data, for example, common interests among the clientele of a business or other organization." Data mining is the use of automated data analysis techniques or algorithms to discover the patterns in the correlations of different databases, whether they are observed or unseen (Bin, 2013).

**Secondary Data Analysis**

The objective of the data mining exercise plays no role in the data collection strategy. This is one way in which data mining differ from much statistics, in which data are often collected by using efficient strategies to answer the specific questions. For this reason, data mining often referred to as "secondary" data analysis (Hand et al., 2013).

**Knowledge Discovery in Databases (KDD):**

The terms od KDD originated from Artificial intelligence (AI) (Hand et al., 2013). Knowledge discovery, which is the total process of transforming data or raw information into valuable information, includes data mining

as an integral component of the whole process. The processes in this procedure range from pre-processing through post-processing of the data mining results.(Tan et al., 2011). There are two types of knowledge discovery: directed and undirected. Directed Knowledge discovery is Goal-oriented We may want to anticipate the value of a particular field, assign a predetermined set of classes to every record, or investigate a particular relationship. There are various steps in the directed knowledge discovery method (Dwivedi & Bajpai, 2004).

#### **Data Warehouse:**

A data warehouse is a system that regularly gathers and organizes data from the source systems into normalized or dimensional data storage. It often retains years' worth of historical data, which can be mined for the purpose of finding patterns for business intelligence or other analytical tasks.(Sarma& Roy, 2010).A data warehouse stores databases created through various computerized processes. For example, many small and large data bases created from various computerized operations of an organization are stored in the organization's data warehouse. After the process is completed, the relevant information is sent to the warehouse without storing in the software. From this repository, useful databases are selected and used for specific data mining analysis(Phadake, 2010).

#### **Data Ware Housing:**

Data warehousing refers to the procedures of choosing databases that are appropriate for analysis, choosing storage options inside the data warehouse, grouping or structuring the databases, processing the data to make it usable, and so on. A data warehouse is one possible format for such huge databases. Thus, data mining may be done using the data warehouse that was designed here (Sarma& Roy, 2010)(Agarwal, 2014).

#### **Steps in Data Mining Process:**

1. **Prepare the sample data pattern:** First step is Making a model of the problem pattern based on the provided data or pattern
2. **Data warehousing:** The main goal of data mining analysis Finding and mapping the necessary data patterns from the database, or data warehouse. After searching for useful databases, gathering data, and thus creating an improved database that excludes personal and computerized Confidential sensitive details it is an important phase of data warehousing.
3. **Selection of Algorithm:** The next step in the process is to select a software or algorithm that is appropriate for the targeted problem in mind for data mining. Regression and Classification are the primary algorithms used for this. Regression analysis uses statistical information like weight, speed, and age and Classification algorithms take into account descriptive categories like colour names, gender etc.
4. **Selection of Determining Software:** Remaining last step after Completing above three steps is the selection of software package analysed the data and find the conclusion.

#### **Application of data mining and data warehousing techniques in library**

Nicholas and Staten first started the discussion regarding the use of data mining and data warehousing techniques in the field of library and Information Science. While doing this, he first coined the new the phrase "Bibliomining" while talking about data mining for libraries They realized that when trying to find information related to library and information science using the concepts of data mining and data warehousing, the search process leads to library software and databases. The term is related to Bibliometrics in Library and Information Science (Shieh, 2010).

Bibliomining is simply a different term for data mining in libraries, and it too involves several expertise. To provide specific services, to address management problems, or to assist in library decision-making, domain experts, librarians, or library specialists, find the necessary data sources.(Nicholson, 2011).



Although it appears that most research in librarianship is currently based on average and aggregate measures, data mining/ tools have made it possible to uncover fresh data patterns. The bibliomining technique makes it possible to identify a variety of patterns, including reader group, reader demands, new services for readers, reader satisfaction, and utilisation rate of different resources. Various Steps involving Bibliomining Process.

- Identifying the Proper Problem
- Choosing a database from related problem
- Design of a data warehouse
- Selecting data analysis tools
- Data Mining and Data Mining Tools
- Reporting and implementing the conclusion (Sengupta, 2017).

### Identifying the proper Problem:

It is need to Proper Identifying the problem in our system accurately. Suppose there are some problems in the circulation section or periodical section of the library. When identifying problems, data mining in the manner described above necessitates the application of numerous tools. Additionally, a combination of internal and external databases is needed. Additionally, it is essential to select a broad database format because it becomes challenging to determine the frequency of the samples.

### Choosing a database from related problem:

After identification of problem second step is selection of databases related to our problem. Several problems necessitate a database of both local and external types. because many a times the record of taking a book from the circulation section disappears from the computer software after the book is returned and after the process of reserving the reading material the record disappears after the process is completed.

### Data Formatting, Data Merging, and Design of Data Warehouse:

A method for determining inaccurate, incomplete, or unreasonable data and then improving quality by correcting detected errors and omissions. Format checks, completeness checks, reasonableness checks, limit checks, data review to identify outliers (geographic, statistical, temporal, or environmental) or other errors, and data assessment by subject area experts may all be part of the process(Chapman, 2019).

The merging of two or more databases will both identify and create new errors (where there are differences between the two databases) (i.e. duplicate records). Duplicate records should be flagged during merging so that they can be identified and excluded from analysis in cases where duplicate records may bias an analysis, and so on, but they should not be deleted in general.(Chapman, 2019).

Formatting the database of collected data for data mining involves cleaning and anonymising it to remove unwanted data. It is necessary to removing the data which is personal data by keeping the data relevant to the problem. When using the web base method, the user's Login ID, Password, I P Addresses etc. are recorded. As there is a possibility of such data becoming public, cleaning and anonymising process can avoid the risk in this case (Osborne, 2011).

### Example of Data Anonymising:

Table-1:Transaction Database		
Book Acc. No	Title	BT No.
7038	Diff. Equation	S570
487	Molecular Biology	F300
4546	Database Mgm. System	S160

**Table-2: Reader Database**

BT NO.	Name	Department	Reader Type
S160	Mr.PravinAmbuskar	Computer Science	Student
F300	Mrs.VarshaAthe	Microbiology	Faculty
S570	Mr.Vijay Patil	Mathematics	Student

**Table-3: Data Generated by data anonymising Process**

Book Acc. No	Title	Department	Reader type
7038	Diff. Equation	Mathematics	Student
487	Molecular Biology	Microbiology	Faculty
4546	Database Mgm. System	Computer Science	Student

In above Table No. 3 personal information has been removed by data formatting Process so There is no problem to use such data for datamining.

#### **Data Mining and Data Mining Tools:**

The main objective of data mining is to find the data related to problem and that we can process on it and for that, tools like statistical and artificial intelligence are used. Ready-made software packages are now available for the data mining process such as SAS, SPSS, S-Plus, Darwin, SQL Server, and free We ka Data Mining Suit (Jović et al., 2014).

#### **Reporting and implementing the conclusion**

The validity of the conclusion is checked by examining the original database at the end of the data mining process, after the report is prepared. Is the conclusion satisfactory? If the results are not satisfactory, the data mining process is repeated with changes. Alternatively, decisions are implemented as agreed.

#### **Conclusion:**

The concept of data mining and data warehousing was generally used in the corporate sector but the present study referring some literature on it points out that in the field of library and information science it can be used to solve various library problems and find solutions. Tools for data warehousing and data mining of this kind can assist library management systems with effective methods for decision support.

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**Libraries and Changing Knowledge Resources****Smt. Urmila Rajendra Kadam**Librarian/ Associate Professor,  
Kamala College, Kolhapur**Abstract:-**

*In the past few years, the development of information technology has changed the nature of libraries. Progress can be seen in all areas of libraries, including library collections, library services, staff and the facilities provided through the library. Due to the new technology like cloud computing, email, telnet, world cat, RFID etc., the view of the library has changed and it has become an information center. With the help of these media, information is being made available in the information center. What are the various new information access tools are available can studied in this article.*

**Keywords:-** Information Technology, Libraries, RFID, Information Dissemination

**Introduction:-**

Today's age is known as computer age. If the only place to get knowledge is the library. In the first half of the 20th century, the new technology came into being because of the invention of the computer. Computer started to do most of the human work, during this time the nature of the library is also changed. The library was not only focused on books, periodicals etc. but also videos, Cassettes, Audio Devices. The film has started to fulfill the knowledge needs of the readers. Through the Internet, the reader is getting information about the research courses, literature, Specific Books through the computer. The traditional method used to acquire knowledge has also changed, the use of source material, The concept of publishing e-books is on the rise and its widespread use, hence the study of these new concepts, It has become necessary.

**New Technologies of Information Availability:-****Teleconference:-**

Mass Communication through electronic media This facility of information is increasing both quantitatively and qualitatively, facilitating discussion E-mail.

**Electronic mail:-**

Electronic mail has made it possible for computer users to exchange messages locally as well as globally sent through e-mail. Messages are delivered to any part of the world in an instant.

**Tel Net:-**

Tel Net provides access to online databases through online database, library catalog viewing, Internet chatting etc. are available through internet

News Group:- News groups are the articles and news group discussions can be read and participated in these groups.

**Consortia:-**

Library Consortia concept is quite new. The subscription of periodicals is based on the convenience of joint payment by libraries. Subscriptions of international periodicals are increasing every year and the prices of foreign exchange also. As a foundation, foreign publishers are forming consortia. Consortia means four libraries jointly subscribe for four copies of a journal and discount is given for each additional copy after the first copy. This concept of consortia has been established by Indian National Digital Library in Engineering, Science and Technology.

**Portal:-**

A portal is a web site that provides quality information using the internet.



Portal is a search engine which provides connectivity with the outside information ex. Yahoo, Info librarian, Library Website etc

#### Subject Gateway:-

Yes, Subject Gateway is an Internet based innovative system that provides information and information retrieval tool about selected and high quality sources on a subject. This type of portal consists of two parts. Help There are links available according to this information source. Ex J-gate , J- gate@indest or j-gate@infont

#### J Star:-

portal is doing important work of making available the back volumes of J Star journals in electronic format. A database of back volumes of 117 journals in electronic format is made available to libraries through J Star portal. The database is made available by identification number and is a citation-format database that enables researchers to search for information in the literature as well as quality web resources.

#### MUSE Project:-

Muse is a prominent example of collaboration between a library and a publisher. Full-text high-quality humanities, arts, social science journals published by sixty well-known publishers are available through the Muse Project, which began in 1933 as a joint collaboration between John Hopkins University and the Mr. S. Isen Over Library. Through this project University press periodicals and other publishers periodicals are accessible.

#### Meta Data:-

Meta data refers to additional elements of information presented about the data that were not previously recorded, such as the information technology tools used to generate the data, the location in the network where the data is located. It describes a collection of sources as well as a portion of a larger source.

#### Data Mining:-

Data mining is the use of automated data analysis techniques to discover previously undetected patterns in the inter relationships of various databases. The techniques mainly include regression, classification and clustering statistical methods, 3 M Security System. This system is based on electronic or magnetic technology. 3M is one of the leading companies in the development of security systems in America. It is known as 3M includes following tools. This company has successfully tried to use the security method used in department stores for library security. It involves various tools.

- 1) Security Strips- This is a metal strip which is electronic or magnetically heavy called security strip. It is available in two types, for pasting deep into the pages of books and for pasting into the back binding of books. These strips are pasted into each book. When the book is properly handed to the reader, the magnetic effect is temporarily turned off, and when the book returns to the library, the book is recorded and re-magnetized by the machine and placed on the shelf.
- 2) 3M Detection System this detection system is an electronic gate or door.
- 3) 3M Sensitizing Machines
- 4) 3M Self Check Out Machines are included in 3M Security System

#### RFID (Radio Frequency Identification): –

The term RFID refers to a machine or device using radio waves and is a system based on its interaction with RFID. RFID technology has become available for use in libraries where identification of books with their catalog data, self check out, check in, book sorting, book counting, missing books etc. are done through RFID technology. The unique feature of RFID is that it does not use the barcode method but simply reads the cataloged information of the books through radio waves

#### World Cat-

The term indicates that a single table of all the libraries of the world is available to all readers. In this, 72 thousand libraries in 170 countries of the world have included their data in this union list.

**Scopus:-**

Scopus is a large abstract and citation format database that enables the researcher to search for information from quality literature web resources. Scopus makes information available to scientists in a fast, easy, comprehensive way.

Cloud Computing- Library can use a combination of information storage, information retrieval, data sharing, command and application tools under cloud computing. It has become possible to use the computing power located in the cloud together.

**ADVANTAGES AND LIMITATIONS OF NEW INFORMATION TECHNOLOGY METHODS:-**

- 1) Information technology is a system that provides convenience to the user
- 2) Enables the user to access a large pool of information
- 3) The concept of libraries without books is coming into being
- 4) Difficult subjects are easy to understand due to the influence of audiovisual media
- 5) Saving money and time
- 6) High quality, advanced and reliable computer systems must be continuously available
- 7) Power outages can shut down the system due to lack of network
- 8) Can't be said to be economically viable
- 9) Technology Manpower with full knowledge is required. Without knowledge of technology, Facilities cannot be fully utilized

**Conclusion-**

Today's libraries have changed in modern era. The revolution in information technology has led to the emergence of the electronic age and technological advancements in information storage, retrieval, and communication have made it possible to meet the needs of consumers. Projects have been prepared by implementing various activities in many information centers and it is being used globally. Libraries and Information Centers are working together to meet your needs and save money. Although information technology has played a major role in the modernization process, it has limitations in some cases. Financial provision, infrastructure, technical aspects, environment conducive to adequately trained manpower are also equally important. There is no doubt that future consumers will flock to libraries and information centers in large numbers to satisfy their information needs

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## Digital Libraries and their Important

**Dr. Vilas Gopinathrao Kirdant**

Librarian,

Vasundhara College of Arts, Science and Commerce,  
Ghatnandur, Block Ambajogai, Dist. Beed (M.S.) 431519.

### Abstract:

*In this research focus is upon digital libraries and it's important for various sectors given. E-Library or e-granthalaya is an example of it. With the help of these applications students can take advantage of this facility by registering online. Resources available in the libraries of colleges and universities can be uploaded on it so that other colleges and universities can take advantage of them. The era of learning and teaching is becoming digital. Along with this, the trend of e-library is spreading rapidly in the country. Recently a Private Digital Library has been launched as a commitment to support the Digital India initiative and to increase the reach of e-content across the country. This digital library is also in line with the objectives of the new education policy of the country. Digital Library established by a leading publishing company aims to provide a comprehensive digital learning solution to various educational institutions, teachers and learners of the country. The library will offer a wide range of e-book collections and digital content across multiple disciplines. NIC officials should provide training to the staff and professors posted in the college library regarding the use of the software. With the help of e platforms we can grow together.*

**Keywords:** Technology Library, Digital Library, E-Research, ICT, E-Library, E-Geanthalaya, E-Library.

### Introduction:

In this library, readers will not only be able to read books, but will also be able to read content of national and international level through digital medium. Where on one hand readers can read books of their favorite subject, on the other hand books related to competitive exams can also be studied in this library. A mobile app for the members of the digital library is also being developed by the Gwalior Smart City through which readers will be able to read books from the comfort of their homes. Students and participants will also be able to prepare for group discussion, mock interview etc. in this modern library for employment or higher education. There is also a provision of kids play area in this library, which will definitely play a positive role in attracting children towards the library. Giving information, CEO of Smart City, Jayati Singh said that this library has a golden history. Gwalior Smart City has developed this building with new and modern facilities along with returning its ancient glory. Soon another project by Gwalior Smart City in the series of conservation of heritage will benefit the general public.

### Institutions are looking at quality rather than quantity of research:

All the regulatory bodies of higher education are emphasizing on the quality of research rather than the quantity of research. From this point of view, he talked about promoting inter-disciplinary research in the university. The research supervisors and research scholars have to follow the norms of research completely they should emphasize on increasing the sample size in social science research, so that the reliability of research findings can be excellent with the help of digital technology. At present, researchers can study various research materials sitting at home. If they do original and quality research, then the name of the university will also be glorified.

### Teachers, Research and E-Library:

It is necessary to have uniformity in the policy of all the faculties for research work. Departmental teachers and non-teaching staff should prepare detailed documentation of all researches at the departmental level. The e-library of the University is subscribing to many research journals for latest data and technology. Which researchers will also be able to use online. He said that after giving a modern look to the university library and



setting up of the Advanced Research Center, the quality of research will improve a lot in the future. Research scholars will also use these facilities online.

**Make the most use of technology:**

We have to promote technology according to the demand of time. Through modern technology, we can reduce mutual distances. A commendable effort has been made by the authorities to make maximum use of technology. With the introduction of e-library, complete information will be available to the students. There is a need to consider what other efforts can be made in this direction.

**Access of Digital Library:**

Which book is in which corner of the cupboard. Its information will be available on one click. Apart from this, the date of issue and return of books will also be entered on the computer system only. State government libraries are being modernized under the Digital India campaign of the central government.

This campaign is being run in collaboration with NIC and IT department. In this series, wherever there is provision of computer systems and rooms in schools and colleges in Himachal Pradesh. There from the e-library software itself

Libraries will continue to function. It has been decided to use e-software to modernize the libraries located in all district headquarters including Central Library Solan, Government Library Shimla.

Higher Education Director has issued a letter to all district deputy directors, heads of libraries located in other places including school, college principals and asked them to use the software by contacting NIC and IT department.

**About E-Granthalaya app:**

Integrate your libraries fast and easily access your favorite e-books online with e-Granthalaya. 1706 Libraries, 6231668 Catalogs and 9157246 Holdings mapped and thousands of millions of members on board. Get access to articles, journals, e-books, news items and online e-resources from around the world with a single click with your member login - no matter what part of the world you are in. Data security: The security of your data depends on how developers collect and share data. Ways to keep data private and secure can vary. These are determined by your location, age, and app usage. This information is provided by the developer and from time to time this information can also be updated.

**Digital Library and Education:**

E-Granthalaya can be considered a big step in the direction of Digital India and Digital Education. All universities and college libraries have been given rights to use this digital library under e-Granthalaya. Libraries at the local level will give login rights to students. You can consider it like a roll number. With their respective login ID, students will be able to read books of their need and choice from e-Granthalaya, that too at their own time and place at their own convenience.

The biggest advantage of digital library would be that lakhs of students or teachers would be able to read a book at the same time. There will be no need to wait for the issued book to be returned like in a traditional library.

But won't the problem of internet connectivity in remote areas limit the access to e-Granthalaya? In response to this question. At present books are being made available online only, but soon e-books will also be included which can be downloaded and students will be able to read them offline as well.

**Conclusion:**

Digital Library aims to offer accurate quality content using built-in analytics. This Digital library apps integration for educational institutions will give the advantage of single-sign-on access for students and faculty, which means they can access products across the college system with a single credential instead of requiring a separate login. Can Based on a subscription model over cloud and IP, it will help organizations move to digital and increase cost efficiency by making significant savings on physical infrastructure. Designed keeping in mind



the New Education Policy, this digital library will also act as a one-stop, digital handy repository for students, giving them the freedom to learn on-the-go with hassle-free study material anytime, anywhere Will get The National Digital Library of India has emerged as the first choice of students for studying from home for undeveloped areas. It was prepared by the Ministry of Education, Government of India.

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**Use of Artificial Intelligence and its applications for Academic Library****Dr.Khandekar Ganesh Bajirao**

Librarian. (Asst. Prof.)

Night College of Arts &amp; Commerce, Ichalkaranji - 416115 (MS)

**Abstract:**

*Artificial intelligence (AI) is one of the emerging trends and applications of computing in libraries. It involves programming computers to do things, which if done by humans, would be said to require intelligence. The ultimate promise of artificial intelligence in libraries is to develop computer systems or machines that think, behave, and rival human intelligence, and this has major implications for librarianship. The application of artificial intelligence in the library has become pervasive. They include expert systems for reference services, book-reading, and shelf-reading robots in virtual reality for immersive learning among others. Although the incorporation of artificial intelligence in libraries can be perceived to alienate librarians from their users, it will probably help libraries do more rather than take over the jobs of librarians. It will enhance their service delivery. Artificial intelligence will greatly improve library operations and services and will upgrade and heighten the relevance of libraries in an ever-changing digital society.*

Keywords: Artificial Intelligence, Expert System, Natural Language Processing, Pattern Recognition and Robotics, Library

**Introduction**

Artificial Intelligence (AI) according to Nwakunor (2021) is computer-controlled robots that think intelligently like human beings. These robots are controlled electronically with the aid of the computer by mimicking the competencies of the human mind. Artificial Intelligence keeps records and analyses every action being made by the user. As a result of innovation in science and technology, Artificial Intelligence is used in all facets of life for human development and comfort.

In the educational sector, AI is used to teach the little children who are in the playgroup, preparatory, and kindergarten classes to impart knowledge to them using robots as teaching aids to be used in the classrooms.

In the economy and commerce, experts in Integrated Marketing Communications (IMC) are of the view that AI technology is assisting customers' daily lives thereby making every task and chore easier. Artificial Intelligence will help companies in getting better results in their operations. It is therefore suggested that brand managers and marketers should use artificial intelligence as a game changer to optimize value in an increasingly competitive market. The use of Artificial Intelligence in all facets of life will help to cut wastage and cost of production and delivery of goods and services thereby helping to get a better result in their operations.

In the Academic Libraries scenario, intensive pressure on librarians to provide high-quality services to library users due to the information explosion in our present society has led to the incorporation of modern technologies. Artificial Intelligent has found its way into the library as a chat box that handles directional questions on the library website, overdue alerts, responses to simple informational requests, and directs users to relevant resources in the library. Artificial Intelligent is a collaborative robot used to interact with the human on the library floor and perform complex or repetitive tasks. Artificial Intelligence (AI) is a suitable attempt to replace human power with machines. The adoption of AI in the library will influence the connectivity of information technology and actively support information usage as well as ease clients' search and immediately address their needs. The impact of artificial intelligence and advanced computer technology on the nature of future libraries will be enormous and the quality difference varies among experts (Vijayakumar & Sheshadri, 2019).

Academic librarians have seen Artificial intelligence as a new driving force for the development of the intelligent library. To meet up with the current global trends in librarianship, Librarians have begun to incorporate artificial technologies in the library system to meet up with the current trends in the country. Despite their efforts

to meet the current trends, there is little or no documentation on the incorporation of Artificial Intelligent in academic libraries in Indian educational institutions. Moreover, most available literature on Artificial Intelligent in libraries was mostly carried out in the western world and developed countries. Little or no documents were available on the application of artificial Intelligent in Libraries in developing countries. There is a need to have a document that will expose the application of Artificial Intelligent in academic libraries.

### Justification for Applying Artificial Intelligence in Libraries

Similarly, a library was formally defined as a function of the physical building where books were kept for reading and other purposes. However, the definition of a library today has gone beyond the physical building, it now centers on the collections and services offered, since virtual libraries have no physical walls and services could be rendered to users from remote locations. Interestingly, artificial intelligence is the current technology that has evolved with huge prospects and promising applications in libraries. Hence, the need to also explore this tech, and its pros and cons, to adequately maximize its rich benefits for innovative and optimal service delivery in libraries, as Corke (2013) asserted that artificially intelligent systems will be an important technology in this century.

Ultimately, since computers can operate efficiently at a scale and speed beyond human abilities, they will maximize speed, efficiency, and effectiveness in processing library materials and enhance library service delivery at all levels.

### Artificial Intelligence

The sound of the term artificial intelligence often conjures images of robots or computers that talk. Artificial intelligence is the programming and development of computers to perform human required-intelligence tasks, such as speech recognition, decision-making, visual perception, language translation, talking, and emotional feelings. According to Heath, artificial intelligence is the technology that enables machines to have the ability to plan, learn, reason, solve problems, move, and to some extent be creative. Accordingly, Liu viewed AI as intelligent machines or intelligent systems that simulate human intelligence activities and extend the science of human intelligence.

Artificial Intelligence focuses on non-algorithmic methods for solving problems and symbols. New applications have created great opportunities for informational researchers, such as multimedia systems, digital libraries, GISs, and e-commerce. As the application becomes increasingly powerful, diversified, and pressing, several known problems in finding information became even more important in this technological era. Symbolism is an intelligent simulation method based on logical reasoning to simulate human intelligent behavior.



Figure 1: Artificial Intelligent Component Diagram (Source: Vijayakumar & Sheshadri).

### Applications of Artificial Intelligence in Libraries

AI applications allow libraries to change their emphasis and attention. The way we navigate the information is kept altering. AI gives a very useful shortcut to apply this knowledge and produce better outcomes. The libraries are positioning themselves to take advantage of the application of cognitive computing in general



and artificial intelligence in particular for their potential utility as a tool for refining the quality of library services. Below is how Artificial Intelligent could be applied in Academic library services in

#### i) Applications of Expert Systems in Reference Service:

Reference service is a prime activity of any library and the Expert System will work as a substitute for a reference librarian. Following are some examples of Expert Systems used for Reference Services.

(a) **RESEARCH**: It is a system that supplies patrons, with the recommended sources to lookup for a certain question. The system can be used to teach students reference skills or as a computerized aid for practicing reference librarians and information specialists.

(b) **POINTER**: It was the early successful working application of computer systems in the area of reference work. It directs the users to the reference sources; it is not a Knowledge-Based System but a computer-assisted reference program.

(c) **Online Reference Assistance (ORA)**: This system is intended to stimulate the services of an academic reference Librarian for questions of low and medium levels, by using several technologies: a videotext-like database, computer-assisted instruction modules, and a knowledge-based system. ORA consist of Directional transactions like library locations, services, and policies.

(d) **AMSWERMAN**: A Knowledge-based system to help users with reference questions on agriculture topics. It uses a series of menus to narrow down the subject of the questions and the type of tool needed. It can function as either a consultation system or as a front end to external databases and CD-ROM reference tools.

(e) **PLEXUS**: This is a referral tool used in Public Libraries. It includes knowledge about the reference process, information retrieval about certain subject areas, reference sources, and Library users. All the above systems are advisory systems for locating reference source books and factual data.

#### ii) Application of Expert System in Cataloguing:

Cataloguing is one of the oldest library crafts. Recent attempts to automate cataloguing through Expert Systems have focused on descriptive cataloguing because it is considered rule-based(AACR2). There are two approaches for applying artificial intelligence techniques to cataloguing

a) A human-machine interface, where the intellect effort is divided between the intermediary and the support system; and

b) An Expert System with full cataloguing capability linked into an electronic publishing system, so that as a text is generated on-line, it can be passed through knowledge based systems and cataloguing process is done without any intellectual input from an intermediary. There has been a problem in every attempt to convert AACR2 into the highly structured rules necessary to run the Expert System.

#### iii) Application of Expert System in Classification:

Classification is the fundamental activity in the organization of knowledge. For this reason, it is prominent in all systems for organizing knowledge in libraries and information centers. Application of Expert System in the area of classifications in libraries includes the following:

(a) **Coal SORT**: It is a conceptual browser designed to serve either as a search or an indexing tool. Coal SORT consists primarily of a frame-based semantic network and the software needed to allow users to display portions of it and to move around in the conceptual structure. The expert knowledge in the system is embodied almost entirely in the semantic network. There is no procedural knowledge in the system.

(b) **EP-X**: The Environmental Pollution Expert (EP-X) has certain things in common with coal SORT in that both are concentrating on enhancing interface using a Knowledge Based approach. The knowledge base of EP-X consists of a hierarchical frame-based semantic network of concepts and a set of templates that express the patterns called the pragmatic relationship among concepts. These patterns are referred to as conceptual information.



(c) **BIOSIS:** BIOSIS uses a knowledgebase, including a significant amount of procedural knowledge, to assign documents to categories automatically. It is designed as an indexer aid. BIOSIS uses the information in the titles of biological documents to assign as many categories as possible of those that would be assigned by human indexers. The indexing languages are the structured and practical representations of information that can be used to very good advantage of AI applications.

#### **IV) Application of Expert System in Indexing:**

Indexing of periodicals is another area where expert systems are being developed. ' Med Index' is the best example of indexing system used in the library an Indexing activity. Very few library users have interacted with knowledge based systems. In general, users have had very little contact with these systems because most of them are not perfect enough to be used by the everyday library patron.

#### **v)Application of Expert System in Acquisition:**

The collection of documents is another integral part of the library. The users of the library have a significant role to play in building electronic collections and their help and advice should be solicited in the process building library collection. The knowledge base has to be broad enough and the interfacing aspect must be easy enough for the library to get the desired information from the machine.

#### **Applications of Natural Language Processing in Library Activities:**

To apply this to the field of Library and Information science and more specifically to a searching database such as online public access catalogs Indexing is the basis for document retrieval. Library patrons may not recognize the ambiguity of their search strategy. The use of natural language for Dialog database searches would allow the library patrons to search Dialog database directly, without the assistance of information professional. A patron using an electronic catalog in a library may prefer to have the catalog understand a complete sentence like Find all your sources which contain a mention of natural language processing for the use of Library and information science.» The human librarian has the advantage of being trained in search & query as well as natural language and can act as an intermediary between the machine and the library patron.

In the future, it may be possible to use natural language to access the website also. Library patrons must become computer literate to take the advantage of this new technology.

#### **Application of Pattern Recognition in Library Activities:**

In this era of the Internet and distributed, multimedia computing, new and emerging classes of information systems applications have swept into the lives of office workers and everyday people. New applications ranging from digital libraries, multimedia systems, geographic information systems, and collaborative computing to electronic commerce have created tremendous opportunities for information researchers and practitioners. As the application becomes more overwhelming, pressing, and diverse, several well know information retrieval problems have become even more urgent in this network centric information age.

Recent advances in the development of languages and platforms such as Java, OpenGL, and VRML and the availability of advanced graphical workstations at affordable prices have also made information visualization a promising area for research.

#### **Applications of Robotics in the Library Activities:**

The goal of Comprehensive Access to Printed Material is to build a robotic, on-demand, and batch scanning system that will allow for real-time browsing of printed material through a web interface. The user will engage the CAPM system that, in turn, will initiate a robot that will retrieve the requested item. The robot will deliver this item to another robotic system that will open the item and turn the pages automatically. By using existing scanners, optical character recognition software, & indexing software developed by the Digital Knowledge Centre, the CAPM system will not only allow for browsing of images of text, but also for searching and analyzing of full-text generated from the images.

In libraries, AI is used in search functionality. Specific examples include **DynaMed and Micromedex with Watson and Expert.ai's connection in EBSCO**. Other ways AI is in libraries are through chatbots, training others on AI capabilities, and research.

AI has penetrated the world of librarians and researchers in the form of **chatbots that can answer directional or simple questions, alert when a new book is published, and direct a customer to specific library resources**.



<https://www.slideshare.net/MuhammadYousufAli/artificial-intelligence-role-in-libraries>

➤ **List of AI Tools & Frameworks**

From the dawn of mankind, we as a species have always been trying to make things to assist us in day to day tasks. From stone tools to modern day machinery to tools for making the development of programs to assist us in day to day life. Some of the most important tools and frameworks are:

- Scikit Learn      \* TensorFlow      \* Theano
- Caffe                \* MxNet              \* Keras
- PyTorch            \* CNTK              \* Auto ML
- OpenNN            \* H2O: Open Source AI Platform
- Google ML Kit

● **Scikit Learn**

Scikit-learn is one of the most well-known ML libraries. It underpins many administered and unsupervised learning calculations. It includes a lot of calculations for regular AI and data mining assignments, including bunching, relapse, and order.



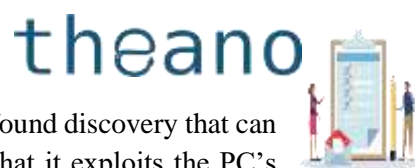
● **Tensorflow**

On the off chance that you are in the realm of Artificial Intelligence, you have most likely found out about, attempted, or executed some type of profound learning calculation. Is it accurate to say that they are cool when done right? Truly! So you don't need to compose at the C++ or CUDA level to keep running on GPUs. It utilizes an arrangement of multi-layered hubs that enables you to rapidly set up, train, and send counterfeit neural systems with huge datasets.



● **Theano**

Theano is wonderfully folded over Keras, an abnormal state neural systems library that runs nearly in parallel with the Theano library. Keras' fundamental favorable position is that it is a moderate Python library for profound discovery that can keep running over Theano or TensorFlow. What sets Theano separated is that it exploits the PC's GPU. Theano's speed makes it particularly profitable for profound learning and other computationally complex undertakings.



- **Caffe**

‘Caffe’ is a profound learning structure made with articulation, speed, and measured quality as a top priority. It is created by the Berkeley Vision and Learning Center (BVLC) and by network donors. Google’s DeepDream depends on Caffe Framework. This structure is a BSD-authorized C++ library with Python Interface.



- **MxNet**

It allows for trading computation time for memory via ‘forgetful backprop’ which can be very useful for recurrent nets on very long sequences. Built with scalability in mind, Lots of cool features like easily writing custom layers in high-level languages.



- **Keras**

It is a high-level library for neural networks, using TensorFlow or Theano as its backend. The majority of practical problems are more like picking an architecture suitable for a problem, for image recognition problems – using weights trained on ImageNet, configuring a network to optimize the results.



- **PyTorch**



PyTorch is an AI system created by Facebook. Its code is accessible on GitHub and at present has more than 22k stars. It has been picking up a great deal of energy since 2017 and is in a relentless reception development.

- **CNTK**

CNTK allows users to easily realize and combine popular model types such as feed-forward DNNs, convolutional nets (CNNs), and recurrent networks (RNNs/LSTMs). It implements stochastic gradient descent (SGD, error backpropagation) learning with automatic differentiation and parallelization across multiple GPUs and servers. CNTK is available for anyone to try out, under an open-source license.

- **Auto ML**

Auto ML is probably one of the strongest and fairly recent additions to the arsenal of tools available at the disposal of a machine learning engineer.



While the benefits reaped from them are lucrative, success in determining optimal hyperparameters is no easy task. Thus we enter a new realm of meta, wherein software helps up build software. AutoML is a library that is used by many Machine learning engineers to optimize their models.

- **OpenNN**

Jumping from something that is completely beginner friendly to something meant for experienced developers, OpenNN offers an arsenal of advanced analytics.

It features a tool, Neural Designer for advanced analytics which provides graphs and tables to interpret data entries.

- **H2O: Open Source AI Platform**

H2O is an open-source deep learning platform. It is an artificial intelligence tool that is business oriented and helps them to decide data and enables the user to draw insights. There are two open source versions of it: one is standard H2O and the other is paid version Sparkling Water. It can be used for predictive modelling, risk and fraud analysis, insurance analytics, advertising technology, healthcare, and customer intelligence.




- **Google ML Kit**

Google ML Kit, Google’s machine learning beta SDK for mobile developers, is designed to enable developers to build personalised features on Android and IOS phones.



The kit allows developers to embed machine learning technologies with app-based APIs running on the device or in the cloud. These include features such as face and text recognition, barcode scanning, image labeling and more.

Developers are also able to build their own TensorFlow Lite models in cases where the built-in APIs may not suit the use case.

### Top 10 Artificial Intelligence Apps in the market

**01. Replika.** : Replika, widely regarded as the best AI buddy, converses with her users as if she were a person. It was initially created for Apple users, but it is now available for Android users as well. The software may learn user preferences and behaviours, starting with general replies and progressing to more detailed and personalized ones.

### 02. DataBot Personal Assistant AI

It is an AI-based mini pocket robot that works as a personal assistant for you. You can engage with it by asking questions, talking, and having discussions, DataBot is a virtual assistant powered by AI that is accessible on Windows 10, Android, and iOS By Google.



### 03. Google Assistant

Google Assistant is a virtual assistant software application developed by Google that is primarily available on mobile and home automation devices. It is built on a set of technologies designed to handle languages such as English, Español, German, French, Italian, Japanese, Portuguese, Chinese, and many more. Users may interact with Google Assistant using natural speech and keyboard input.



### 04. Alexa

Alexa is Amazon's artificial intelligence-powered robotic assistant. Typically, Amazon Alexa improves voice commands, natural language processing, and other technologies to give a broad range of capabilities to its consumers, such as voice interaction, music streaming, query resolution, and so on. Alexa converts speech to text and utilizes Wolfram language to deliver the best responses to all of the clients' questions.



### 05. Microsoft SwiftKey

Microsoft SwiftKey is a virtual keyboard app originally developed by TouchType for Android and iOS devices. Apple implemented third-party keyboard support. **Microsoft SwiftKey** is an intelligent AI-based keyboard that comprehends your writing style, so you can type quicker, faster, and better.



### 06. FaceApp

**FaceApp.** **FaceApp** is one of the best AI apps for Android phones. It helps users in editing their pictures. For example - you can turn your selfie .



### 07. Fyle

Fyle is an AI-powered expense tracking programme that is available for PC, Android, and iOS. Fyle is a significant player in smart expenditure accounting, and it has announced direct connectivity with Google G Suite and Microsoft Office. Fyle is used by companies like Royal Enfield and Communicorp.



### 08. ELSA

ELSA - Learn English Speaking

**ELSA Speak** is popular AI-assisted English language learning software. This programme allows users to practice pronouncing English and conversing in the





language in short bursts. They can hope to make rapid progress since AI gives them timely evaluations.

### 09. Youper

Youper is an AI-powered mental health assistant app accessible on both Android and iOS. When individuals can connect with them quickly, this software can help them take care of their mental health. Users can be guided via customised meditations by Youper. With the help of Youper, users may better understand themselves and track their moods.

### 10. Siftr

Siftr allows educators and scientists to easily build their own field work activities. Siftr is used by teachers, field researchers, citizen scientists and other curious people. Siftr makes it easy to focus a class or group around a specific topic and take them outside a formal classroom or lab to learn in the real world. It allows users collect and sort data like location, photos, and observations.

### Conclusion

The applicability of AI in areas, such as cataloguing, classification, documentation, and collection development, etc. Every year it seems to get better. All spheres will certainly accept AI in the near future with examples of those who are proficient with AI techniques being introduced. The application of artificial intelligence in academic libraries has been seen as a new driving force for the development of intelligent libraries. Librarians use artificial technology in some specific areas of their libraries to meet global trends. The new trends of applying AI in library operations in academic libraries are as follows: expert systems in the comparison of services, cataloging, classification, indexing, acquisition, and artificial intelligence of natural language processing in library operations, pattern recognition in library operations, and robotics in library operations. Therefore, the application of AI to library services takes away from the complex and dependent work that people can encounter errors and minor failures, help to access research work, lack of human contacts and human substitution.

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## Application of Social Networking Tools in Libraries

Mrs. Naina S Peters,

Librarian, Hislop College, Nagpur.

### Abstract:

*In the age of Information and Communication Technology, everyone is connected with each other by means of various social networking tools like face book, twitter, LinkedIn, Blogs etc. This became an effective medium to share the knowledge and skills of the users and library professionals. The present paper describes various social networking tools and its uses, purposes and benefits of using these tools to enhance the library services also discusses the application of chat bots to connect with library users.*

*Key words: Social networking tools, Library, Chat bots, Artificial intelligence*

### Introduction

The World Wide Web now enables people to gain access to information, create content as well as disseminate ideas more efficiently. Social networking sites initially emerged for Internet users to find long-lost Classmates, friends and relatives, link with each other and share their profiles. The wide application of social networking in different contexts appears having included universities and libraries (Boyd and Ellison, 2007). The academic libraries could take the opportunity of using these social networking tools to disseminate information, market services and promote new releases (Burkhardt, 2010).

What are social networking tools: Alexander (2006) offered a broad definition: Social networking can encompass almost all collaborative environments employing web 2.0 technologies. In particular, social networking websites allow users to share interests and communicate with others (Boroughs, 2010). According to Connell's survey results, if a library wanted to use social network sites effectively, librarians should be cautious in establishing communications and relationships with their students, friends and avoid 'mass friending'. It appears that the uptake of social networking as tools for libraries needs to be understood further to pave the way for harnessing its potential benefits.

Technology is changing the way; today's users thrive on social networking tools like Face book, Twitter, Foursquare. Chat bots are usually not included in this grouping but they engage users with playful interface. Chat bots as another tool for reaching users who expect more than a flat website. Chat bots also known as conversational agents, artificial conversation entities, or chatterboxes are computer applications that imitate human personality. A chat bot is interactive, responding in sentences that track the conversation in a way that is meaningful to mankind. It is a program with a certain level of artificial intelligence which communicates with a person or another chat bots in order to give the observer of the conversation impression that it is a conversation with a real person.

### 2. Objectives

- To examine factors that might influence libraries decisions on using social networking tools
- To describe librarians' perceptions of the usefulness of social networking tools for information sharing
- To examine the application of social networking tools in academic libraries

### 3. Different Social networking tools

- Face book
- Instant Messaging
- Twitter
- Blogs
- Flickr

- Wikis
- You Tube
- Linked In etc.

**4. Purposes of using social networking tools in libraries**

- Sharing of Information
- Links sharing
- Photo sharing
- Sharing library videos (for instructions/ guides)
- Video sharing
- Marketing and publicity
- Public relations
- News dissemination
- Library notices
- List of current and new library collection
- Enquiry services
- Online reference services
- Interaction with students
- Monitoring publications and conferences
- Staff communication
- FAQ

**5. Launch year of various social networking tools**

1995	1997	1999	2003	2004	2005	2006
Wiki	Weblogs	MSN Messenger	Linked In My space Delicious	Flickr Face book (Harvard only)	You Tube, Windows Live, Messenger (re- launch of MSN messenger)	Twitter, Face book (everyone) Issuu Slide share

**Benefits/Advantages using social networking tools**

- Promotion of Library services and facilities
- Disseminates news quickly
- Enhances reference services
- Enhances interactions with users
- Reaches out and engages users
- Helps to gather users’ feedback
- Communication
- Economical

**Challenges**

- Demands mastery of new and evolving technology
- Requires time and manpower
- Needs to attract users to take part in different platforms
- Reluctant staff
- Relatively unengaged users

**Chat bots in Libraries**

It is automatic conversation system. Chat bots or Virtual agents offer a self-service option for our online customers in the context of Information services. The Chat bot’s designer creates a structure that leads the user



through question-and-answer dialogue to discover the information needed and to provide it. The chat bots can be particularly convenient and helpful to those patrons who are least familiar with the library and its services. A library chat bots could answer a variety of questions like questions about hours, locations, upcoming events, registrations. A chat bots could tell a user when their books are due, or take fine/ payment information. Face book messenger chat bots to operate within face book messenger. Chat-based reference could answer basic library questions, freeing up library staff's time to answer or focus on other tasks.

Christensen suggest that chat bots:

- Were selected more frequently than other forms of digital reference
- Provided instant responses
- Made asking questions easier
- Provided marketing tool for reference services.

## 8.1 Application and Usage

### 8.1.1 Virtual Greetings to the Users

Chat bots welcome users to the Library website, by providing a friendly greeting on their virtual visit, guiding and helping them finding relevant information.

### 8.1.2 Making users aware of the library resources through personalized, seamless experiences

Chat bots serve as a virtual library assistant, with intelligence, enabling library users to locate resources quickly and effectively. Users can put forth their queries, interact, navigate through website and access documents.

### 8.1.3 Engage library users across every language, culture and locate

Chat bots allows creating multilingual virtual assistants that can understand and interact with users in their native language, eliminating language barriers more effective and affordable.

### 8.1.4 Intelligent virtual assistants as universal bots

Coordinate tasks from multiple specialized virtual assistants provide library users with a consistent intelligent virtual assistant experience by linking individual virtual assistants together to create a universal virtual assistant. It allows users to access multiple virtual assistants from a single chat.

### 8.1.4 Auto Dialogue Generation

Intelligent virtual assistants/ Artificial Intelligence (IVA/AI) chat bots uses conversation transcripts to have complex and meaningful conversations with users at scale to create dialogues matching natural flow of human conversations.

## Conclusion

In the present scenario, social networking services have become one of the largest online platforms in the world of sharing real time information. Social networking tools would help to establish a cordial relationship between librarian and users for marketing library services, announce library programs on the wall and so on. Library users required to aware about social networking services and sufficient training should be imparted to staff to accomplish the task of planning social software in library. Library professionals must take the responsibility of planning, organizing and implementing social networking tools in Library and Information centers.

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**Mobile Applications Used in Academic Libraries****Rekha Sandeep Kale (Librarian)**

KBP College,Urun- Islampur.

**Abstract**

*Library services undergone significant changes with the adoption of information and communication technology. It has got a further dimension with the application of mobile devices/mobile technology which augments library services to greater extent. This paper presents an outline of the application and use of developments in mobile telecommunication systems, This new technology will be great help to libraries towards strengthening their relationship and provide enhanced user experience to existing users.*

**KEYWORDS-** *Mobile devices in education, M-learning or mobile learning , Applications of Mobile phones, MobileCollections,Mobile Optimized Academic library Website, Applications of Mobile Services In Academic Libraries.*

**Introduction**

Human history has gone through different phases and witnessed different revolutions Information .Now a day information and communication technology (ICT) is the most important part of the human life development. The focus of this paper is on hand-held mobile devices like PDA and smart mobile phone although the phrase 'Mobile Devices' is used to access information through internet on a daily basis.

**Mobile devices in education**

Mobile technologies are playing an increasingly important role in education and academic lives. Devices such as smartphone, tablets, Ipads and e-book readers connect users to the world instantly ,increasing access to information and enabling interactivity with others . Mobile device are playing a great role in all these activities by providing many benefits to students, teachers, parents etc. Application that run on these device let users not only consume but also discover and produce content (2012) Dahlstrom. The changing education technology theory research and pedagogy are re-conceptualized to provide better opportunities and learning to the students and academic fraternity.Mobile device are now being used as research tools and e-book readers,for SMS chatsrooms,group chat rooms for classes, Photo sharing for academic documents and mobile diaries and to set reminders make notes and organize schedules, Connect with guest speakers in classrooms via skype and scan QR Codes for use as a reference point for assignments and projects(2014)Lepi.

**M-Learning or Mobile learning**

M-learning or mobile learning is defined as "learning across multiple contexts, through social and content interactions , using personal electronic devices". using mobile tools for creating learning aids and materials becomes an important part of learning is convenient in that it is accessible from virtually anywhere.

**Applications of Mobile Phones**

The wireless technology and mobile phone are becoming an integral part of everyday life and are changing the way one connects and interacts with the world Messaging News Hunt, Play Books, Email, Gmail, Alerting Service, Online Catalogue , You tube, Facebook, Whatsapp.

**Mobile Collections-**

Mobile Collections Substance contributor is collaborator through libraries to transport audio books, e-book, audio language courses, streaming music, films, images, and other multimedia that can be on mobile devices.

**Mobile Optimized Academic library Website-**

With the help of mobile optimized library website library may offer the following Information Service Mobile library catalogue plus loan related services, information about opening house, Directions to the library information on how to contact the library via multiple channels (Chat/SMS/Phone/Email/Whatsapp/Facebook) links to mobile enabled web 2.0 accounts, such as twitter, Flicker, YouTube, Facebook, floormaps, News about library events, content for download of podcasts, videos.

**Applications of Mobile Services In Academic Libraries****1) SMS Alert Services**

The steps involved collection of mobile phone numbers setting up a centralized SMS service center and sending group SMS via a network According to him the information that can be applied in centralized SMS Mayer(2012)

- Reading List the books which are in the library
- Lectures, Meeting Schedule exam dates
- To Send SMS to collect the requested books
- New title announcement extamin
- Multimedia borrowing notification services
- Concede the user about renewal of a book
- Mobile Library instruction
- Strike a card the user if book is due in his/her account informing user about the exact fine
- News and event remide service this service sends reminders to patrons about important news, exhibitions instructions, further more as a result taking place
- Moblie Phones application QR Code use read to e-book and e-journal

**2) OPAC Service**

OPAC use in mobile Application devices . OPACs mobiles online public access catalogue, New title preview mobile device container is wone to ward flow the information regarding recently acquired papers which are of irrespective of apperane.

**3) Reference Service**

Library users can ask librarians nomatter which during the exits talk plus texting through mobiles. The orientation services know how to exit provided through the lend a hand of transport and getting SMS.

**4) E-Resource Services**

Library users can be use e-resource service in mobile application any were any time open e-book and e-journal.

**5) CAS Services**

PDF Question paper services providing to user and syllabuses information giving to user Job, examination information providing to user

**6) Wireless application in information and library services**

Wireless technology has the potential to offer may new possibilities for accessing information from online catalogue ,Online database, Internet and virtual library .Among the wireless technology include digital cellular technology, Pocket Radio and wireless local area network. Today the convergence of mobile phone and the internet technology WAP.

**Advantages Mobile Technology**

- Save time of the reader
- Low Coast
- Anytime any place access to the information

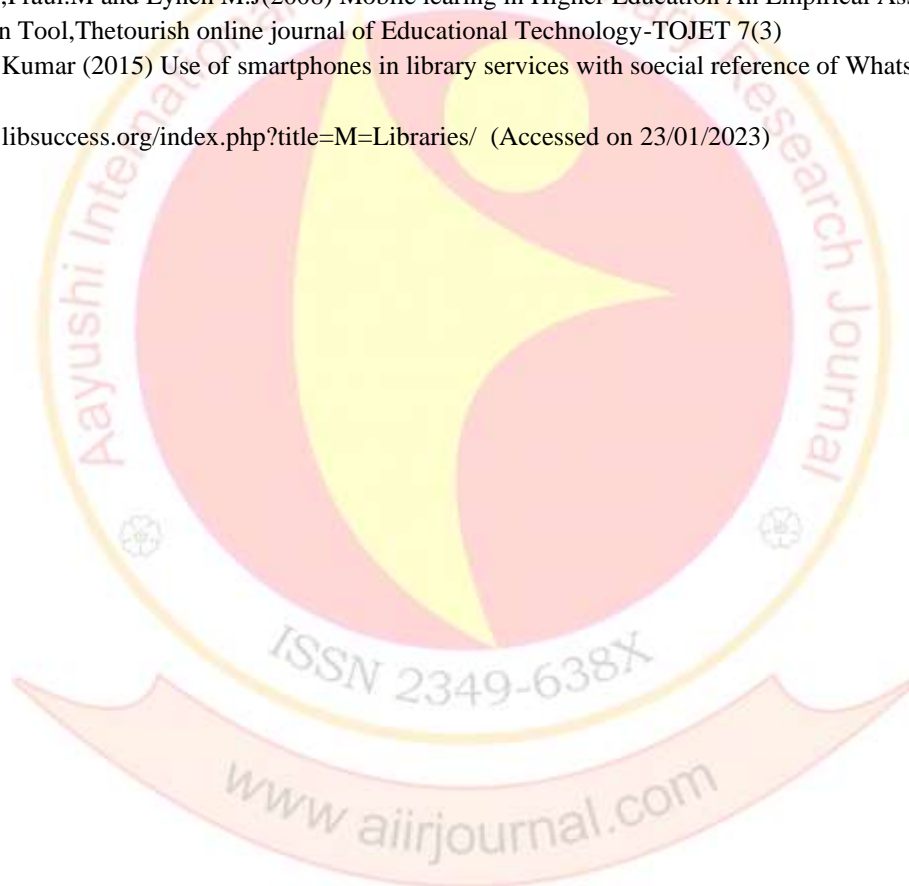
- One time more than people access information
- Every user helps learners to improve on yourself for checking record
- In receipt of alerts on outstanding fines
- Receiving reminders to return library items that will be due soon
- Renewing library items

**Conclusion**

Mobile Application has emerged as the important technology as it is used to access information through Internet as on a daily basis. At the same time libraries must exist promote. It is extremely necessary for libraries to be active and modify their view point to accept new technology and to build up fresh variety of associations among users.

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**Changing Nature of Academic Libraries and Its Impact on Faculty and Student****Mr. Vishwanath Tukaram Taral<sup>1</sup>**Assistant professor,(C.H.B)  
Department of Sociology,  
Kamala College, Kolhapur. (416008)**Dr. M. G. Dhutur<sup>2</sup>**Head, Department of Sociology,  
Vitthalrao Patil Arts, Commerce and Science College, Kale,  
Tal- PanhalaDist- Kolhapur.**Abstract**

*Academic libraries have undergone significant changes in recent years, and these changes have had a significant impact on faculty and students. One major change that has occurred is the shift from physical books to digital resources. Many academic libraries now have vast collections of electronic books, journals, and databases that can be accessed remotely by faculty and students. This has greatly expanded the resources available to researchers and made it easier for them to access the information they need. However, it has also led to some challenges, such as the need for faculty and students to learn new search techniques and the need for libraries to ensure the reliability and accessibility of digital resources.*

*Overall, the changing nature of academic libraries has had a significant impact on faculty and students. While it has greatly expanded the resources available to researchers, it has also created new challenges that must be addressed, for that the present research has thrown light on the changing nature of academic libraries and their impact on faculty and students.*

**Introduction:-**

The iconographic power of a college or university library expresses a purpose not just to collect, but also to organize, preserve, and make knowledge accessible. Today on the campus of virtually every higher education institution the library occupies a central position. In its placement and prominence, the academic library conveys its integral role in supporting higher education's core missions of research and education.

Academic libraries have undergone significant changes in recent years, as technology and the internet have transformed the way students and faculty access and use of information. The changing nature of academic libraries has a significant impact is on the faculty and students conduct research, access resources, and interact with library staff.

**Objective of the study:-**

To study the changing nature of academic libraries and its impact on faculty and student.

**Research Methodology:-**

The present study is the purely descriptive type which exclusively relied on secondary information. The necessary information has been collected from my own observations and Books, Journals in libraries.

**Changing nature of academic libraries and its impact on faculty and student**

One of the most significant changes in academic libraries has been the shift from print to digital resources. With the increasing availability of digital books, journals, and databases, students and faculty are able to access a wealth of information at their fingertips, without the need to physically visit the library. This has made research more convenient and efficient, but it has also raised concerns about the preservation of print materials and the implications for students and faculty who lack access to reliable internet.

Another important change in academic libraries has been the emergence of new technologies, such as virtual reality, artificial intelligence, and data visualization tools. These technologies have the potential to enhance the research experience for students and faculty, but they also raise questions about the cost and accessibility of these tools for institutions and individuals. The changing nature of academic libraries has also an impact on the role of library staff. With the increasing emphasis on digital resources, librarians have had to adapt their skills to

provide support and guidance in the use of digital tools and resources. This has led to the development of new roles for librarians, such as digital scholarship librarians and data management librarians.

Academic libraries have undergone significant changes in recent years, with the advent of new technologies and the shift towards digital resources. These changes have had a significant impact on the way that faculty and students use and interact with academic libraries.

The shift towards digital resources has a major impact on academic libraries. As more and more scholarly literature and other research materials are made available online, academic libraries have had to adapt to this new reality by investing in digital collections and providing access to a wide range of online resources. This has led to a decrease in the need for physical space to store books and other materials, and has enabled academic libraries to provide access to a wider range of resources to their patrons. In addition to the shift towards digital resources, academic libraries have also had to adapt to the changing needs of faculty and students. With the increasing use of mobile devices and the growing popularity of online learning, academic libraries have had to provide access to resources and services that are easily accessible from anywhere, at any time. This has led to the development of new technologies and services, such as mobile apps, online chat reference services, and virtual research assistance.

Despite the many changes that have taken place in academic libraries in recent years, the role of academic libraries as a place for learning and research remains unchanged. As academic libraries continue to adapt to the changing needs of faculty and students, they will continue to play an important role in the academic community.

One of the major impacts of the shift towards digital resources has been the increased accessibility of academic libraries. With the rise of online databases, e-books, and other digital resources, students and faculty can access academic materials from anywhere, at any time, as long as they have an internet connection. This has made it much easier for students and faculty to conduct research, access scholarly literature, and collaborate on projects, regardless of their physical location.

Another important impact of the shift towards digital resources has been the ability of academic libraries to offer a more personalized experience to their patrons. With digital resources, academic libraries can provide customized recommendations and suggestions based on a patron's browsing and search history. This helps to ensure that patrons are able to find the resources they need quickly and easily. Additionally, digital resources can be easily integrated into online course management systems, making it easy for faculty to include digital resources in their syllabus and assignments.

In addition, academic libraries are now providing more services that cater to the needs of the students and faculty. For example, many academic libraries now offer online chat reference services, virtual research assistance, and research consultations, making it easy for students and faculty to get the help they need, when they need it. Additionally, many academic libraries now provide workshops and training on the use of digital resources, which helps students and faculty to take full advantage of the resources available to them.

However, the shift towards digital resources has also brought some challenges to academic libraries. One of the major challenges has been the issue of information overload, where students and faculty are faced with an overwhelming amount of digital resources and information. This can make it difficult for students and faculty to find the information they need, and can lead to confusion and frustration. Additionally, the shift towards digital resources has also led to the issue of information inequality, where some students and faculty may not have access to the same resources as others. This can put them at a disadvantage and can lead to an uneven playing field when it comes to research and learning.

Another challenge that academic libraries are facing is the issue of preservation of digital resources. Digital resources are often subject to obsolescence and can become inaccessible if the technology used to create or access them becomes outdated. This can lead to the loss of important information and can make it difficult for future researchers to access the resources they need. Additionally, digital resources can be vulnerable to cyber threats, such as hacking and data breaches, which can lead to the loss of important information.

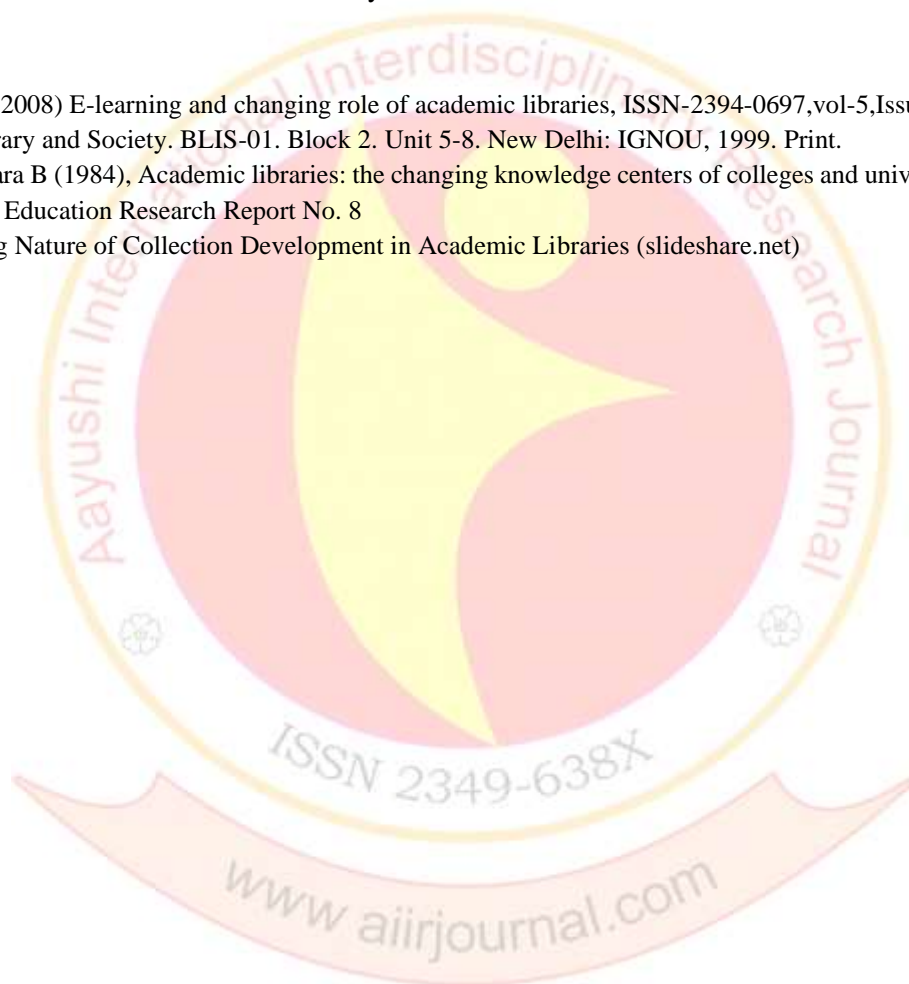
In order to address these challenges, academic libraries must continue to adapt and evolve to meet the changing needs of faculty and students. One way to do this is by investing in new technologies and services that can help to manage and organize digital resources, making it easier for students and faculty to find the information they need. Additionally, academic libraries must also invest in preservation and security measures to ensure that digital resources are safe and secure, and that they can be accessed by future researchers.

**Conclusion:-**

In conclusion, the changing nature of academic libraries has been a significant impact on the way that faculty and students use and interact with academic libraries. While the shift towards digital resources has made academic libraries more accessible, personalized, and responsive to the changing needs of faculty and students, it has also brought some challenges such as information overload and preservation. To address these challenges, academic libraries must continue to adapt and evolve to meet the changing needs of faculty and students, by investing in new technologies, services, and preservation and security measures. Academic libraries will continue to play an important role in the academic community and will be vital to the success of students and faculty.

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## Use of E-Wallets for Library Transaction

Vandana Govind Kelkar

Librarian

Yashwantrao Chavan Mahavidyalaya, Halkarni.

Tal:-Chandgad. Dist:- Kolhapur. Maharashtra.

**Abstract:-**

The purpose of this paper is to describe the utility of e wallets I day to day financial transactions. Now days all type of transactions are online. Libraries are also included in it. E wallets interface, types are described here in detail in the paper. Government of India's financial transactions are moving towards cashless. Advantages and challenges are also described in the paper.

**Key wards:-**e wallet, UPI, Digital Payment ecosystem

Modern economy develops with exchange of money payments. Payment represents money transfer from as assets to service of to seller. The origin of the payments can be found in the antique barter system. Due to digital technological innovations computer networks used to make financial transactions as well as for the transfer of funds among different institutions as well as for the transfer of fund among different institutions. Now a days many companies have chosen to use the technology system in each of their business activities on of which is the existence at a digital wallet.

The development of information technology has brought changes to all aspects of human life. One of which is the creation of digital wallet. Digital wallet is a part of electronic money which is on of the innovations in payments instruments. Electronic wallet is a digital payment instrument that uses server based electronic media. With this technological innovation in payment instruments we are moving towards cashless economy.

**Government of India Initiatives:-**

The government demonetization initiative taken in 2016 encouraged a cashless economy in India. In the pandemic, the government launched Unified payment Interface (UPI) and rapidly established e payments startups. Cashless economy is the flow of money via digital means mobile wallets, debit cards, credit cards or net banking without using cash. Today smartphone in the economic range can provide quite a decent access to the digital world as well Government's initiatives to regulate and limit the flow of cash are leading India's path towards a cashless economy.

**Mobile Wallet :**A mobile wallet is a way to carry cash in digital format. You can link your credit

Card information in mobile device to mobile wallet application or you can transfer



money online to mobile wallet. Instead of using your physical plastic to make purchase, you can pay with your smart phone tablet or smart watch. An individual's account is required to be linked to the digital wallet to load money in it. Most banks have their ewallets and some private companies. E. g. **Paytem, Free charge, Mobikwik, Oxigen, mRupee, Airtel Money, jio Money, SBI Buddy, itz Cash, Vodafone M-pesa, Asis Bank Lime, ICICI pockets SpeedPay etc.....**

Fig . Mobile Wallet

**Most Preferred e wallets:-**There are various types of e wallets options available in the market and people use them as per their comfort and user interface of that application:-**PayTm, AmazonPay, Phone pay ,Google pay, Bhim UPI**



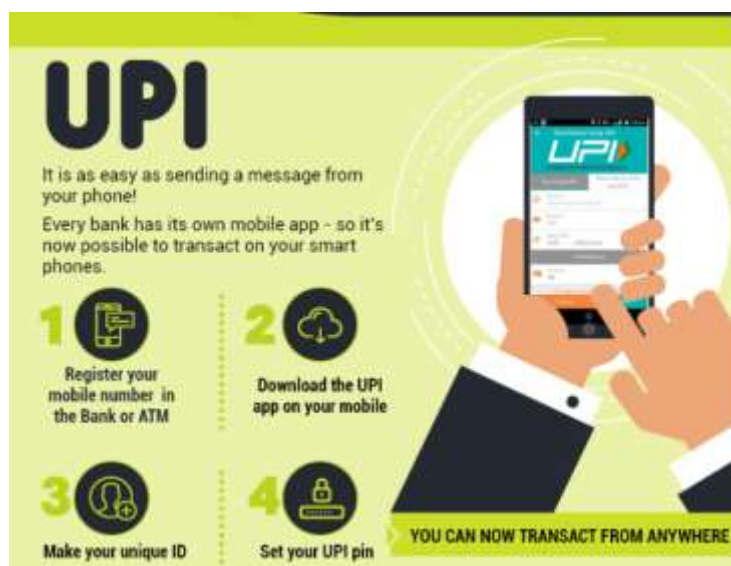


Fig 2 UPI (Unified Payment's Interface) interface.



Fig. 3 Mobile Wallets

**Types of Wallets:-** The RBI classifies everyone of cashless fund transfer using cards of mobile phones as “prepaid payment instrument” They can be used as smart cards, magnetic strip,, Net accounts, Net wallets, mobile accounts , mobile wallests. They are classified in to four types.

**i)Open Wallets:-**these allow you to buy goods and services, with draw cash at ATM or banks and transfer funds. These services can onlybejointly launched in association with a bank. Apart from the usual marchent payments it also allows you to send money to any mobile number linked with a bank account M-Pesa by Vodafone is an example.

**ii) Semi Open Wallets:-**You cannot withdraw cash of get it back from these wallets. In this case , a customer has to spend what he loads. For example Airtel money /Ola Money is a semi open wallet, which allows you to transactwithmarchants having a content with Airtel/ola.

**iii)Closed Wallets:-**This is quite popular with e-commerce companies; wherein certain amount of money is locked with the merchant in case of cancellation or return of the product of gift cards. Flipkart and Book My Show wallet are an example.

**iv) Semi- colsedwallets:-**These wallets do not permit cash withdrawals, but it allows you to buy goods and services from listed vendors and perform financial services at listed location. Pay tm is and example.

**Digital Payment ecosystem in India:-**One of the major objectives of Digital India is to achieve”faceless, paperless, cashless” status. The promotions of digital payments has been accorded the highest priority by the government of Indiato bring each and every segment of our country under the formal fold of digital payment services. During the last three years, digital payment transactions have fegistered unprecedented growth in India. BHIM-UPI has encouraged as the preferred payment mode of users.

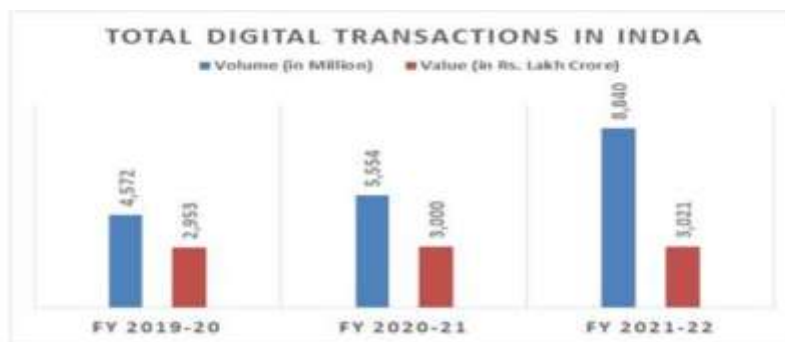


Fig. 4 Digital Transactions of India

**E wallets for library transaction:-**Our Government is encouraging for cashless transaction. Our affiliated university has also order to all colleges to do cashless transactions. University Grants Commission is also insisting for cashless transaction. Library is not exception for that. We all librarians are using G pay or Phone pay, Net banking, for our day to day transactions. We are purchasing the books online via amazon or flipkart. Amazon and flipkart are also a part of e wallet. We all librarians are sending the subscriptions of periodicals through mobile app by using G pay or net banking of our college account or personal account. It is very easy and save out time. We can send the screen shots of our payment details with transaction ID. It is authentic. This online payment mode is very useful for our library transactions.

#### Advantages of using e wallets :-

##### Convenience:-

You will no longer need to carry wads of cash, que for ATM withdrawals. It is also a safer and easier spending option when you are travelling. You will have freedom to transact whenever and wherever you want.

##### Tracking spends:-

All the time transactions are on record. It will be very easy for people to keep track of their spendings.

##### Lower Risk:-

If stolen, it is easy to block mobile wallet remotely. It is impossible to get cash back. This is especially true while travelling, the loss of cash can cause great inconvenience.

##### Small Gains:-

You can pay exact amount without worrying about not having change or getting it back from shopkeepers.

- Digital Transactions by ewallet are convenient and improve market efficiency.
- A lot of data transfer happens due to cashless transactions. This data will help the government to plan for future expenses.
- Circulation of fake currency notes can be reduced.

#### Challenges in transitioning to online mode( e wallets)

- **Digital and financial literacy:-**ensuring financial and digital inclusion alone are not sufficient. The citizens should also be made aware of the financial and digital instruments available and how to transact using them.
- **Cyber Security:-**Digital infrastructure is highly vulnerable to cyber attacks, cyber frauds. Establishing secure payment interfaces is a prerequisite for going cashless. This includes defence against attacks, data protection, institutionalised cyber security architecture.
- **Urban Rural Divide:-** While urban centers mostly enjoy high speed internet. Semi urban and rural areas deprived of stable net connection. India has more than 20 million smartphones but still away to transact through mobile phone.

- **Technical Literacy:-**For computer of mobile related financial transactions, man should be technically sound enough. People are using smart phones but they are not using the e wallets. Because they don't have knowledge of using the e wallets because they don't have knowledge of using transaction app of e wallets. Technical literacy increasing rate is little bit slow in India.

**Conclusion :-**

Online education, online money transfer are the buzz words since 2019. This is the influence of corona pandemic. Demonetisation has also done a lot of effect on increasing online financial transactions. All types of libraries are using internet facilities for their day-to-day transactions. Libraries are using their own app. All financial transactions are done through e wallet. It is very easy and save the time of time. According to National Education policy 202 we all have to become techno savvy persons and have to adopt new changes in the educational world.

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**The Contribution of Newspaper Libraries of Marathi Newspaper in Information Communications Published in Maharashtra State****Dr. Pandurang Balkrishna Patil**

Librarian, Shri ShahajiChh.Mahavidyalaya,Kolhapur

**Abstract**

*The contribution of newspaper libraries of Marathi newspaper in information communication published in Maharashtra state, the beginning of the present topic has been developed because of the interest of it and also because of the problems in it. The research student has worked in the field of newspaper and libraries for ten years, which helps him to fulfill the objectives of research. This research its conclusion, suggestions, and future hints for study will help the student who are interested in doing further study in this topic. A qualitative book will be published of this thesis.*

*Not only library and information technology but special libraries are also going to get its benefits. The guide-book will be helpful through all over the world for all established libraries and also for those who are going to establish it.*

**Introduction**

In the world of information and printing technology the importance of reporting in raising day by day Journalism which exposes the problems of common man is now flourishing in the developed developing and also ever in the backward nations.

George Bernord Show has referred newspaper as University of poor. It is the forth pillar of democracy according to Nani Palakhiwala. Indian Newspaper has kept a good control over the legislature, executive committee and the judiciary because of that our democracy becomes strong. According to the Indian readership survey which published in December 2011, it tells that the ratio of people who are using different informative sources are who are using different informative sources are 62 crore 91 lac 45 thousand. In which 34 crore 77 lac 62 thousand is the ratio 08 daily readers of newspaper. 12 crore 30 lac 87 thousand 588 in the daily selling rate of these newspaper. 53 crore 17 lac people watch different T.V. Channels. 16 crore 14 lac people listen radio, 7 crore 78 lac people see movie one in month, and the people who use internet are 2 crore 84 lac. In India we are having such families who uses all these sources.

Newspaper Library plays a very important role in the field of spreading of newspaper information and how much it serves to find it out, the present research has been done.

**Research Topic**

"The contribution of newspaper libraries of Marathi newspaper in information communications published in Maharashtra state". The work has been done on this topic. A critical study has been done considering the objectives of Marathi newspaper libraries in Maharashtra.

**Objective of the Research**

- 1) To review the works of newspapers libraries in marathi newspapers in Maharashtra and to search for the challenges before them.
- 2) To know about the various services rendered by newspapers libraries and to suggest remedies for making them more effective.
- 3) To find out the range of participation of newspaper libraries in newspapers information communication.
- 4) To search for changes taken place due to modern information technology in newspaper libraries.
- 5) To find out difficulties faced by information communication in newspaper libraries and suggest remedies.
- 6) To review the advantages availed by renders of newspapers group in the field of information preservation and dissemination.
- 7) To makeguidline module for new establishbnews papers& present working new papers



**Hypothesis**

- 1) The functions of Marathi newspapers libraries published in Maharashtra are satisfactory.
- 2) There is a development because of the use of computer technology.
- 3) The role of newspaper library is considerable in the field of Marathi newspaper's information communication.

**Scope and Limitations**

This research is limited to the studies of daily Sakal, daily Agrovan, Kesari, Lokmat, Pudhari, Tarunbharat, Maharashtra Times, Loksatta, Deshdut, Deshnoti only. The newspaper libraries of daily Sandyanand (Pune) and daily Aaikya are very small one, but there is no registration of these newspaper added in this study. Overall 10 newspaper's study has been done out of 12 from Maharashtra.

**Data Collection**

Libraries of all these ten libraries, twenty people from editorial field, ten advertisement managers and twenty reporters have been given a questionnaire to get the information. Interviews of libraries are also taken regarding this subject. The research student has met the librarian and visited the libraries of daily Sakal, Kesari (Pune), Maharashtra Times (Pune), Pudhari (Kolhapur)

**Research Methodology**

Survey method has been followed for the research. The information has collected through questionnaire, interviews and observations. The data has been critically analyzed and then the conclusion has been given.

The chapter wise summary as follows :

**Chapter 1 - Introduction**

The introduction has given in the beginning of this chapter. How the interest of this subject moved the student to study it has been explained. The problem objectives are also given. This objectives are comprehensive which of use on what is the role of newspaper libraries in information communication and it lead towards the conclusion hypothesis helped to reach to the conclusion. The scope and limitations have been decided. Methodology of research has also given in this chapter.

**Chapter 2 - Review of Literature**

To make the research strong and true 18 Ph.D., 5 M. Phil, 14 Minor Projects and 13 research papers have been studied. The citation of these material has given. More than 168 national, international and other reference books are read and referred for the citation of 237 references APA style has followed.

**Chapter 3 - History and Development of Newspapers**

In this chapter the concept of Newspaper, emergence, its development all over the world and the popular newspaper in present era have been mentioned. Indian newspaper, its history and development have been discussed. Various newspapers in different languages have also been discussed. List of Marathi newspapers in Maharashtra has given those newspaper which are registered in Audit Bureau of Circulation have been discussed in it, from 15 newspaper offices have been visited by the research student.

**Chapter 4 - Newspaper Libraries and its work**

In this chapter introduction, concept of library, types of libraries, special libraries, concept of newspaper library and work of Marathi newspaper libraries have been explained.

**Chapter 5 - New trends in the field of Newspaper library**

In this chapter the process of information in newspaper library, the services, literature, management in the newspaper library, new trends in the newspaper library communication, require skills of librarian and work of librarian have been discussed. The newspaper libraries such as daily Sakal, Agrovan, Pudhari, Kesari, Lokmat, Loksatta, Maharashtra Times, Deshdut, Deshonnati and Tarunbharat are consisted in this chapter. The research student has visited these libraries and taken the interviews of the librarian, questionnaire has been filled by them.

The research student has been observed the work goes in these libraries he were present in 5 libraries from the above list and the collected data is explained in this chapter.

**Chapter 6 - Data Collection and analysis**

The chapter presents the information collected through questionnaire, interviews and observations. Somewhere the numeric information is also given for that mean, mode and medium, and some other techniques have been used which has been analyzed practically. This analysis has also been explained below it. Graphs have used where necessary which helped to do analysis and explanation.

**Chapter 7 - Summary, Conclusion and Suggestions**

The research student has come to the conclusion by the information collected and analyzed. These conclusions are practically explained. Some recommendation are also suggested so that it would be helpful for the development purpose of related libraries. The research has reached to the end but still there are some limitations for this study. The research student can't interfere the other aspects or problems regarding the topic and can't find out the solutions. To allow the other students to study other various aspects the scope and limitations have been mentioned. So that unfound subjects will be studied by other students.

**Bibliography**

Wherever the reference form Ph.D., M.Phil thesis, dissertations, magazines, minor projects, research papers are cited, have been given in bibliography. Various websites are also cited. APA style has followed for bibliography. Style manual Vol.3 has been referred. According to Dr. Satyaprakash "The APA style manual is a scientific and explanatory." He has mentioned it in his book 'Granthalaya Aani Mahitishashtra Sanshodhan Paddhati'. According to above example and considering the information about APA style on internet the research student has prepared the bibliography.

**Appendix**

After completion of this research considering the experiences and opinions of experts the research student has prepared a handbook for the development of newspaper libraries. This guide book has enclosed in the appendix. The questionnaire for libraries, for editorial field, for advertisement managers and for reporters have been attached in appendix. Also, the photographs of first Marathi newspaper, process of making newspaper and photos of newspaper library are attached to it. Home pages of ten newspapers which have libraries are also given in it.

**Conclusion of Research**

Findings of the work of Marathi Newspapers libraries.

Among all the newspapers 'Daily Kesari' is the oldest one which is running since last 130 years. The next one is Daily Tarun Bharat which is of 92 years history. Daily Sakal has completed its 79 years. Daily Pudhari is of 72 years old, Daily Lokasatta is of 63 years. Daily Maharashtra Time is of 49 years, Daily Lokmat is of 29 years, and Daily Dehonnati has completed 25 years. In all these newspapers Daily Agorvan is very new which has been working since last 6 years.

All the newspaper libraries which have been studied in that Daily Kesari's and Daily Sakal's newspaper library in of 79 years old. So it is the oldest one among all newspaper libraries. Their work in continuously going on since last half of the century. The second no is of Daily Pudhari library which is of 51 years old, Daily Deshdut library has completed 41 years, Daily Deshonati library is of 25 years old, Daily Lokmat is of 23 years and Daily Tarun Bharat has completed 16 years. Daily Maharashtra Times (Pune), Library is news among all other libraries.

A huge collection of literature has been found in the library of Daily Kesari among all Marathi newspaper libraries of Maharashtra. It consists of 40,000 books. In daily Sakal's library, there are 20,000 books. Daily Pudhari library having 15,000, Daily Tarun Bharat consists of 10,000, Daily Lokamat Library is having 9800, Daily Deshdut library having 3700, Daily Dehonnati library having 3000 and Daily Maharashtra Times library is having 100 books. These libraries are giving various services such as issue the books to the readers, making them available the reference books list etc.

There are 10 lac photographs in the library of Daily Maharashtra Times. Next to it is Daily Sakal which consists of 6 lac 86 Thousand photographs, Daily Pudhari has 2 lac. Daily Deshdut and Daily Deshonnati library

have one lac. Daily lokmat library have 75 thousand and DaiyKesary library have 9 thousand photographs. The collection of photograph in Daily Tarun Bharat is of 5000 and along with this these libraries are serving the photograph services.

All these newspapers libraries have kept their newspapers from the first edition of it. All libraries have kept the documents according to the month, year, most of them have did binding of their newspapers. Daily Kesary library has newspapers copies since 130 years, Daily Sakal have from 79 years and Daily Tarun Bharat have 92 years old copies of their newspaper.

### **Conclusion regarding the challenges for Marathi Newspaper Libraries**

Marathi Newspapers libraries are facing too many problems in present era. In this 7 libraries have to do fast and developed exchange of information and to give this information as quick as possible and correct is a challenge. Still libraries need developed information technology systems. They are in need of new software's for news and for photographs libraries are in need of new books and manpower which become main hurdle in the process of library communication.

There are various libraries with libraries of main newspaper. There is a great need of manpower. There is a centralization of library because of the use of modern information technology. So that there comes a problem in saving the data of different version. The photograph of some important person in advertisement section is important for them but it becomes impossible due to centralization of library.

### **Conclusion regarding to get information of different services given by newspaper library and to know for which part of newspaper it becomes useful.**

Every newspaper library gives the services of reference, photograph services, exchanging services and cuttings etc. 6 (75% ) libraries provide Xerox service 4 (50%) provide awareness services, 3 (37.5%) libraries provide translation services, 2 (25%) Summary services, provides. To give translation service there is a need of good staff who knows Hindi, Marathi and English well which they are lacking. So that 6 (75%) libraries do not provide this facility.

Every newspaper library editorial department, advertisement and research and students are given all librarian facilities. 7 (87.5%) libraries provides photographer and they provide facilities to their worker. 6 (75%) libraries provide facilities to casual reporters, management department, newspaper readers, politicians and outsiders.

Newspapers editorial department are getting writing material from the reference in the libraries from which 60% library information is explained, 40% in numbers and 55% libraries provide other writing information. 80% libraries give immediate photographs. This section get help from all libraries. Along with this the information of great people and autobiographical latest information is also provided.

Newspaper reporters also take the advantages of these books for news writing and for different editions. 15% reporters visit libraries everyday. 20% reporters visit twice in a day, 30% once in a week, 5% once in a month and 30% rarely go to libraries.

Reporters are getting 95% reference from libraries, 80% libraries provide them photographs, 65% libraries provide exchanging facility, 60% cutting services, 50% summarization, 45% Xerox, 25% awareness services and other necessary facilities are provided.

65% information from collection of photographs and detailed data provided to the reporters to write special articles and detailed news and to write events.

Reporter are getting 55% statistical information from the library 80% libraries are providing autobiographical information.



**Conclusion regarding the role of newspaper libraries in newspaper information communication.**

The role of newspapers library in the field of Marathi Newspaper in Maharashtra state in 38.75% according to libraries, 36.05% according to edition department, advertisement department thinks it of 32.22%, 42.05% as per the reporters opinion. According to all of them the part of newspaper libraries in Marathi newspaper information communications is overall 37.26%

Newspapers are turning from printing to the electronic media. In this regard newspaper libraries help the e-edition of newspapers. So there is an important part of libraries in e-version of newspapers.

**Conclusion regarding the findings of the changes due to the use of modern information technology**

In all newspaper libraries are using 100% internet, e-mail, computer, mobile, telephone, Xerox for fast information exchange. 87.5% of libraries are using fax machine and 62.5% are using other devices.

It is found that there is a great impact of information technology on all sections of library such as library books, readers and workers. It is beneficial for the libraries. 62.5% libraries have increased their books collection. In 75% libraries there is a development in number of readers but the workers number is decreasing day by day.

Among all these libraries only 5 (62.5%) libraries have become computerized and 3 (37.5%) are on the way to become computerized. 5 (62.5%) libraries are on the way to change the present data in to digital form.

**Conclusion regarding the problems come across the information communication of newspaper library.**

- Problems due to the lack of modern technology.
- Problem because of number of data is separately stored.
- There is no work satisfaction among workers.
- There is no skill.

**Conclusions about benefit to the readers because of storage of data and transmission services.**

100% readers got the benefit of giving and taking data because of data storage an fast transmission services. Workers and readers can save their time. 75% of readers are getting editorial data and advertisement department is getting their data at their own places.

Worker who work in editorial section they use telephone, mobile, computer, internet, e-mail, Xerox in these devices telephone and LAN is mostly used. It exchange the information as fast as possible.

**Summary of Guide-book for newspaper libraries.**

Objective no. 7 is to provide a guide-book which is useful for the libraries which are just starting newly and which are in progress and according to that the present guide-book is created. It is attached in appendix.

The research student has visited many libraries in Maharashtra and discussed with the librarians and after thinking on various aspects regarding it this guide-book has been made.

This guide-book consist of position of libraries, Marathi newspaper libraries and the need of it, which is not applicable only for Maharashtra but everywhere in India. After that four important element are discussed i.e. infrastructure, reader, worker and book collection. Newspaper library does have readers such as editors, advertisers, reporters, managers, researcher, politicians, socialist etc. The information of how to collect the data how to separate it, have also been mentioned. The information and qualification of worker have also discussed.

**Suggestions**

- 1) There is change in Marathi newspaper and newspaper libraries due to modern information technology. These changes must be accepted by the libraries. The use of computer should be increased.
- 2) The data should be updated by considering the needs of editorial section, advertisement section and for reporters.
- 3) The libraries should accept the changes according the changes in the outer world. They must create balance between traditional methods and modern methods.



- 4) Marathi newspaper libraries should buy Hindi and English newspapers and magazines e.g. The Hindu, The Times of India, The Indian Express, Daily Bhaskar etc.
- 5) Librarians should update their knowledge by getting higher education in library science, technology and in communication. So that they may get higher post and handsome salary.
- 6) Newspaper libraries should help the inter librarian exchanges. Each other's editions should be exchanged.
- 7) There is a lack of magazines necessary for research and science, To develop our society we are in need of such magazines so libraries should give priorities to them.
- 8) To create reader libraries should arrange book stalls, book fares, photo presentations, and exhibitions of ancient articles and literature.
- 9) Workers should start writing in the newspapers to increase the number of readers. Libraries should be useful to all the members of society. So that the newspaper will get popularity.
- 10) Daily Maharashtra Times, Daily Deshonnati, Daily Deshdut should increase the number of books in their libraries.
- 11) Daily Tarunbharat and Daily Kesari newspapers should increase the number of photographs

**Topics for further research**

- 1) To study the Hindi, Marathi and English newspapers libraries in India.
- 2) To find out role of newspaper. Libraries in the field of selected Indian newspapers information communication.
- 3) To do comparative study of newspaper libraries. All India radio library and library of television.
- 4) To do critical study of selected Maharashtrian special libraries and their services.
- 5) To study the role of printed and electronic transmission in libraries
- 6) Fulfillment of objectives and hypothesis have been verified.

**Summary**

The contribution of newspaper libraries of Marathi newspaper in information communication published in Maharashtra state, the beginning of the present topic has been developed because of the interest of it and also because of the problems in it. The research student has worked in the field of newspaper and libraries for ten years, which helps him to fulfill the objectives of research. This research its conclusion, suggestions, and future hints for study will help the student who are interested in doing further study in this topic. A qualitative book will be published of this thesis.

Not only library and information technology but special libraries are also going to get its benefits. The guide-book will be helpful through all over the world for all established libraries and also for those who are going to establish it.

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**The Emerging Role of social media in Education****Jagirdar Lubna Batool**Research scholar,  
Dept of Education  
Dr. B.A.M.U.**M. N. Farooqui**Asst. Prof.  
Mech. Dept.  
Maharashtra Institute of Technology, Aurangabad**Abstract:**

*Social network tools afford students and institutions with multiple opportunities to improve learning methods. Through these networks, you can incorporate social media plugins that enable sharing and interaction. Students can benefit from online tutorials through YouTube, online courses delivered by universities abroad through Skype and a wide array of resources that are shared through social networks.*

*In this article the researcher highlights the importance of social networking sites their use in education for teachers as well as for students. The world has become a global village now students can learn through any mode which is available to them according to their needs. The access to learning is no more difficult. Various social media sites such as facebook, Instagram, and whatsapp is helping students and teachers connected with each other. Apart from this various online learning LMS like swayam, Coursera, Edex , Udemmy etc are proving boon to students .*

*Keywords: social media, students, education.*

**Introduction:**

With the advent of technology, offline medium of communication and interaction has got replaced by online communication medium named as social media. The Merriam-Webster dictionary defines social media as “forms of electronic communication (as Web sites for social networking and blogging) through which users create online communities to share information, ideas, personal messages, and other content (as videos).” Social media encapsulates digital tools and activities that enable communication and sharing across the net.

Social media shapes and presents information in a way that makes sense to and excites students more than traditional tools do, whether it's through a shared article with comment functionality, a livestream of an important event, a survey related to course materials, or a question posed to the broader community. Social media promotes self-directed learning, which prepares students to search for answers and make decisions independently. When reinforced in a class room setting, these social media skills can be guided and refined to produce better learning outcomes and critical awareness.

**What Is social media:**

According to the Dictionary definition, “Social Media is websites and applications that enable users to create and share content or to participate in social networking.” Social media is not just limited to posting pictures about holidays online. Social media has gained credibility over the years as a reliable source of information and platform where organizations can interact with audiences.

**Social Media in Education:**

Today, we can see education institutions adapting these developments into their systems and relying on group resources and mechanisms to improve student life. The use of social media in education helps students, teachers and parents to get more useful information, to connect with learning groups and other educational systems that make education convenient. Social network tools afford students and institutions with multiple opportunities to improve learning methods. Through these networks, you can incorporate social media plugins that enable sharing and interaction. Students can benefit from online tutorials through YouTube, online courses delivered by universities abroad through Skype and a wide array of resources that are shared through social networks. There is valuable knowledge to be gained through social media such as analytics and insights on various topics or issues for study purposes. As an educational institution, it is crucial to be active in many social platforms



possible, this helps create better student training strategies and shapes student culture. The great thing about using social media in education is that one can soon learn who the experts are in different fields and subjects. When one starts following these experts and can come to learn more and gain useful content from them, this empowers to produce great results. Social media has the ability to broaden the perspective on various subjects and gives illuminating, instant content that is new. The opportunity of engaging experts to get answers on topics that one may need help in. Learning colleges have the ability to connect with students through social media networks such as Facebook, Google Plus groups, and YouTube. These channels can be used to communicate campus news, make announcements and provide students with useful information. This builds engagement between the college and students which help tackle many student issues through the group interactions. Institutions can share supportive and positive posts that reach all students that are connected to the networks and pages. To initiate hashtags on social media to engage students and online discussions that are helpful. A video is a prominent tool in social media trends that is effective and can use it to share useful videos that inspire students and help them in their course subjects. Through social mediums such as YouTube, Facebook or Instagram live video the engagements between students and the institution can be sustained. The benefits of social media in the education process doesn't have to stop at the teacher-student relationship. There are a lot of other benefits that can be extracted from the use of social networking at higher levels as well. For example, principals or administrators can find a new way to integrate social media. Like sharing school news via social networks, holding an online meeting with the parents or even starting fundraising for different projects. And social media can quickly become the only channel of communication since we're living fast-paced lives, parents are usually busy with work and cannot attend school meetings. But this doesn't mean they shouldn't be in touch with events or be able to check on their kids occasionally. Social media offers the audience and subject monitoring tools that are useful and it is one of the best platforms to extract data. You can find out how the majority of people feel about a particular topic by creating Instagram/Facebook Polls, or conduct a survey using Google Forms or Survey monkey, or how experts perceive and advice on specific issues by using forums like Quora. This can help students compile and produce useful content for research. Whether students are working on an assignment, working on a project or trying to gain more insight on a subject, some of the best information and results can be extracted from social media. SlideShare could help in making presentations of such data. Learning management systems is a networking software that delivers educational programs and gives institutions other administrative activities. Social media learning in LMS can include instant chat functions, video, forums to share info and other lesson resources to help students. The LMS system strengthens student participation and makes team projects easy to collaborate. This system exists to tackle student and learning related issues to improve education schemes. Other social learning benefits are live conferencing systems, webinar capability, share group reviews, blogs and much more.

**Advantages of using social media in education:**

With the growing benefits of social media, students and teachers leverage the platforms for sharing, learning and exploring different topics. Social media enables:

- Easy sharing of information among the students' and the teachers' fraternity and it helps the students providing a wider exposure.
- Social media is cost efficient and enables easy transfer of large information at your fingertip. It also provides data encryption and secured sharing of personalised information. In the school or college, the data sharing is bound to time. However, any news or information can be shared and checked for credibility as it is accessible from anywhere.
- Industry experts have created content fragments that help the students to access and have an in depth knowledge of the desired topics by reaching out to the particular expert.

A dynamic platform that enables the students to do social learning and contact their peers across the globe. Social media has been instrumental in assisting people from across the globe to come closer and share relevant

knowledge and information. It gives access to different and forms of content that help broaden the field of study. Social Media, Moreover, provides credible online degrees classes in India and abroad. A student from India can receive a desired degree from prestigious colleges like Harvard and Stanford in the comfort of their home and at their pace. The future of education has taken a major shift with the advent of social media and credible colleges joining the bandwagon of providing online degree courses and certified courses that help upskilling of employees.

### **Social media in classroom:**

There are many social media tools for education that can be taken advantage of for students of any age, from elementary all the way through college.

**Use a Facebook page to broadcast updates and alerts:** Facebook can be the perfect social media platform to incorporate into the classroom. Instead of putting instructors and students alike through a new learning curve when dealing with a traditional online classroom dashboard, stick to something everyone already knows.

**Use a Facebook group to stream live lectures and host discussions:** Instructors can also create Facebook groups for each of their classes—both public or private—and stream Facebook Live lectures, post discussion questions, assign homework and make class announcements. Keep students engaged during school breaks or snow days by posting reminders and assignment to avoid having to review once class resumes from the break.

When using social media for education, it's important to ensure a professional boundary, so when setting up a Facebook Group, teachers do not need to send friend requests. Email both parents and students a direct link to the Facebook Group for access.

**Use Twitter as a class message board.:** Twitter can be great as a discussion board or message board for a class. Teachers can create a single Twitter handle per class and reuse it every year, or they can create a new handle each school year. The 280 character limit makes students think critically on communicating concisely and effectively, a beneficial skill to develop. Teacher can use Twitter to post reminders for assignment due dates or share inspirational quotes and helpful links to practice quizzes or resources. Teacher can also create discussions and Twitter chats surrounding a specific hashtag that they create.

**Use Instagram for photo essays:** In a visual heavy class, students can use Instagram to present a series of photos or graphics in a visually appealing manner. Instagram allows students to practice digital storytelling in ways that other social media platforms may fall short. Students can create class-specific Instagram accounts and may delete them after the course is over if they so choose.

**Create a class blog for discussions:** Writing blog posts gives students another outlet for digital content that they can then easily link back to class social channels. There are many different platforms available, such as WordPress, SquareSpace, Wix, Blogger, Tumblr or Medium, where teachers can create a class blog. Students can create their own user accounts to make discussion posts or add comments on class prompts.

**Assign blog posts as essays:** Having students create in their own blog for essays or short-form writing is another strategy for combining social media and learning. Blogs as a semester- or year-long assignment can improve students' short-form writing and critical thinking. Have students respond to weekly prompts, making it as informal and loosely structured as possible. Don't feel limited to just an English or writing class; this use of social media in education can be transferred across all subjects.

**Create a class-specific Pinterest board:** Instructors can create Pinterest boards for each of their classes and save pins that are relevant to lessons. Pinterest is a great social media platform for teachers to use to prepare and organize resources, lesson plans and worksheets for their classes in one place. Create boards according to class or subject, and create sub-topic boards for weekly units or all worksheets.

Pinterest can also be useful for students to curate a digital bibliography for research projects, papers or group assignments. Students can pin websites, books or videos to a board on a single topic and refer back to it when it's time to write.

**LinkedIn for Building Networks:** When it comes to networking, LinkedIn is an indispensable resource. Schools typically maintain a presence on LinkedIn, and there are numerous official LinkedIn groups geared toward

smaller inches within the larger community. LinkedIn groups devoted to alumni, veterans, colleges, departments, degree programs, and extracurricular interests. One can find a group that align with their personal interests. Students don't need to wait until after graduation to start networking. One can start participating in pertinent LinkedIn groups to built a solid network by the time one graduate.

### Types Of Social Media Tools For Teachers:

Teachers also use social media as a medium to get new resources to support their lessons, activities to teach particular concepts, bulletin board ideas, information on new apps to do a follow up of certain topics as well as to network and know what is happening in schools all over the world.

Teachers may use any of the following social media platforms as learning tools: • Blogs with comment functionality to share and discuss information.

- Twitter and course hashtags to encourage open forum and debate.
- Skype to engage more deeply with the material and each other.
- Pinterest for sharing clever ideas, inspiration, and valuable resources amongst students.
- Google Docs, Wikis and other collaborative document tools to store and refine data.
- Project Management Apps to foster and streamline collaboration.
- LinkedIn and other social networks to build connection.
- YouTube to create both course and student presentations.

### Conclusion:

Social media can positively influence the way each individual learns and absorbs information in the classroom. Incorporating social media into a more traditional learning environment can expand students' creative freedom and encourage them to work harder and engage more. Of course, as the social media landscape changes, classrooms will also need to adapt – but with social media already impacting the way we learn and interact outside of the classroom, applications within the classroom will likely only increase. The bottom line is that social media is a big part of our day to day life and there's no point of keeping it away from the education process. School, college and university staff should be encouraged to make use of technology for student and parent communication. The benefits are obvious, starting with healthier parent-teacher relationships and all the way to permanently changing the way our children will learn.

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**Mobile Applications use in Academic Libraries****Prof. Jayant Hansraj More**

Librarian,

JanvikasMahavidyalay, Bansarola, Bansarola, Block Kaij, Dist. Beed (M.S.)

**Abstract:**

Today's generation is techno savvy, everybody is using smartphones, tablets, i-phones, kindle apps, audio books apps. So library have to develop its dimension to modern app based. This research is focusing on Apps and E-Library for the modern users. Apps or native applications are small programs for your smart devices. They allow users to check e-mail, Twitter and Facebook, surf the web, and listen to music or check train timings. Apart from platform specific apps, many mobile websites are also known as web apps which are accessible through your smart device's browser (Safari, Internet Explorer, Firefox etc.) work. These websites are optimized for smart device display. Because they work through the browser, they are often a bit slow to use with native apps. A properly computerized library will help its user with quick services. Library automation refers to mechanization of library housekeeping operations predominantly by computerization with the help of Apps based on Mobile and tablet devices.

**Keywords:** Digital Library, Apps, Open Source Software, E-Library, App Based Library, E-Books, Smart Library

**Introduction:**

Recent advances in our ability to process and exchange information electronically are reshaping the economies and social structures of many countries around the world. Libraries are at the forefront of digital citizenship. The first places should be those where the most advanced technologies are implemented. In a technodigital smart society, the Smart Library Apps (SLA) initiative will accelerate the transformation of library services into literacy services in an innovative way as their learning hubs. Libraries are storehouses of recorded knowledge. It is a physical media that records knowledge that changes from time to time with technological advances and innovations. The discovery of Information and Communication Technology (ICT), the Internet and especially the World Wide Web, has revolutionized everything under the sun. The onset of information and communication revolution has changed the complexion of many institutions. Now we are living in digital world. Everywhere we have evidence in the form of e-cameras, e-diaries, digital television, e-signatures etc. Also, information is recorded, stored, retrieved and expanded on a large scale.

**Features of Smart Library App (SLA):**

Structured information that is made available through SLAs are called digital e-objects, including e-text, e-audio, e-video, e-photograph, e-picture, e-drawing, e-computer programs, e-Art works, e-interpretation, e-numerical data, e-cosmological data, digitized e-sound, e-graphics and digital e-forms include multimedia components. SLAs undoubtedly require digital smart devices such as tablets, smart phones etc. and web technologies. Apart from this, the following features have to be kept for computerization of traditional and general work:

- Providing links to various digital objects
- Support to the national movement 'Digital India'
- Integration of publicity support and e-information
- A smart app provides opportunities to access information in formats available anywhere in the library, at home or at work.
- Supports the traditional library mission of collection development, access and preservation
- Provides access to a comprehensive collection of information, both primary and secondary.
- Support and availability of search and retrieval interfaces
- SLA aims to overcome this barrier through remote access to large quantities of rare and expensive materials

- Hope.
- SLA should provide powerful user friendly interface effective search and retrieval to facilitate user access.
- Ease of handling, searching and managing
- Reproduction of clean hard copy from digitized e-devices thereby saving time.
- Plays an important role in informal education system.

### The Best Few Free Open Source Library Management Software Solutions

These are the best web based library management system open source. These open source library management software solutions are available online:

#### 1. Koha:

Koha library software is free library management software which is web based. Hence there is no need to manage a separate server to run Koha library management software effortlessly. From backups to upgrades, backups and system maintenance, everything is managed online. It has easy-to-use circulation policies and a robust patron management. This free library management software has intuitive navigation. It maintains a parent-child relationship for maintain records, and a 'copy' feature to add more families. You can manage book clubs and reading groups as well.

#### 2. Evergreen:

Evergreen Library software is a scalable software for all libraries which helps library managers manage inventory effortlessly. Librarians can manage library catalogs and circulate information. It is an open source library management software licensed under the GNU GPL version 2. It has an open and scalable framework. This free library management software has circulation module and cataloguing module with indexing, clarifying and collection facilities. It provides a facility to customize cataloguing. The public access catalog is available online and multiple payment options are also given in this free database management software. You can also retain the history of circulation of library resources. Library members get an option of self-checkout and self-registration.

#### 3. OPALS:

OPALS is an automated open source library management system that can be used for various types of libraries. There are over 2000 libraries from all around the world that are using OPALS to manage their resources. Unlimited number of library members can access OPALS online, at the same time. Get multiple options and fields for cataloging library materials. With this free open source digital library software, get features like acquisition management and circular management. This software has an advanced indexing feature which helps you search the required library resources easily. Since this free library management is cloud-based, you can get real-time reports.

#### 4. Open Biblio:

OpenBiblio is also one of the most used open source library management systems. This free LMS is majorly used in small-scale libraries. Features: This open source library management system provides an extensive support for various types of languages. It provides excellent circulation for its staff which lets them check different items and enables them to add new patrons as well. Their cataloging feature for staff lets them create, and delete records, which includes uploading of MARCXML and MARC. OPAC or online public access catalog is used in this free library management system. It is a public catalog for patrons to find the relevant books. Its administration option includes management and configuration of the software. This involves managing the staff, library, fines, materials and other website settings. Retrieve all the required information from your database in the form of reports. This includes getting information like overdue letters and other statistical factors regarding library materials. You don't need to learn any special language to retrieve this data.

#### 5. Invenio:

Invenio is an open source library software developed by a multidisciplinary community of institutions. It is an all-in-one platform for research data management, institutional repository management as well as asset

management. It is a free library management system which falls under the license of MIT. This open source library management system is a form of integrated library management system which supports circulation, cataloguing, and acquisitions. It provides a back-office module that is powerful and has a modern user interface and APIs. You can also find a toolbox to create applications like enterprise search, digital repositories, discovery mechanisms and data management systems. Get a strong support for your APIs, authentication as well as storage systems. There are too many apps are paid versions like Amazon Kindle App, Google Play Books, Apple Books, Barnes & Noble Nook, Kobo Books users can use those as per their requirement.

### **Social Media Apps and Library:**

It was inquired from the respondents that what should be the purpose of social media apps such as Facebook, Instagram, Tweeter, LinkedIn etc. usage in libraries and information centers. Participants of the study strongly agreed that social media should be used for marketing of library products and services and to build discussion groups and collaborative work. They were agreed that it should be used for fund raising, to spread news and service alerts, to provide quick updates to online users and to push library news and press release among online users.

- Marketing of library product and services.
- Marketing specific adult programs and services.
- Marketing specific children's and youth services programs.
- To modernize the library image and e-reputation.
- To reach a new audience of potential users.
- To push library news and press release.
- To provide quick updates to users.
- To build discussion groups and collaborative work.
- To spread news and service alerts.
- For fund raising.

### **Conclusion:**

Choosing the best library management system is fairly easy. You need to check whether the open source or paid version of library management software you have chosen is reliable and secure. You have to make sure that the people using the free library management software find it easy to operate. And the free LMS you are choosing should have all the required features that you might need to manage the library. If you can't find the features that you need in a free library management software, you can always go for their premium plans. You can get more security as well as advanced features with the library management software subscription. Reliable and secure; the library management solution should be reliable and secure from any third-party interventions. User friendly interface; the software should be user friendly so that even beginners can use it without hassles. Multi-device compatibility; It should have a multi device compatibility, as in, it should be accessible from a desktop as well as from a mobile device.

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**Innovative Best Practices and Services of B.B. Khardekar  
Knowledge Resource Center, Shivaji University, Kolhapur**

**Ashvini N. Sutar,**

Research Student, D.LIS. Shivaji University

**Dr. Sudhir Nagarkar**

Librarian, A.S.Shinde Mahavidyalay, Satara

**Abstract:**

*In the current digital age and competition, libraries have to make various efforts to connect the readers with the library. For that library have to adopt various Innovative Best Practices and Services for users to attract them towards library.*

*Barr. BalasahebKhardekar Knowledge Resource center, Shivaji University, Kolhapur is a well-known and reputed academic library in the region of southern Maharashtra; because of its different features. Its main aim is to supports to achieve academic goal of Shivaji University. In this paper Author given a detailed information about these various innovative Best Practices and efforts adopted by the BBKKRC. Which are guide to other libraries.*

**Introduction:**

Library is an important center for collecting information, Knowledge resources where it is stored, organized, analysis, retrieved and disseminated it to the society.

Academic libraries are an essential and integral part of higher educational institution like colleges and Universities. They serve two complementary purpose: to support the curriculum So that students get their required educational library material and support faculty and student research endeavors.

**Innovative Best Practices**

Innovation means new idea, concept and value creation for your organization and customers.

Best Practices: A best practices are a standards or set of guidelines that is known to product good out comes if followed. Best practices are related to how to carry out a task or configure something. (Wright, 2022)

**Definition of Best Practices:**

ODLIS (Online Dictionary of Library and Information Science) describes best practices as follows: “In the application of theory to real-life situations, procedures that, when properly, applied consistently yield superior results and are therefore used as reference points in evaluation of the effectiveness of alternative methods of accomplishing the same task. Best practices are identified by examining empirical evidence of success.” (ODLIS, 2023)

Document prepared by NAAC for best practise in academic libraries says, “Best practices is also innovative and be a philosophy, policy, strategy, program, process or practices that solves an issue, or create new opportunities and positively impact on organizations.

NAAC developed a group of best practices followed in academic libraries and dotted the purpose within the following 4 broad area:

- a) Resources Management and administration of library.
- b) Collection & Services
- c) Extent the user services
- d) Use of technology (NAAC, n.d.)

**Introduction:**

Shivaji University, Kolhapur was established in the year 1962. The university library started functioning in June 1964 with a collection of 7000 books. The University library was named as a tribute to the memory of Late Barrister BalasahebKhardekar as “Barr. BalasahebKhardekar Library” on 24<sup>th</sup> October, 1981.

As per the Maharashtra Public University Act.2016 the nomenclature of ‘Library’ changed to ‘Barr. BalasahebKhardekar knowledge Resource Centre’ (BBKKRC) since 2018.

BBKKRC aims to be a leading knowledge Resource Centre with rich collection of information resource, qualitative information services and products suitable for all the academic disciplines.

Apart from the regular users from the university, it is open to other stock holders like senior citizens and Government servant, persons with disabilities, researchers from other universities and institutes. (BBKKRC, 2023)

**Infrastructure in BBKKRC:**

Old Knowledge Resources centre building has three floors and its various Sections are as follows:

Floors	Sections
Terrace	Terrace reading Hall with a seating capacity of 100 students
Second floor	Periodicals section, Academic Resource Centre (ARC), Internet Hall
First Floor	Assistant Librarian’s cabin, Stack Section, Archival Section, Scanner Room, Manuscript Resource centre (MRC) and Departmental Laboratory
Ground Floor	Director’s and Deputy Librarian’s Cabin, Administrative Office, Book Ordering section, Computer/ICT Unit, OPAC/ Web- OPAC, Property Counter, Library Membership Registration Room, Circulation Section, text Book Section, Reference Section (These, dissertations and Reports)

New Knowledge resource centre Building has following sections:

Floors	Sections
First Floor	Reading Hall along with a separate hall for female students (seating capacity 400)
Ground Floor	Reading Hall (seating capacity 400), Virtual Classroom (seating capacity 150) and Resource Centre for Inclusive Education (RCIE)
(On both the floors, modular design of well-equipped modern furniture, Wi-Fi facility, purified drinking water and sanitary services etc. are provided to readers’ community)	

**Collection of BBKKRC (Print / Non-Print) (As on 30/08/2022):**

Print Collection	Non-Print Collection				
Sr.No.	Collection Type	No. of Items	Sr.No.	Collection Type	No. of Items
1	Books	281340	1	CD/DVD	1865
2	Books Titles(Unique)	231418	2	E-Books	1088
3	Back Volumes of Journals	37113	3	E- Journals	45311
4	Manuscripts	9163	4	Foreign e- Journals (Subscribed)	19
5	Indian Print Journals	64	5	E- Databases (Subscribed)	15
6	Theses and Dissertations	11784			
7	Reports	7050			
8	Special Collections	31404			
9	Braille Books	590			
TOTAL	378472	TOTAL	48288		

In BBKKRC all electronic resource available through the consortium are governed by license agreements. BBKKRC Digital Library provides online access for e -resources through Knimbusmlibrary. It has been setup on library platform. Knimbusmlibrary is a one-stop solution with rich feature to build a powerful and user- friendly digital library though which user can seamlessly access the digital resources anytime, anywhere and on any device.

BBKKRC has used SOUL 3.0 Software for their library operations and services. It has following kind of modules.-

Acquisition, Catalogue, Circulation, Serial control, OPAC, Administration, Change Password, Logout, Exit.

In the present digital age and due to the covid pandemic, library users have moved away from the library. Their reading habits have deteriorated. Libraries have to adopt various Innovative Best Practices to reconnect these users with the library. So that the users can make full use of the library information materials and resources. In this paper let us know the various **Innovative Best Practices adopted by the BBKKRC**.

- **BBKKRC Digital Library:**

Through this BBKKRC Digital library, online access for e-resources through Knimbusmlibrary has been setup on library platform. Knimbus give off campus access of e resources provided by BBKKRC. Knimbusmlibray is a one stop solution with rich feature to build a powerful and user friendly digital library through which user can seamlessly access the digital resources anytime, anywhere and on any device.

Link of Knimbus :<https://unishivaji.knimbus.com/user#/home>

All electronic resources available through the consortium are governed by license agreement.

- **Subscribed E books**

- 1) Science Direct ( Elsevier) e book
- 2) Springer e books
- 3) CAMBRIGE e books ONLINE
- 4) Sage Publication
- 5) Oxford University Press
- 6) IOP Publication
- 7) Emerald publication
- 8) Department of Technology E books

- **Subscribed E databases:**

- ProQuest Dissertation and Theses Global Academic Video Online
- BBKKRC provide all subjects databases like:-
- J- Gate Science & Technology Collection
- J- Gate Social Science and Humanities
- JSTOR: Full text database (2585 journals)
- Scifinder database
- Scopus database

### **BBKKRC compiled Index of Print and E Journals.**

#### **Subscribed E- journals:**

BBKKRC provide journals available under INFLIBNET E-ShodhSindhu consortium for the year 2020 for Technology Department forum AICTE

#### **ASCE Library**

E-ShodhSindhu Negotiated e-journal Packages subscribed by Shivaji University for the year 2020. All Subjects e journals are available as follows:

- Blackwell Publishing [908 Journals]



- Cambridge Journals Online [224 Journals]
- Oxford University Press [ 262 Journals]
- Springer Link [1763 Journals]
- Taylor and Francis [1079 Journals]
- Natural Sciences:
- American Institute of Physics [18 Journals]
- American Mathematical Society [ 9 Journals]
- American Physical Society [19 Journals]
- Institute of Physics [45 Journals]
- Royal Society of Chemistry Journals [29 Journals + 6 Database]
- Science Direct (Elsevier) Under process for 2020

**Social Sciences and Humanities:**

Emerald [29 Journals]

*Electronic Journals subscribed by Shivaji University:2020***Environmental Science:**

- Journal of Environment and Development Statistics:
- Annals of statistics
- Statistical Science Education:
- Theory and Research in Education Journalism and Mass communication:
- International Communication Gazette
- Library and Information Science:
- Journal of Librarianship and Information Science Sociology:
- American Journal of Sociology
- American Sociological Review
- Women's Studies:
- Gender Technology and Development
- English:  
Sewanee Review  
PMLA  
Journal of Commonwealth Literature

**Free Open Educational Resources :-**

- Free- Databases
- Natural/medical Science/ Technology
- AICTE free Learning Resources
- Social Sciences and Humanity
- Other E –Resources
- Free Open Thesis
- Free Institutional Repositories
- Open Access Preprints Repositories
- Free Digital Library
- Free Open Library
- Free E-Books
- E Reports and Publications
- E Learning Platforms
- Research Profile Creation Platforms
- Online Meeting Video Conferencing Applications
- Scientometric Bibliometric Analysis Softwares and Tools
- COVID 19 Related E Resources

- Competitive Examinations
- Job Portals (BBKKRC, www.unishivaji.ac in, 2023)

### E contents For Under Graduates Students:

Shivaji University has signed Memorandum Of Understanding (MOU) with Consortium for Educational Communication (CEC) on 1st April 2021 for five years.

CEC is the nodal agency at National Level, to address the educational needs of the country through the use of various media of communication and one of the objective of the CEC is of production of educational programs specially video, audio and related support material and also dissemination of educational programs through both broadcast and non-broadcastmode

In accordance with the policy of the Government of India and the UGC, the CEC has been addressing the needs of higher education through the use of powerful medium of television along with appropriate use of emerging Information Communication Technology (ICT) and CEC intends to increase the reach and access of its educational content in various disciplines / subjects/ courses related to UG/PG education for the benefit of students and teachers in higher education;

CEC is National Coordinator for UG and PG MOOCs on SWAYAM.CEC is also National Coordinator for 11 SWAYAMPrabha DTH Channels.Therefore,

**According to this MOU, CEC has provided some E-contents for under graduate curriculum through hard disk. Also these E-contents are available in the following URL link :**

**URL link :- e-contents for Under Graduate Students Trial Access E Resource: Links**

<https://unishivaji.new.knimbus.com/>

**Trial Access for E- Books:**

Trail access of e-books : <http://www.asapglobe.com/>

Trail access for Pearson eLibrary : <http://lib.mylibrary.com/>

World e- book library (Academic Research database):<http://community.worldlibrary.in/?AffiliateKey=NDL-DG1032>

**1) Academic Video Online: Premium** - <http://search.alexanderstreet.com/avon>

Academic Video Online is the most comprehensive video subscription available to libraries. It delivers more than 62,000 multidisciplinary video titles including 17,000 exclusive to Alexander Street.

- Art & Design – <http://search.alexanderstreet.com/art-design>
- Diversity - <http://search.alexanderstreet.com/diversity>
- Health Sciences – <http://search.alexanderstreet.com/health-sciences>
- History - <http://search.alexanderstreet.com/history>
- Literature & Language – <http://search.alexanderstreet.com/literature-language>
- Music & Performing Arts – <http://search.alexanderstreet.com/music-performing-arts>
- Psychology & Counseling – <http://search.alexanderstreet.com/psychology-counseling>
- Science & Engineering – <http://search.alexanderstreet.com/science-engineering>
- Social Sciences - <http://search.alexanderstreet.com/social-sciences>

**2) Historical NEWSPAPER Archive Times of India**

<https://trials.proquest.com/access?token=MJ7RYOR1KSG2DM92UK36>

- **Remote (Off Campus) Access to E Resources through INFED**

BBKKRC subscribe plenty of e-resources for the benefit of its user's community. It fulfil the information needs of the user's as well as provides e-information to the teachers and learners. BBKKRC has joined INFLIBNET Access Management Federation (INFED). It is project of INFLIBNET. It provides Remote Access to subscribed e-resources for the user community. INFLIBNET is an Inter-University Centre of University Grants Commission, New Delhi. INFLIBNET has it's head office at Gandhinagar, Gujrat.

INFED Remote Access Facility launched in the year 2019. Library professionals in BBKKRC are taking efforts to run this service smoothly for the users. <https://idp.unishivaji.ac.in/>

**BBKKRC Provide Index of Reference Collection:**

Reference Collection List:

Major- Minor Research Projects List from 1966:

<http://www.unishivaji.ac.in/uploads/library/Major-Minor%20Research%20Project%20List%20from%201966.pdf>

List of Report available in Reference Section:

<http://www.unishivaji.ac.in/uploads/library/ReferenceSection/List%20of%20Reports%20Available%20in%20Reference%20Section.pdf>

**BBKKRC Compiled online literature on Chhatrapati Shivaji Maharaj:**

Shivaji University is named after the great Maratha warrior Chhatrapati Shivaji Maharaj . So it the grate pleasure for the BBKKRC to compile the literature on Chhatrapati Shivaji Maharaj, on the auspicious occasion of 56<sup>th</sup> foundation day of the university and made available on the BBKKRC Portal. Several reference tools such as multimedia reference, thesis/ dissertation, bibliography of print material and online e- resource are consulted while compiling this took. The portal is developed with searchable metadata for easy access to all stack holders globally.

It is an appeal to one and all to browse this documentary and submit the literature of Chhatrapati Shivaji Maharaj if available with them in any format that will be additional input to us. For this you may contact to Director, Barr. BalasahebKhardekar Knowledge Resource Centre at the e-mail address-

- [nbk.ul@unishivaji.ac.in](mailto:nbk.ul@unishivaji.ac.in) , M-09890070404, office number-0231-2609204.
- <http://www.unishivaji.ac.in/library/Free-E-Books>
- <http://www.unishivaji.ac.in/library/Audio-Book>
- <http://www.unishivaji.ac.in/library/Wikipedia>
- <http://www.unishivaji.ac.in/library/Movies-On-Chhatrapati-Shivaji-Maharaj>
- <http://www.unishivaji.ac.in/library/Ph-D-Theses-on-Chhatrapati-Shivaji-Maharaj>
- <https://drive.google.com/drive/folders/1-8PYwGN2D8rTHWNBjgBmVI9vCfrC8Unr>
- <http://www.unishivaji.ac.in/uploads/library/Select%20Bibliography%20of%20books%20on%20Chhatrapati%20Shivaji%20Maharaj%20available%20at%20BBKKRC..pdf>

**Archival Cell:**

Archival cell' is the unique and special cell of the University that contains material of rare values. Archival Cell of the Shivaji University, Kolhapur was established of the U.G.C.UnderVIth Five plan. The purpose of UGC was to provide facilities for Collection, processing and preserving archival material such as rare books, historical documents, manuscripts and the University records.

**Collections:**

**Rare Books:** Archival cell consist of about 50,000 rare books, which are donated by various eminent scholars and personalities. The rare books dates from 1716 to 1950 A.D.

Donors are named after the collection they have given.



**Manuscripts:**

About 9163 Manuscripts are available in the Archival Cell on various subjects such as Vedanta, Dharmshstra, NNYayashastra, Jotishya, Vaidak, History, Puran, Literarure, Kavya, Natak(Drama), Yoga etc. which dates back to 1353. The Manuscripts were acquired mainly from the individuals and Institutions.

Besides the rare books and manuscripts different archival material is also available in the cell. Old Newspapers Din Bandhu, Bombay (1893-1912), Rashtreveer, Belgaum (1920-1947), Hunter, Akhand Bharat (Kolhapur), Vijayi Maratha, Kolhapur (1919-1932), Din Mitra, Taravadi etc. The old Periodicals and journals like Bharat ItihasSanshodhakmandals quarterly, Purusharth, VividhDnyanVistar,Kirloskar, Kalyan,Sahyadri,Wangmayshobha, etc. and some of the distinct materials like Tamrapat(516 AD), Old historical coins, stone objects from Bramhapuri (Kolhapur) excavation, facsimile copy of 'Constitution of India' etc. are available in the Archival cell. The work of digitization of Manuscripts is planned.

**PROJECTS :**

Archival Cell has completed a project to the NMM (National Mission for Manuscripts, Ministry of Culture, G.O.I.) for documentation of Manuscripts. For information & details regarding Archival cell contact at the e-mail address: archival.krc@unishivaji.ac.in.

**RCIE Centre:**

RCIE Centre has been established in BBKKRC providing library and Educational Services to visually impaired, physically disabled students/ Teachers of P.G. departments of University, the colleges affiliated to Shivaji University, the colleges affiliated in general.

The main aim of the centre is to help the visually impaired and physically disabled students to gain easy access to w books, Braille books and interest based information resources, to empower the disabled students of the university/ colleges by enabling them to use ICT for education and learning.

The Digital launch of the RCIE centre, Shivaji University took place on 17 April 2017

**Services provided by RCIE:**

Braille Books, E-Resources like E- books, E-Journals, E- Databases, Audio books, Study material for students in accessible format, computer with screen reading software's, Internet and Wi-Fi, Braille printing, Training and career Guidance, Low vision devices( magnifiers, CCTV, Spectacles etc.) for low vision students, Library supports services including Braille books, Provision for Unique Disability Card, Text Book Recording in Audio Format Service through(PLEXTALK) Portable Recorder, Distance Education Study Material Converted in Accessible format.

ICT infrastructure is available in RCIE: The centre is well equipped with equipment and assistive devices for disable students. BBKKRC has organised various ICT training programs for visually impaired students and a faculty.

Barr. BalasahebKhardekarKnowledge resource Centre Broucher is also available on Web portal. It gives detailed information regarding BBKKRC.

**Plagiarism Check:** It is mandatory to every Ph. D./M.Phil. Research student before printing of final thesis/dissertation he/she should check Plagiarism.

No dues certificate of the BBKKRC will be issued to research students only after showing original plagiarism report.

**New Arrival:** BBKKRC give their web portal details information regarding New Arrivals of library.

**News Paper Clipping Service:** BBKKRC offers a newspaper clipping service. It contain a collection of Shivaji University related news published in all newspapers.

**News and Event:** Information, photos of various event, programmes held in the library can be seen on the BBKKRC web portal.

**Shivaji University College librarian's directory:**

The directory contains brief information of college librarians working in the colleges affiliated to the Shivaji University, Kolhapur. The main purpose of creating a directory of colleges librarians is to connect the all colleges librarians together and to support for building their professional network for performing different activities related to the LIS Profession.

**Forms:** BBKKRC has uploaded various sample forms on its library web portal. Library users can download and print those sample form for their office transactions whenever they required.

BBKKRC web portal also give information about library professional staff's contact, phone no., and email addresses.

**Barr, BalasahebKhardekar knowledge resource Centre provide various Innovative services and facilities to their users.**

- 1) Virtual Classroom at extended building of library.
- 2) Wi-Fi Facility to Library users
- 3) Remote access of library information resources & services to all college libraries and affiliated college teachers/ faculty and students.
- 4) Circulation on smart I.D. Cards. Barcode service for issuing and returning of books. Library send e mail to every users of their every issuing –returning transaction with library.
- 5) Reference Service , CAS, SDI Services
- 6) 100% Digitization of These/ Dissertations
- 7) Inter Library Loan Service
- 8) Internet Hall with all required facilities
- 9) OPAC and WEB OPAC facility.
- 10) New Arrival display
- 11) Provision of 'Earn and Learn Scheme' and 'Work on Demand' Facility for needy students
- 12) E Resources with Federated Search Facility
- 13) Book facility for Children of Class IV employees of the Shivaji University.
- 14) Teachers Personal Library Scheme (TPLS) for college and University Teachers
- 15) Xerox, Internet, Scanning, downloading/ Printing and DDS facility.
- 16) ShodhGanga and Shodgangotri-ETD portal Management
- 17) Open Access facility to users
- 18) Academic resource centre for (ARC) for researchers.
- 19) CCTV Surveillance System
- 20) Audio- Visual Facility
- 21) Earn and Learn Scheme/ Work on Demand Scheme
- 22) Anti-Plagiarism Software- Urkund
- 23) IRINS Facility for Faculty Research
- 24) Computerised library visitor's attendance at the entrance of library. (BBKKRC, www.unishivaji.ac.in, 2023)

**Note:** All data given in this research paper is taken from website of Barr..Khardekar Knowledge Resource Centre, Shivaji University, Kolhapur. Dated 2023

References/ bibliography is given in last page of this paper.

**Conclusions:**

Barr. BalasahebKhardekar Knowledge Resource Centre's main aim is to supports to achieve academic objectives of Shivaji University, Kolhapur. Innovative Best Practices and Services adopted by BBKKRC helps to extend theses services to the users community of Shivaji University. This Innovative Best Practices and

Services helps fulfil Rangnathan's five laws of library Science. This Innovative Best Practices and services are a guide to other libraries.

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**Free Internet Based E-Resources: A Best Practice in Academic Libraries****Mr. Dilip S. Nimbalkar**Research Scholar, Department of Library and  
Information Science, Shivaji University, Kolhapur,  
Maharashtra, India**Dr. Pandurang B. Patil**Librarian, Shri. Shahaji Chhatrapati Mahavidyalaya,  
Kolhapur, Maharashtra, India**Abstract**

After the 2020 coronavirus pandemic, many changes are being seen everywhere. The educational field also gets affected and replace existing offline learning and teaching process with online mode. Academic libraries support this online teaching learning through freely available online resources. Today almost everyone has using smart mobile phones with internet connectivity, we can access information from every corner of the world. The Internet has revolutionized the way we access information resources today. This study attempts to analyze how librarians can provide access to freely available online information resources which is available on the Internet to the users. To make the user aware of freely available online resources and how to use them for educational purposes.

**Key Words:** E-Resources, Internet, Free sources, Academic libraries

**Introduction**

A library is a place in an educational institution that houses various print as well as electronic information sources. Their use is limited to that educational institution. There are many free resources available on the Internet that you can view or enjoy anywhere, not limited to an academic institution. Libraries in the 21st century are becoming increasingly resourceful. Electronic publishing is preferred today. With the help of the Internet, the way of learning and living today is changing with the use of web resources. Ranganathan wrote in the fourth law of library science that 'reading should be the reader's time', while the Internet is a tool that provides instant information, which fulfills the fourth law. Therefore, making e-resources available through various mediums like library websites, e-browsers, social media platforms, sharing URLs, etc. is the need of the hour.

Today, the development of Web 3.0 and the promotion and spread of open source is driven by the concept of shared use. As the popularity of electronic resources has increased a lot today, its development seems to be increasing rapidly. Focusing on the significant and powerful impact of the e-environment in education, the user community should promote the use of e-resources through the Internet in college libraries and their use in daily life. The objective of this study is to introduce readers to free e-resources, identify various open-access sources on the Internet, identify educational open electronic resources, and create awareness about e-resources.

**Importance of Internet Sources**

Academic libraries play an important role in disseminating knowledge in the academic environment through electronic resources. Making young academic users aware of Internet resources is the need of the hour. Academic library users will increase their knowledge by using various free internet resources like e-books, e-journals, e-newspapers, etc., and will contribute greatly to the reading movement, this shows the importance of internet resources as it will save the time of the readers.

**Review of Literature**

Khode and Kumar (2004) analyzed online information sources and services in their study "Free Information Sources and Services on the Internet for Libraries: A Selected Compilation." Many information sources are available online for free and this article also tries to raise awareness of how to use them and also provides URLs with sources and services.

Chi (2017) A study conducted on "Open Access to Library and Information Science Journals in SSCI (Social Science Citation Index)." 36 library and information science OA journals included in SSCI are analyzed along with their URLs. The study found that Scientometrics has the highest number of papers 254 papers are published annually and 5 journals that publishes more than 100 papers.

Kumar (2020) analyzed awareness of the educational use of e-resources in a survey conducted in arts and science colleges in Kerala. The study revealed that respondents are very aware of available e-resources and the use of electronic resources for specific subjects is less when comparing male and female awareness, males are more aware than females and faculty members are more aware of e-resources than students.

Ali and Bhatti (2020) studied information source channels used by librarians for public health awareness during the pandemic (Covid-19). The study included mobile apps, artificial intelligence-based chatbots, social media trolling, video-based lectures, electronic resources, and reported librarians working to disseminate health precaution information through these channels.

### **Methodology**

Online information resources have been identified using various search engines on the internet. The search is limited to free online educational resources only. An attempt has been made in this study to analyze the sources freely available on the Internet. Examples of information sources in this paper are not limited to one topic but include many subjects. Many more open sources are available online, but this paper attempts to provide a few examples.

### **Free Access Resources**

An electronic information source is a document that is available in electronic form. Today, due to the progress of science, changes are seen in all fields. The electronic format appears to be a technological invention. The Internet is a global network of information devices that contain large amounts of information. Databases, e-journals, e-books, etc. are a part of electronic resources. Traditionally, library work has changed and today all kinds of work like classification, cataloging, and sharing are done electronically. These electronic devices are saving the time of the readers as well as the library staff.

Today is the biggest opportunity for readers. Electronic information tools now have many advantages in that information sources are in electronic form and can be easily accessed and enjoyed in less time, multiple copies are available at the same time, easy to transfer quickly, do not occupy space, are easy to retrieve, etc. There are many tools available for free on the internet that can be used effectively. (Devarajan & Pulkuthiel, 2011)

Following are the various sources of information freely available on the internet

### **E-Books**

A book is referred to as a secondary source. Today books are published in two formats print and electronic. Today, many publishers provide a CD with the book. Many books are also published in multivolume sets. There are many programs designed to read e-books, available in PDF, plain text, HTML, and rich text formats. E-books can be downloaded online and read offline.

Many academic institutions offer e-books for free, and some research and academic institutions also provide links to e-books on the Internet through libraries.

E-book's website <https://www.funbrain.com/books>

E-book's website <https://geronimostilton.com/WW-en/leggi/>

E-book's website <https://www.meity.gov.in/e-books>

### **E-Journals**

Journal is a periodical publication. Journals are published at regular intervals on almost all subjects. It is a platform where many latest articles on various topics are published. Available worldwide in traditional as well as electronic formats and now published online. E-journals are also called online journals, electronic publications, digital journals, and electronic publications. Journals in electronic format require no printing time and can be

quickly sent. Many journal publishers and institutions also maintain accessible collections of past articles on their websites.

NISCAIR E-journals website <http://www.niscair.res.in/periodicals/researchjournals>

DESIDOC E-journals website <https://publications.drdo.gov.in/ojs/index.php/dilit>

ITAL E-journals website <https://ejournals.bc.edu/index.php/ital/index>

### **ETD**

ETD stands for Electronic Thesis and Dissertation Currently M.Phil. / Ph.D. Degree theses and dissertations are known to be rich sources of information. Earlier theses were published only in printed form but now these theses are published in electronic as well as printed form. Indian dissertations published in electronic form are now published online on InFLIBnet's Shodhganga portal, benefiting a large number of students in India as well as across the world for free access to the Internet.

Shodhganga website <https://shodhganga.inflibnet.ac.in/>

Ebsco Open Dissertations website <https://biblioboard.com/pendissertations/>

Ethos E-Thesis website <https://ethos.bl.uk/Home.do>

### **E-Newspapers**

A newspaper is a daily publication that provides information on current affairs through news, advertisements, entertainment, job information, and articles. Now on the internet, various newspapers offer free electronic newspapers to the readers so that the readers can enjoy viewing them from anywhere on the internet. Following are the URLs of some major newspapers.

Lokmat Times Newspaper website <http://epaper.lokmat.com/lokmattimes/>

Loksatta Newspaper website <https://epaper.loksatta.com/>

Pudhari Newspaper website <http://newspaper.pudhari.co.in/index.php>

### **E-Discussion forums**

Get the latest updates on your subject through online forums. There are many different forums on different topics. These forums have different forums for discussing job-related, related topic events and new developments as well as for students and professionals, and they are also available for free. Librarianship has well-structured discussion forums available free of charge as follows

LIS Forum website <http://www.lislinks.com/>

### **E-Encyclopedia**

An encyclopedia is a treasure trove of knowledge that contains information on all topics and subjects. Marathi encyclopedias, library, and information science encyclopedias also appear to be subject-wise encyclopedias. Comprehensive Wikipedia is now the most popular encyclopedia on the Internet. There are many encyclopedias like Encyclopedia America, Encyclopedia Britannica, etc. which are not available for free, but there are free encyclopedias links below.

Free Encyclopedia website <https://www.encyclopedia.com/>

Wikipedia website <https://www.wikipedia.org/>

### **E-Newsletter**

A medium known as a form of communication is the newspaper. The newsletter publishes news clippings, organized events, upcoming events, the current status of the publishing organization, staff news, new appointments, awards, professional news, etc. Some organizations publish free newsletters like ILA, INFLIBNET, MUCLA, etc.

ILA Newsletter website <https://ilaindia.co.in/newsletter/newsletters>

Inflibnet Newsletter website <https://www.inflibnet.ac.in/publication/newsletter.php>

MUCLA Newsletter <https://www.mucla.in/newsletter.php>



**E-Databases**

An Internet-based collection or catalog of information on multiple subjects or a specific topic is called an electronic database. Some database includes journal articles and research-related works. The database provides fields for searching articles such as subject, title, author, year, etc. There are various ways to search. Some databases have options for referencing, downloading articles, and searching for related articles. Following are some of the databases freely available on the internet.

Google Scholar database website <https://scholar.google.com/>

DOAJ database website <https://doaj.org/>

Research Gate website <https://www.researchgate.net/>

**E-Learning platforms**

Today, the addition of the internet along with electronic media for quality education has brought about a significant change in the field of education. Many educational institutions in India have created and are doing many online interactive e-materials as part of their Internet-based curriculum. Various subject experts working in higher education institutes across the country have created e-PG Pathshala through UGC, Government of India has appointed through SAWYAM 9 national coordinators namely, AICTE, NPTEL, UGC, CEC, NCERT, NIOS, IGNOU, IIMB, NITTTR to create the online platform.

epgpathshala E-learning Platform website <https://epgp.inflibnet.ac.in/>

Swayam E-learning Platform website <https://swayam.gov.in/>

IGNOU E-learning Platform <https://egyankosh.ac.in/>

MOOCs E-learning Platform <https://www.mooc.org/>

**Digital Library**

Libraries used to keep only reading materials in printed form, but today electronic media is changing a lot. Printed material is also now being published in both formats, and its benefits everyone sees everywhere. Gradually, libraries are undergoing a major change in both electronic and print formats i. e. libraries are changing into hybrid mode. Now, these formats are becoming digital means only electronic, digital resources are internet-based, and digital libraries are now spreading. Links to some free digital libraries are given below.

National Digital Library Website <https://ndl.iitkgp.ac.in/>

Digital Library website <https://digitallibrary.io/>

**Audiobooks**

Books in electronic format have been available for a short time, but audiobooks are an invention for those who do not like to read or are blind or disabled. Recorded reading material can be accessed in seconds over the Internet and can be downloaded for listening or enjoyed at a later date. Librivox makes public domain recorded reading materials freely available on the Internet in the format of audio files. Through this, the aim of reaching every reader can be fulfilled by the library. Librivox free service link is below.

Librivox audiobooks website <https://librivox.org/>

**Conclusion**

Today, the number of sources of information is increasing everywhere, one of the contributions of which is the Internet, through which a lot of information is available in a short time. As printed reading materials are getting costly day by day and it is very difficult to academic libraries purchase every reading material. Library can take initiative and aware students about online free resources and make them available through some platform and putting links on library website. In that case, librarians should continue to search for information using various search engines to bring open resources to the attention of readers. Information directories should be made available using search engines like Yahoo, Google Scholar, SCIRUS, etc. Librarians should prepare index of freely available resources search easily and save the time of readers.

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## Distracting Changes of Readers in Special Appearance of Reading Culture And, It's Impact on Knowledge Hubs

**Mrs. Shubhada V. Mane-Jadhav**

Librarian- Shikshanmaharshi Dr. Bapuji  
Salunkhe College, Miraj (Dist- Sangali)  
Maharashtra

**Dr. Atul D. Wankhade**

Librarian – Mahatma Jyotiba Fule Mahavidyalay  
Amravati, Maharashtra

### Abstract:-

Conventional knowledge hubs are facing different challenges in the process of dissemination of information. Providing facilities through using ICT infrastructure is a most useful as well as a challenging task for the librarian. Modern digital era readers need and satisfaction are totally different from which sources provided by the libraries. Today's readers have the lowest interest to gain knowledge in such a systematic manner. They aren't equal to current technological advancement. Day by day increasingly advanced technology is the horrible challenge to adopt and maintain the quality of resource sharing. The traditional resource centers are unable to acquire, current technology as well as they are mostly unsuccessful to accept and develop these systematic changes. Today's readers have low interest to read books sitting in library and spent their time in such reading habits. In the modern digital era the patron is most user-friendly with the technology based social media. This research article tries to examine and put some suggestions or solution to tackle the actual challenge in present issue.

**Keywords:-** Knowledge hub, Technology, Digital Era, Distracting changes, ICT Advancement, Conventional library, Dissemination of information,

### Introduction:-

The most significant change is the fastest innovation and development of technology and the highlighted appearance of the digital generation to us. Information and Communication technology is basic needs of everyone in this modern generation. All type of age groups is addicted of the technologies, so the library users are unaware of traditional knowledge as well as unknown about the printed media also. They have much more engaged their time in the technology-based social world. The present article has taken a look on changing role to deal with library ICT facilities. As we know more than users are interested to get knowledge or be like to busy with technology for their educational or informational need. They are never showing their interest to engage their time in using traditional reading material. There is librarian duty to maintain their quality and try to develop facilities of dissemination of information.

### Highlighted impact of ICT on Knowledge hubs:-

The transformation is rapidly broadening the wide range of technologies in working place. There are basic needs for everyone to connect with smart new technology, new platforms, and new types of digitally enabled services in knowledge hubs. If knowledge management is have difficult task to develop a conventional library system into digital. It should be more complicated to arrange in the proper manner. Reading culture is the springboard of any institution. It is the part and art of interpreting printed and written material and the most effective and essential process of conscious learning. But now a day's digital invention and vastly upgrading technology is the bigger challenge to maintaining traditional reading culture. ICT-based information sharing may be most useful and famous among readers but it is not more effective to improve and develop to actual reading ability of users.

### Distracting Highlights of ICT in reading culture:-

In the modern digital era ICT based reading materials like internet or web based e-resources are highly distracting. If the reader or users are really unknown how to use it properly then so many barriers create in this ICT based resource sharing system. The systematic ways of dissemination of information are always both sided



by users and sources. There is some limitations and restrictions while using or accepting electronic information sources.

**Let's examine some reasons:-**

- 1) Readers become habitual about gadgets and technology. They aren't interested to acquiring knowledge from traditional sources.
- 2) Use of digital devices on screens may be not like tactile experiences of the actual reading process.
- 3) Accessing information on the computer can be easier but not comfortable. Because there technical issues like font size, hypertext, page design, and sliding of different advertisement should be distracting.
- 4) High define machine based technologies are frequently not more useful to users many times they create some critical issues.
- 5) Computer illiteracy and lack of knowledge about the technology shall be bigger barrier to the technology based dissemination of information.

**Solution for attracting readers and make them familiar with reading culture:-**

There is some instruction and some tricks to using it to attract users at knowledge hubs. And improve their reading ability to using with technology-based infrastructure. This is neither a bigger challenge nor impossible to establish it. If knowledge resources centers will focus on their quality-based facilities then it will most useful and change their image into a Digital environment.

- 1) Arrange ICT-based training workshop for the readers as well as employees.
- 2) Broadening the availability of quality in digital media.
- 3) Enhancing library services through digital information sources and changing the setup of conventional library into digital library.
- 4) Provide contents on the readers demand on the ICT platform.
- 5) Professional development avoids recurrent training of librarians.
- 6) Create virtual environment and set up the web-based teaching and learning system to the users.

**Conclusion:-**

A wonderful gift provided by ICT advancement and innovations is the most appreciable thing in global learning. Enhance the teaching and learning facilities while the support of ICT infrastructure is the most useful and user friendly to the reading culture. It is changing rapidly the nature of getting the information very quickly at a low cost in less time. If we are ignore their simple drawbacks and improvisation of qualities of dissemination of information through ICT advancement. Then it will most useful and highly appreciable by the users. Conventional or traditional knowledge resource centers have lots of ways to develop and enhance their facilities through ICT advancement. There is every knowledge resource center has to improve its quality in order to effectively integrate the use of information communication technology in the field of higher education especially related to the globalization of information.

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## The view of the professional library - a flux

**Mr. Udaykumar Jaysing Inamdar**  
Ass.Prof. Kamala College Kolhapur

### Abstract

India's ancient cultural and educational tradition throughout civilization has considered education the key to the development of mankind and society. The implementation of planned and systematic programs can lead to essential infrastructure development. After independence, planning and management of professional libraries is taking place in India. National libraries have been established and developed in the country. In the last seven decades, the country has progressed in economic, social, political, industrial, technological, agricultural, social, and commercial fields. A special financial provision was made in the Seventh Five Year Plan for library and information systems development. The new financial policy has seen an increase in the quality and professionalism of library and information technology. As information and technology flow rapidly in the 21st century, professional library institutions are also increasing.

**Keywords:** Professional Education, Library, College Library.

### Introduction

It is the need of the hour for libraries to be able to cope with the revolution in the field of professional information and communication. Technological approaches, practices, and policies need to change with time if libraries in India are to benefit the user community with modern technology. The role of the library in modern society is known as the "gateway of knowledge" for society. In the professional information age, both printed and non-printed materials are housed in libraries. Also, traditional documents like books, journals, and newspapers, as well as non-traditional documents like maps, charts, etc., are kept together in the library.

A library is a place where there is a collection of books and reference materials in one room. The word library comes from the Latin word "Libreria" which means "place of books". It is derived from the word "liber" which means "book". Library definition there that is - A library is a Collection of information resources in print or in other forms that are organized and made accessible for reading or study. (Encyclopedia Britannica). Librarianship: A profession concerned with acquiring and organizing collections of books and related materials in libraries and servicing readers and others with these resources.

A library is a collection of sources of information and similar resources, made accessible to a defined community for reference or borrowing. It provides physical or digital access to material and may be a physical building or room, a virtual space, or both. A library's collection can include books, periodicals, newspapers, manuscripts, films, maps, prints, documents, microform, CDs, cassettes, videotapes, DVDs, Blue-ray Discs, e-books, audiobooks, databases, and other formats. (Wikipedia)

Historical records of early library associations in India include the Baroda Library Association (1910), the Andhra Desa Library Association (1914), the Bengal Library Association (1927), and the Madras Library Association (1927). The Indian Library Association was established on 13th September 1933 on the occasion of the first All India Library Conference. It is the largest organization in the field of library and professional information science in the country. ILA completed fifty years in 1983. ILA has conducted more than 22 All India Library Conferences to date. After independence, many library institutions grew up. For example, the Government of India Library Association, (GILA), the Indian Association of Teachers of Library and Information Science (IATLIS), the Micrographic Congress of India (MIC); Society for Information Science (SIS).

Skill-based occupations are recognized to meet the basic needs of society. A professional business is defined as a person or organization having legal and moral rights to receive fair remuneration. All businesses are professionals but not all professionals are businesses. A professional occupation is characterized by the purpose of applying and serving humanity through intensive education and training in a specific field of knowledge.

**Purpose of Education**

Education essentially brings about intellectual development in individuals. What is best in man is his culture, and to do his best to contribute economically, socially, and politically to society. The basic function of education is to advance knowledge. Libraries are needed to foster the basic intellectual capacity of the human mind. Libraries provide universal access to all human knowledge. Education without a library is a body without a soul, a vehicle without an engine, and a building is a lump of bricks without cement. Education and the library are two sides of the same coin, which cannot be separated. Prosperity in real life requires deep reading and that can only be found in the library.

**Professional Education**

Professional education is the formal specialized educational training that provides students with the central concepts, principles, and techniques of a profession in real-life practice. Professional education creates a need for research for the development of science, technology, engineering, medicine, pharmacy, and teachers. Professional education has three important implications for professions in knowledge:

1) Professional specialization based on knowledge promotes knowledge in that field.

2) As the use of traditional professional knowledge becomes obsolete, the characteristic of professional knowledge in an occupation becomes not unsustainable. Because, knowledge and discoveries in professional education change more rapidly, although the use of traditional obsolete knowledge tends to become more specialized in narrower fields.

3) As specialization in professional education changes, the principle of specialization is easily shared across studies due to differences in its concepts and research.

Mahatma Phule, Rajarshi Shahu Maharaj, and Dr. B.R. Ambedkar's social reform movements realized the positive development of the state. Among the many achievements in agriculture, industry, knowledge, and technology, the most spectacular achievement is the development of higher professional education. The education policy of Maharashtra places the state in a unique position in its contribution to education in the country. According to the 2011 census, the literacy rate in Maharashtra showed a high trend, it was 82.34%. The male literacy rate was 88.38% while the female literacy rate was 69.87%. As a result of social and economic struggles, Maharashtra has made impressive achievements in education over the past few decades.

Contemplating the new system which was introduced by Mahatma Phule, expressed his anguish in the following words, 'Lack of education leads to lack of wisdom, which in turn leads to lack of justice. This leads to a lack of progress, which leads to a lack of money and results in the oppression of the lower people. Equal access to education should be given to all human beings irrespective of religion, race, caste, or gender, and education should be universalized and compulsory education should be done by destroying the monopoly on education. Social justice should be given top priority while education inculcates humanitarian values. professional education should include agriculture, health, and basic knowledge in the curriculum to meet the needs of society. The values of freedom, equality, fraternity, kindness, self-respect, devotion to country, and internationalism should be developed through education. It is necessary to make an effort to develop society by creating an education system that develops professional abilities and efficiency.

**Library**

The library is the gateway to knowledge. Where the ladder of knowledge is available for you to realize your dreams. You need a library to become the best in society and excel at work. A few decades ago, the library was underdeveloped. The reason for this is the Manusmriti-based social human caste system in which the established upper caste representatives enjoy the right to education. Caste polarization is still seen in the Indian social system. Education enables society to become talented. The development of libraries is becoming necessary for the progress of society.



Economic, social, political as well as traditional education, technology, science, medical, and professional educational institutions have undergone changes in India. Similarly, the traditional form of the library is changing towards modernity. In reality, the work of a librarian is not limited to keeping books on the counter or looking after their safety in the library, but the librarian has to do the duty of imparting knowledge-based inspiration to the reader by using skilled knowledge. Public and private education is spreading rapidly in the democratic system of our country. The role of the library in higher professional education has become important. Specialized libraries are also emerging to meet the needs of professional industries, government departments, universities, colleges, national laboratories, and higher professional research institutes.

### **Professional Library**

Library and Information Science (LIS) is an innovative profession. Also, it is important for everyone entering the business to know its business approach and features. Awareness of professional duties, and tasks will help them effectively perform their role as professionals. Professional Educational Resources (PER) has been freely redistributed to education and educational content users for the past decade. Research manuscripts in open access (OA) literature are published online for free. Libraries bridge the gap between formal and informal knowledge dissemination through governmental and non-governmental organizations. India is a leader in information and technology. India is the third largest provider of educational facilities in the world. India is also facing steady development of professional educational resources (PER), various institutional national bodies like the National Digital Library (NDL), National Knowledge Commission of India (NKC), University Grants Commission (UGC) All India Council for Technical Education. Also, the National Association of Software and Services Companies (NASSCOM), the Government of India (GOI) National Mission on Education through Information and Communication Technology (NMEICT), Technology Enhanced Education (NPTEL), Open-Source Courseware Animation Repository (OSCAR), Consortium for Educational Content (CEC) is involved.

Professional librarians should serve customers in a professional and ethical manner. Professionals such as medicine, education, law, religion, and others are required to review the code of ethics by setting minimum standards of performance and enforcing the code of ethics in professional practice. The approach of professional librarianship should be one of professional ethical policy. In today's era, information technology has become a weapon. The use of information technology and the information requirements of users are increasing rapidly. Contact with professional libraries is a personal relationship for everyone.

"The aim of librarianship is to mediate in the humanities and humanities' repositories of recorded knowledge and information and to mediate intellectual freedom and the creation of quality images of information by encouraging informed, enlightened, and empowered citizens". Librarianship in professional higher education exhibits its identity as a profession of professional techniques alongside more established professions such as medicine, law, management, etc. Professional librarians have to fulfill characteristics such as intellectual component, expertise, service orientation, altruistic motivation self-motivation autonomy etc. Considering Ranganathan's guiding principles of library science, service orientation should be encouraged in developing intellectual tools and techniques and recognition of librarianship as a profession as part of professional knowledge.

### **College Library**

Since the beginning of the 21st century, college libraries have been given the opportunity to select and evaluate textbook materials as the core of the teaching process. There is increasing importance for students to use college libraries for democratic life and world affairs education, specialization, science, mathematics, foreign language learning, and new learning curricular methods. In professional librarianship, the library strives to support long-term services, collections, on-demand flexible circulation policies, acquisition of a variety of print and non-print materials in-library use, and new curricular programs. UGC provides comprehensive knowledge for procurement of reference books and textbooks as well as the latest teaching methods and techniques and books

to improve higher professional college education by freeing many colleges from the rigid regulation of traditional curriculum.

A college library should become a source of knowledge for students and faculty. The researcher should remain an integral part of the library resource curriculum. Book resources in the college are the mirror of academic work. A description of the academic work of college libraries in India by Prof. D.S. Kothari in the Education Commission Report (1964-66) said "The library should provide the library facilities and services necessary for the success of all formal education programs, open the door to the wider world of books beyond the boundaries of its own area of competence, and bring books, students and scholars together in such situations. The professional librarian should strive to develop the intellectual curiosity of students and faculty as well as staff to inculcate a culture of reading. College administrators should play a role in enabling college libraries to fulfill the academic functions of librarians and teachers to promote reading culture.

Administrators and Principals should be properly directed to develop a highly professional library system in the college. Faculty and students should have a free policy of book selection for research work. Seminars should be organized at the college level to inculcate interest in the library among the students. It is necessary to provide the guidance of the great writers of the literary world or expert researchers in the subject area to the students. For a college library, to be an intellectual, workshop for teaching, research, and academics, it must fulfill certain basic need requirements:

- 1) Involvement of students and faculty in the work and composition of library committees
- 2) The college should provide minimum expenditure on books based on library standards.
- 3) Faculty members in libraries and their obligation to use the library for teaching students.
- 4) The educational policy of the college should be student and library-oriented.
- 5) The college should train intellectual promoters (students).
- 6) The college should produce students who can use their knowledge to promote the values of democracy.
- 7) Colleges should abhor peace, freedom, love oppression, caste discrimination, religious hatred, and injustice to preserve the culture and civilization of the country.

College libraries should be called academic libraries because these libraries help students, research scholars, and professors to meet their academic knowledge needs. The higher professional academic library is a national valuable asset, which cannot be compared in physical and monetary terms.

## Conclusion

The learning environment in a college library is a place where future knowledge is captured. In the knowledge age of the 21st century, libraries should not lag behind in the field of knowledge management from a professional perspective.

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## Role of Technology in Outreach Activity

**Prof. Ashwini B. Kumbhar**

Department of Home Science  
Kamala College, Kolhapur

### Abstract

Digital technologies are electronic tools, systems, devices and resources that generate, store or process data. Well known examples include social media, online games, multimedia and mobile phones. The importance of technology into the classroom has become a priority at most levels of the curriculum in many countries around the world. This paper draws on the evaluation of Outreach Activity. This current study is also one such effort to explore the unprecedented diverse benefits of digitalization and use of digital technology. The study has found a significant role of digital technology in outreach activities adhering them according to the emerging demands of incorporation of new technologies. Technology can be a powerful tool for transforming learning. The current study has a certain implication in real life due to the emergence of new technologies; individuals are indulging in online activities. This paper present that the role of technology in outreach activity and various types of technology used in outreach activity.

**Keywords :** Digital Technology, Outreach Activity

### Introduction

Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners. Our schools, community colleges, adult learning centers and universities should be incubators of exploration and invention. Educators should be collaborators in learning, seeking new knowledge and constantly acquiring new skills alongside their students. Education leaders should set a vision for creating learning experiences that provide the right tools and supports for all learners to thrive. However, to realize fully the benefits of technology in our education system and provide authentic learning experiences, educators need to use technology effectively in their practice.

Digital technologies are electronic tools and resources that generate, store or process data. Social media, search engines, big data, smartphones, smart watches etc are all examples of the digital revolution we are living in. Indeed, this very article is another example of the digital age. Modern computers came into fashion in the 1960s, as computers were starting to be used for advanced calculations. This led to a growing need to connect networks and as a result, the Internet was born. The 1980s brought about the commercialization of the Internet and it was sure to become the marketplace of the future.

The first push that made a difference for Digital technologies came in the form of Smartphones. You can text, fax, email and maintain your calendar from your phone. This for me was the precursor of digital outreach.

This for me was the advent of Digital Outreach in the modern world, where marketing and information plans from big and small companies alike involved multiple digital channels through one person.

### Objectives:

- To know the role of technology in outreach activity.
- To know various types of technology used in outreach activity.

### Methodology:

Data was collected by using secondary sources related subjects of technology and outreach activity.



**Result and Discussion****Digital Outreach**

Outreach is the activity of reaching out to a population that had no previous access to a certain service, wherever they may be. An outreach strategy simply means the way and format you deliver your message and services.

Digital outreach further created a huge need for advanced digital products. This has since become a feedback loop. Digital products such as smart phones, applications, advertisements and social media have made outreach easier and changed the way of reaching the masses. In turn, this outreach has created a bigger demand for newer, more advanced digital products.

**Exporter Outreach Tools**

Many states have evolved markedly in their approach to private sector outreach since their initial implementation of programs. Aided by their own experience and learning from other states, competent authorities have learned what works and what does not, how to effectively target, and innovative ways to not only reach, but impact compliance behavior. These practices can be drawn upon for outreach to emerging technology sectors, even where existing export controls do not exist. This section will summarize many of the tools available to competent authorities and how they may or may not be applied in emerging technology sectors.

**Tools of Technology for Digital Outreach and it's role-**

- **Website:** Effective outreach through websites implies more than having a page with a copy and paste of national and/or international regulations. Having a clear, informative, interactive, user-friendly website that can be easily found on web searches is now the minimum accepted best practice. The website should also contain contact information for the private sector to be able to reach out to relevant government personnel in case of an issue or question.
- **Newsletter:** While countries may choose the frequency of newsletters, regular mailings to target audiences with information about threat trends, red flags, changes/updates to regulations, helpful information, and case studies helps the private sector stay aware and informed of their obligations.
- **- Twitter and LinkedIn :** Sharing the latest news with the community in a fashionable manner is Twitter's strong point, whereas LinkedIn is more often used to share the ethos of a company, employer branding, details of Twitter news, job vacancies etc. LinkedIn is fastly gaining notoriety as a complete professional digital outreach media platform, as it continues to add new tools such as LinkedIn Elevate to increase the visibility and boost the impact of content.
- **- Facebook :** FB is considered more of a personal social network platform. This is exactly the network a lot of companies can benefit from. For example, a start-up based on the needs of working mothers - babysitting etc can benefit immensely from a social network like Facebook. For activities such as a cooking workshop, registrations can easily be managed on a platform such as Facebook. But it is important to note that Facebook is not limited to such activities, as it is also a major resource for crowdfunding activities, gaining the attention and trust of the crowds.
- **Blogs and LinkedIn articles :** Articles can be one of the most subtle forms of outreach and can also be the most direct form. For eg. a LinkedIn article can be written for advertising new job positions and explaining the role of each position in it. This article can now be shared as many times as needed. In the more subtle versions, an enterprise does not directly communicate about what they do, but about the broader subject (which is of course related to them). This brings traffic and awareness.
- **Events and Hackathons :** One of the best ways to reach a massive audience effectively are events. Events can be tailored to suit specific audiences. For instance, a start-up challenge can be best formulated as a Hackathon. It is fun and at the end, a real solution might come out of it. Future collaborations coming out of the connections are bonus.

- **Webinars** are one of the most common outreach activities to make your technology, science and future ideas reach the masses. Webinars make a talk or a presentation easily accessible and it can be listened to at a later time, thereby removing the scheduling conflicts. This has made the information flow very easy and accessible. Webinars are amazing, but they are not the easiest places to network. To make real connections, **smaller intimate events** with only 5 to 8 people can be executed. These ones help foster real connections as there is enough time to talk and converse.
- **SEM** : Search Engine Marketing. By optimizing search engines for keywords searched on them, SEM brings a particular option as the top search result. This results in the page getting more views and in turn, raises awareness and knowledge of the product in question.
- **Pamphlet**: Pamphlets can be mailed electronically, physically, or handed out at meetings and conferences. They provide a tangible, easy, low-cost way to interact with the private sector and while brief and easy to read, should include references to websites and other materials that provide more information.
- **Manual**: While denser in substance, guides and manuals can provide specialized private sector personnel handy reference to relevant standards, regulations, and enforcement procedures, as well as details on specific procedures such as license applications, registrations, and more. Importantly, published guides and manuals must be regularly updated in order to ensure timeliness. Examples include internal compliance manuals and best practice guidelines
- **Outreach event**: In addition to written information disseminated in a variety of ways as listed above, investment in proactive, face-to-face engagement by government authorities with the private sector can enhance awareness and build relationships and trust that can often be long-lasting and effective. The lasting impact of outreach events depends on accurate targeting of organizations, including those identified to be the greatest risk of security threat based on risk analysis. These events should be structured to provide participants important information on regulations but also on trends, good practices, and incentives. An open line of communication should always be presented whereby the private sector can remain in contact post-event.
- **Conference**: Conferences provide opportunities for equal engagement from the private and public sector. In addition, conferences organized by the public sector can provide advertisement or publicity opportunities for the private sector, an additional incentive to participate and learn. Telephone: Making calls to target sector organizations as well as leaving a telephone line of communication open can help establish regular, information communication and build trust between the government authorities and the private sector.

## Conclusion

Digital outreach is not just the modern form of communication, but it pushes the market to develop more digital products and thus feeding the cycle of Innovation. The resources for outreach are never ending. Websites, emails, applications and advertisements can all serve as outreach resources. It is the strategy that is chosen for outreach that decides the resources to be used. Digital technology has been the center of attention for a while for researchers. It has led to different findings and created new horizons relating to digital entrepreneurship, digital economies, etc. The initiation of digitalization leads to infinite opportunities to reap different benefits not only at the individual level but also at the mass level of organization and environment. The main focus of this study has been on the understanding the use of digital technology, the results have shown that there are certain organizational benefits in the use of digital technology.

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**Electronic Resource Management in Library****Mrs. Asha Chandrashok Jirage**Librarian, Savitribai Phule Mahila  
Mahavidyalaya, Satara.**Abstract:**

*As libraries dramatically increased their numbers of licensed electronic resources in the 1990s, such as online journals and databases, they realized the need for a record-keeping system that would help manage the details of acquiring and maintaining them. Since no off-the-shelf product existed, some libraries developed their own tools to manage electronic resources. The development of locally designed electronic resource management systems; the process of developing the tools at several academic institutions is traced, with a focus on the aspects of the systems unique to each university. Locally developed electronic resource management systems have lead academic institutions to engage with other institutions and vendors building similar tools. As a result, community-wide efforts in identifying key elements for managing electronic resources have begun to emerge. These efforts lay the foundation for the future successful development of tools and standards to assist in electronic resource Management.*

**Keywords:** E-Resources, Management, Copyright, Library Functions

**Introduction:**

This brief history of library electronic resources demonstrates that librarians provide access to electronic resources as a way to realize core library values. While certain problems have persisted 14 History of Electronic Resources throughout the development of these resources, such as the inability to adequately search across a variety of resources, there is hope that these problems will be resolved with time and effort from librarians and vendors. It is certain that whatever new electronic resources or ways of accessing them become available in the future, libraries will enter the fray with both enthusiasm and trepidation, along with the will to provide the best possible resources and services to their patrons. Electronic resource management (ERM) is the practices and techniques used by librarians and library staff to track the selection, acquisition, licensing, access, maintenance, usage, evaluation, retention, and de-selection of a library's electronic information resources.

ERM systems are designed to assist librarians with the acquisition and management of electronic resources. They provide tools to help manage the licensing and acquisition process and to provide access to materials. ERMS is basically a tool for libraries and its impact relates to end-users. It is a one-stop solution for managing and accessing e-resources which develop with specific standards and compatibility.

- **Evaluation & selection:** User needs analysis is the process of learning more about a target population / patrons with a view to identifying their information needs. Hence, this concept is also referred as to; Community analysis, user studies, information needs analysis, needs assessment and information audit. When performing the user analysis, the following elements should be taken into account. The amount of funding available, the quantity and expertise of the staff members, and the scope and depth of the study. However, there are options for choosing who conduct the study. An institution can select or hire individuals who can conduct the information needs analysis using qualified experienced consultants or by creating a committee made up of own staff members and either the two afore mentioned combinations.
- **Acquisition, renewal / cancellation:** The ERM system helps to track the workflow from selection to acquisitions, license management to renewal and cancellation of the resource. This results in more systematic follow-up and finally makes the overall management straightforward from resource selection to user support. Moreover, many institutions have hired electronic resources coordinator/librarians to oversee the electronic resources process and communicate with content providers about products and

options. The revolution of e-resources has drastically changed the entire process of selection and acquisition of materials for collections and has added various challenges for librarians. E-resources have virtually transformed librarians into “cybrarians.” In addition to possessing subject-matter knowledge, librarians are involved in the organization of resources so that users can have quick and easy access. Now, they also are required to possess technology expertise for selecting and evaluating resources. Similarly, acquisitions/ER librarians require legal and technological knowledge and business negotiations skills. Both selectors and acquisitions/ER librarians must work collaboratively with the technology, cataloging and public services departments. It is very important for librarians to keep up-to date on various changes and developments taking place in the areas of collection development and acquisitions. They should keep themselves current by reading relevant journals, searching the Internet, and attending meetings and conferences as well as subscribing to related discussion lists. Some important journals, conferences, and lists relevant to collection development and acquisitions are listed under the Appendix.

- **License agreement and access rights:** The need for licenses for electronic resources that are acceptable to publishers, vendors, and librarians is substantial. As the number of licensed electronic products increased in the 1990’s, librarians began to gain expertise in understanding license terms, legal requirements, and appropriate procedures for entering into a legal contract between a publisher and the library or its parent organization. Library associations began to create lists of licensing principles in order to educate their members and take a formal position on many of the common issues encountered in the licensing negotiations. The three most recent sets of licensing principles from the library community have a great deal in common.
- **Usage statistics:** Usage statistics have come a long way in reliability, standardization, and ease of collection, thanks to efforts by librarians, publishers, and library system vendors working in collaboration. The standards codified by both COUNTER and SUSHI will help insure the quality of statistics and lead to improvements in both the statistics themselves and the method of gathering them. Despite these advances, there are still issues of stability, consistency, and the influence of the different publisher platforms on usage rates. The time required to gather and process these statistics will continue to be significant for the near term but are well worth the effort. Statistical information improves evaluation and decision making throughout the life cycle of electronic products, including new purchases, renewals, and cancellation projects. More than just a product evaluation tool, they help us improve access to and use of electronic materials. Statistics enhance our ability to understand how and who uses our libraries, and how they use the products the libraries offer. Monitoring and collecting usage statistics is an especially important part of the process in determining renewal decisions for electronic resources.
- **Copyright:** The complexity of copyright and its implementation continues to grow, as does the intensity of attention the subject receives. Core to concept of copyright are these important ideas: the original intent of copyright as expressed in the Constitution, something that is unique to this country and which has fostered invention, knowledge, and dynamism; the all-important need to continue the balance between the rights of the author or owner with the rights of the user; and the translation of these concepts to electronic resources. Then, and only then, will copyright be able to work as it is supposed to work, whether in a traditional or an electronic environment. There is constant concern that the struggle to maintain balance will continue to be difficult. To achieve the full transformation of copyright to the electronic environment, therefore, requires continued effort by library staff and others in the legislative and educational arenas.
- **Implementation and administration of e-resources:** While academic librarians have often been bridge builders within their academic communities, electronic resources librarians are expected to be bridge builders within their library organizations. They often bring together administrators, technical services librarians, public services librarians, and systems librarians to focus on the current challenges of “any

time, any place” delivery of library resources and services. The emphasis on communication and collaborative skills for these positions is an indication of the strong role electronic resources librarians play in fostering a team environment within their organizations. Electronic resources librarians are expected to be skilled communicators with an in-depth expertise of technology and the issues surrounding the acquisition, management, and organization of electronic resources. Just as a reference librarian or bibliographer develops expertise in a particular discipline or subject area, the electronic resources librarian develops expertise in managing people, relationships, and technology in a fast-paced, ever-changing library and information environment.

#### Examples of ERM:

- AMSL: Electronic Resource Management for Heterogeneous Data in Libraries, within the focus of the project is the development of methods and tools for the integration of library data and information from the Internet in the Linked Open Data Cloud. The goal is a scalable and usable, intelligent data management platform, normalize the diverse data from different provinces, networking and high demantified in RDF format and any other representation formats can gather. The focus kept on aligning a system complementary and data interoperability architecture concept, which is operated by system librarians. As part of the project a use case is to be realized, that provides resource management functions to ensure the efficient licensing, budgeting and management of electronic resources to the level of the smallest unit of publication.
- CORAL: It is an Electronic Resources Management System consisting of interoperable modules· designed around the core components of managing electronic resources. It is made available as a free, open source program.
- ERAMS: (e-resource access and management services) are a way of thinking about library· management to help libraries optimize the access, usage, data, and workflows of electronic library collections in the physical and digital library.

#### Conclusion:

The primary goals of e-resource management are to organize and share information. Many libraries have purchased commercial ERM systems to assist them in meeting these goals, while many others have not taken this step yet, because they found these systems either costly or wanting. ERM has an interesting history, passing through phases of informal tools, to standalone systems, to unified platforms. It will be interesting to observe how these tools evolve and if they are able to deliver new levels of efficiency in management or more effective means of discovery and access for library users. As libraries of all types see involvement of increasing proportions with electronic and digital formats, technologies and services initially developed for academic libraries may inform products and services created to serve other types of libraries.

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**Design and Development of Android Application: A Case Study of KVM Library App****Dr. Shivaji Pandurang Kamble**

Librarian

Kisan Veer Mahavidyalaya, Wai

**Abstract:**

The present case study is usability study of KVM Library App. Mobile applications for information seeker has grown up tremendously with the growth of technology. From Children to adults all are finding their piece of information with this wireless technology. So the Kisan Veer Mahavidyalaya, Wai Library has been taking initiatives to prepare its own Library App to strengthen the library services for its users. The study indicates that majority of users are satisfied with the services of KVM Library app.

**Keywords:** ICT, Mobile App, Mobile Communication, E-Learning etc.

**Introduction:**

The act of transferring information while following a set procedure is referred to as communication. The daily lives of average people have been changed by mobile phones. Mobile phones, often known as cellular phones or cell phones, operate wirelessly and may be used anywhere without the need for wires or cords. Technology and libraries both evolve over time. Every area of modern life is significantly impacted by technology's dynamic nature. Information and Communication Technologies (ICT) in particular have facilitated quicker access to information while also posing a challenge for libraries to reevaluate and redesign their services in order to accommodate technological advancements.

Libraries have embraced ICT over the past few decades and have progressed through developmental stages such as automated housekeeping tasks, allowing for quicker access to its collection, and digitization, allowing for numerous accesses at users' desktops. In the present world, libraries are not the only sources of information; the Internet offers a vast variety of information, albeit the content is not always free and/or adds value. Libraries must not be afraid to adopt all available new technologies, including ICT, Wi-Fi, mobile communications, and Library 2.0 and 3.0, in order to redesign and transform their services in order to meet the needs of more discerning users who demand access to information whenever, wherever, and however they like.

With the advent of mobile technology, the "Libraries in Hand" trend has emerged. Our librarians are investigating how these gadgets are affecting access to information and making sure they are interacting with users and delivering web content in the most suitable and efficient manner possible. The challenge of increasing the market and need for mobile access to individualized facts and information anytime, anywhere on one's own handheld device must be accepted by our librarians, who must be ready to take it on.

**Objectives:**

1. To understand the KVM Library App.
2. Purposes of Mobile Library services.
3. To be familiar with KVM Library Mobile App.
4. Usage and applicability of KVM Library App.

**Use of Smart Phones for Library Services:**

ICT has collapsed barriers and promoted fast communication and interactions across boundaries. The need to meet life's basic challenges and responsibilities has informed the invention and the use of information technologies (Ademodi and Adepoju, 2009). Libraries are deeply interested in channels for the transmission of information, such as telephones and telephone lines, cellular networks, cable television, and the Internet.

Academic libraries are challenged in satisfying their customer's needs since their target market (researchers, lecturers, undergraduate, and postgraduate students) is demanding and dynamic. The Internet and World Wide Web (www) have made it possible for university teachers, researchers, and students to locate what they need without going to the library. If librarians in this sector are to continue to make substantial contributions as information disseminators, they will have to understand and exploit ICT infrastructure and emerging technologies in delivering services to their clientele (Ikhemuemhe, 2005). The following are the mobile phone services:

- I. SMS/Texting (Alert Services)
- I. Formal Education, Distance Learning and E-learning
- II. Instant Messaging for Reference Services
- III. E-resources with Mobile Interfaces
- IV. Online Library Catalogs on Mobile Phones
- V. QR Codes on Mobiles
- VI. Mobile-based Library Lending Service

### **Institutional Profile of KVM Wai Library:**

Kisan Veer Mahavidyalaya, Wai was started as the "Arts and Commerce College, Wai" by the PrajnaPathshala Mandal, Wai in 1962. Founding Fathers of the college: Kisan Alias Abasaheb Veer, the veteran freedom fighter TarkateerthaLaxmanshastri Joshi, the renowned Sanskrit scholar Initially, the college was affiliated to the University of Pune, Pune and after the establishment of Shivaji University, Kolhapur, it, along with the other colleges of the four districts of Satara, Sangli, Solapur and Kolhapur, was affiliated to the new university. Voluntary workers under the dynamic leadership of Kisan Veer came together and formed an educational society called Janata Shikshan Sanstha, Wai in 1967. The Sanstha was established for the purpose of imparting generally to the rising generation of India and in particular to the residents of Maharashtra, "a liberal and efficient Pre-primary, Primary, Secondary and Higher Education embodying a Social, Cultural, Scientific, Technical, Agricultural, Commercial, Industrial and Physical training". Janata Shikshan Sanstha, Wai took over the management from the PrajnaPathshala Mandal on 1st April 1968. The New Main Building, constructed under the leadership of Shri Veer, was inaugurated at the hands of Hon. Shri. Yashwantrao Chavan, the then Foreign Minister of India, on 15th February 1976.

Hon. Shri Yashwantrao Chavan performed the Naming Ceremony of the 'Arts and Commerce College' as "Kisan Veer Mahavidyalaya, Wai" on 1st September 1980. Hon. Shri. Prataprao Bhosale, President and Trustee, and Hon. Shri. Laxmanrao Jadhav-Patil, Vice President and Trustee, of Janata ShikshanSanatha, Wai, both Ex-MPs, have provided dynamic leadership by making available quality education to the student population.

The total strength of students is 5800. The college Library has 78974 books and 64 magazines have been subscribed. The college library is computerized by using "Vridhhi" software developed by Hindustan Computers, Malegaon. The library provides traditional library services as well as modern library services. The Library has its own library website i.e. [www.kvmwailibrary.weebly.com](http://www.kvmwailibrary.weebly.com).

### **KVMWAI LIBRARY Mobile APP:**

Kisan Veer Mahavidyalaya, Wai Library has started its own College Library App named "KVM Library". The App has been developed by Vortex Software, Pune. It is uploaded on Google Playstore so that all users as well as students can download and install the app on their mobile phones. It is free of cost so that anyone can download and install. The App is user-friendly and acquires less than 5MB storage space. The second version of the App has been launched on April 2021. The Basic menus are New Arrival Books, Our Library Services, Our E-Resources, Our staff and Basic Information of Library.

**Research Methodology:**

The Kisan Veer Mahavidyalaya, Wai, students, faculties and staff members were invited for the survey. The random sampling was applied and total 300 sample population was chosen for the present study which includes 50 teachers, 25 non-teaching staff and 225 students from Arts, Commerce and science faculty including undergraduate and post graduate. The survey will provide information about how the students and faculties are using the KVM Library App. It will also helpful for to understand the satisfaction level of users.

**Data Analysis and Interpretation:**

Survey Method is used for to collect the data. The data has been analyzed by using charts and diagrams. The charts and diagram makes the picture clear of analysis and becomes easy to interpret.

**a. Users of KVM Library App:**

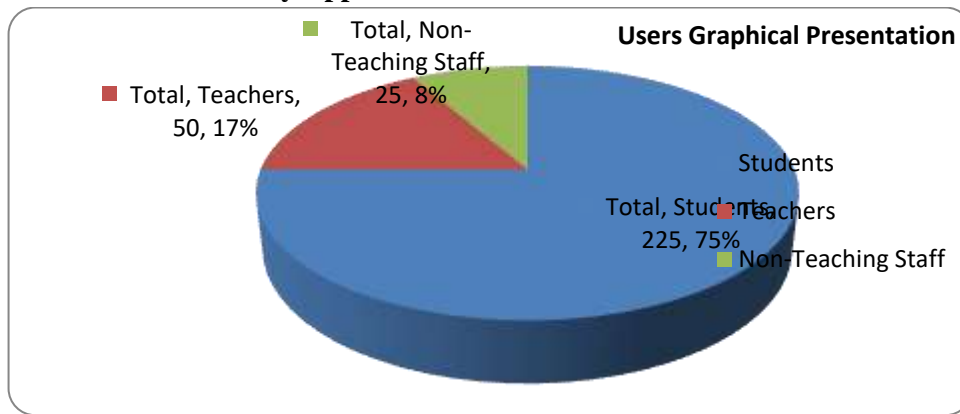


Fig. 1 : Users Graphical Presentation

The total strength of students is 5500 of senior college. 225 students, 50 teaching staff and 25 Non-teaching staff were selected for the present study.

**b. PURPOSES OF USING MOBILE DEVICE:**

The patrons are using their mobile device for various purposes like General Information need (82%), Academic Information (60%), Entertainment (88%), Research (49%), Playing Games (82%) and Searching E-Book or Articles (48%).

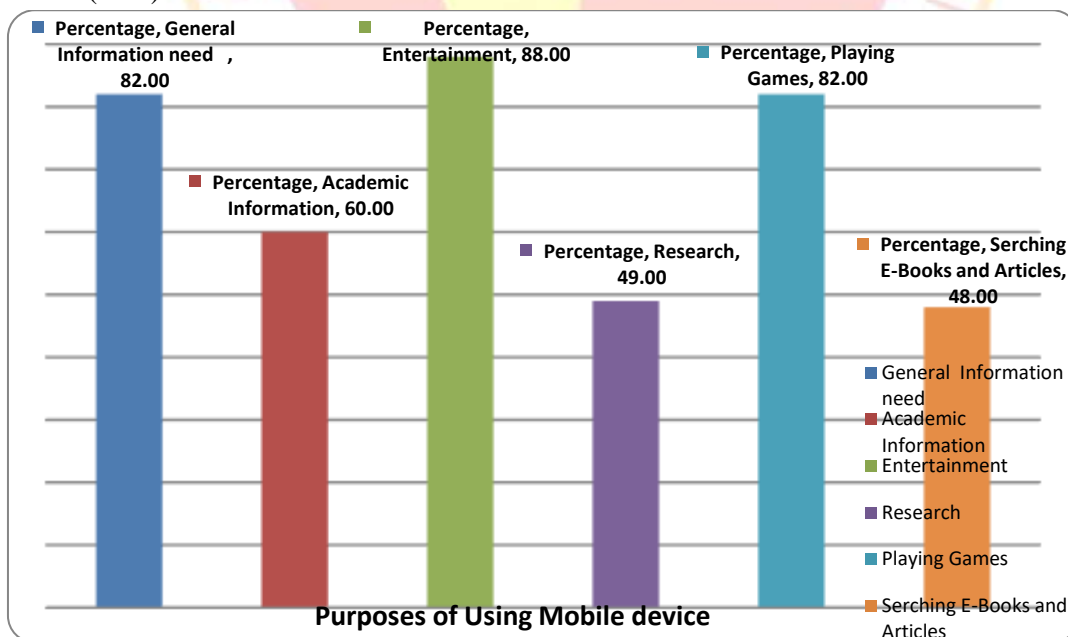


Fig. 2: Purposes of Using Mobile Device



The analysis indicates that the majority of respondent are using their mobile for entrainment purpose and less used for research.

**c. Use of E-Resource Services:**

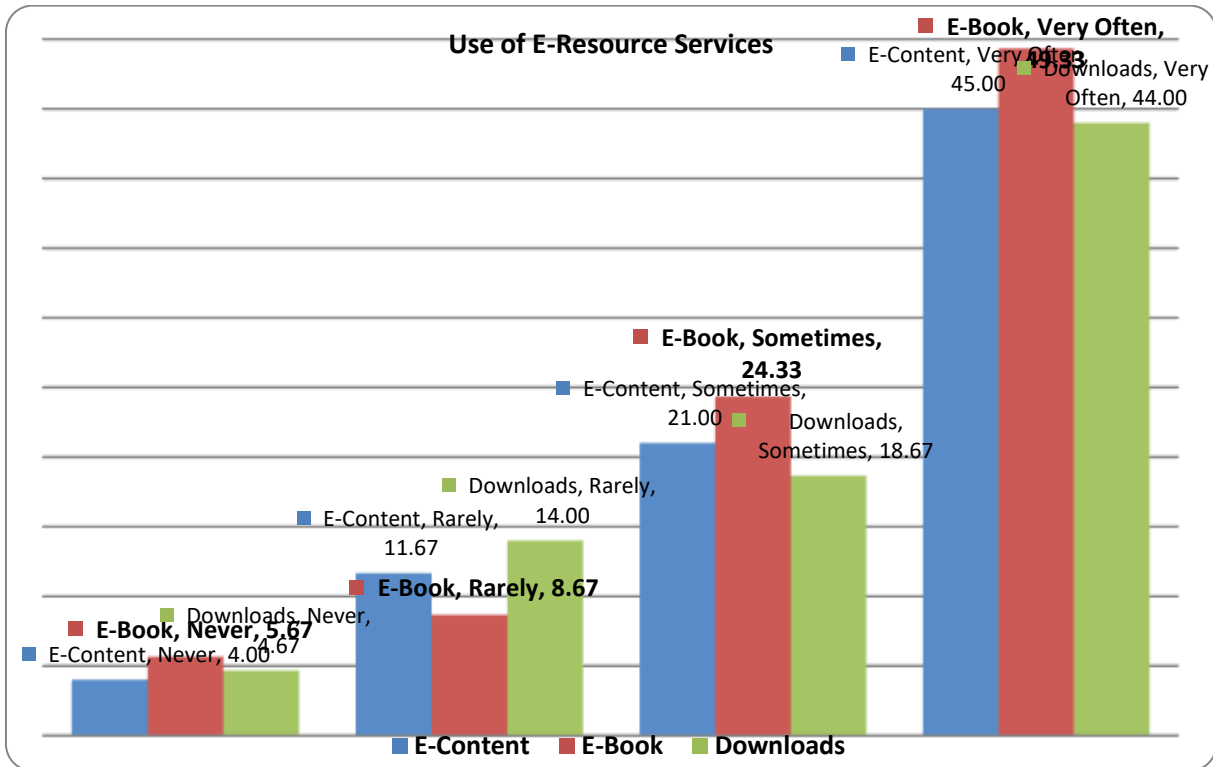


Fig. 3: Use of E-Resource Services

The above graph indicates that most of users are using the e-resource services very often.

**d. Satisfaction level of Library App:**

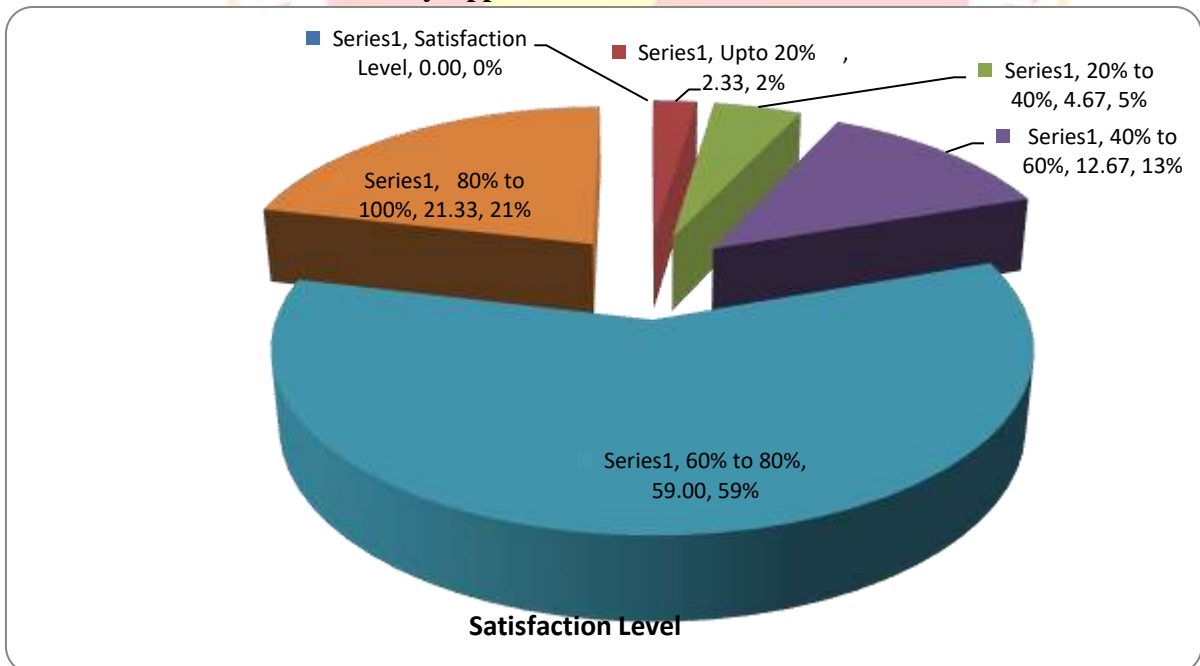


Fig. 4: Satisfaction level of Library App

80% of Users were expressed their opinion that the present KVM Library App works very satisfactory and the uses are very much satisfied with the e-resources services.

**Findings and Suggestions:**

1. The KVM Library App is more beneficial to all users and easy to use and also save the time.
2. The Library app is free on Google Play store and acquires very less space i.e. 5 MB only.
3. More than 80% of respondents are satisfied about the KVM Library App.
4. E-Resources are used very often by the users.
5. The Library App should be design according to the users demand.
6. The app should update regularly and always think about users' requirement.

**Conclusion:**

In order to accommodate changing information demands of users in pursuit of organizational goals, library policies and services should be adaptable and open. In order to promote and incorporate new technology into the design of future library services in a cost-effective way, libraries must use it more effectively. The present study is focusing on how the college library should make use of Smartphone to strengthen the library services effectively through Mobile Library App. The Library App should provide the instant and easy access to information at any place and any time. It was mostly used by users in lockdown period.

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## Disaster Management in the Library: A Review

**Dr. Uday Maruti Jadhav**

Librarian,

CES's Dr. A. B. Telang Senior College of  
Arts, Commerce & Science, Nigdi Pune-411044.

### Abstract

*This paper presents a review of disaster management and its implication in library. It covers various aspects related to disaster management. This paper also covers meaning of disaster, meaning of disaster management, types of disaster, library disasters and disaster planning etc.*

**Keywords:** *disaster, disaster management, types of disaster, library disasters and disaster planning etc.*

### 1. Introduction

Libraries form the integral part of any institution. Libraries are supporting system of any organization. Aim of library is to fulfill the goals of parent organization. Accordingly, libraries procure various resources which are useful for stakeholders. These resources include print as well as non-print materials. Print resources include resources available in print form. Print resources includes books, journals, reports, newspapers, textbooks, reference books, encyclopedia, directories, yearbooks, almanacs, maps etc. Non-print resources include resources available in non-print form. Non print materials include CDs, VCDs, e-books, e-journals, online databases etc. Libraries does not contain only these resources but other resources also. These are building, equipment, furniture, fixtures, infrastructure, human resources etc. All these resources are the integral part of libraries. As well as all these resources are valuable for the library. Libraries should take care of each and every resource. For securing these valuable resources libraries should be ready with disaster management plan. Disaster management is important part for the libraries and its stakeholders. Disasters include man made and natural. Manmade disasters may include mishandling, improper care etc. While natural disasters include rain, water, fire, earthquake etc. Libraries should be prepared for any kind of disasters and management of that disaster.

### 2. What is Disaster?

A disaster is the tragedy of a natural or human-made hazard (a hazard is a situation which poses a level of threat to life, health, property, or environment) that negatively affects society or environment. The Center for Research on the Epidemiology of Disasters (CRED) in Brussels, Belgium, uses the following definition. "A disaster is a situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance."

Generally, disaster includes following effects:

1. It completely affects the normal day to day life
2. It negatively influences the emergency systems
3. Normal needs and processes like food, shelter, health, etc. are affected and deteriorate depending on the intensity and severity of the disaster.

Thus, a disaster may have the following characteristics:-

Unpredictability, Unfamiliarity, Speed, Urgency, Uncertainty, Threat etc.

Thus, in simple terms we can define disaster as a hazard causing heavy loss to life, property and livelihood. In contemporary academia, disasters are seen as the consequence of inappropriately managed risk. These risks are the product of hazards and vulnerability. Hazards that strike in areas with low vulnerability are not considered a disaster, as is the case in uninhabited regions (Biswas and Choudhuri)



### 3. Meaning of Disaster Management

Disaster management in India refers to conservation of lives and property during a natural or man-made disaster. Disaster management plans are multi-layered and are planned to address issues such as floods, hurricanes, fires, mass failure of utilities and the rapid spread of disease. India is especially vulnerable to natural disasters because of its unique geo-climatic conditions, having recurrent floods, droughts, cyclones, earthquakes and landslides. Due to the vastness of the country different regions are vulnerable to different natural disasters. For example, during rainy season the peninsular regions of South India is mostly affected by cyclones and states of West India experience severe drought during summer. (Wikipedia)

### 4. Types of Disaster

- Natural: Geological, Hydrological, Climatic & atmospheric, Wildfire.
- Human-made: Sociological and Technological
- Technical Disaster.

#### Kinds of Risk/Disaster:

- There are three main kinds/types of risk/disaster:
- Natural Disasters
- Human/man-made Disasters
- Technical Disaster

#### Natural Disasters:

A natural disaster is an effect of natural hazard (for example volcanic eruption or earthquake) which affects humans. Human negligence, caused by the lack of appropriate emergency measurements, results in monetary, environmental, or human life impact.

Rain, flood, cyclone, earthquakes, drought, biological damages, micro-organisms, insects or vermin infestation, volcanic eruptions, cold wave, thunder storms, heat waves, mud slides, air quantity: temperature and humidity, sinkholes, etc. are the examples of natural disaster.

#### Man Made Disasters:

Disasters occurred due to human actions, negligence, error, or involving the failure of a system are called man-made disasters. Man-made disasters are categorized as technological or sociological. Technological disasters are occurred due to the failure of technology, such as engineering failures, transport disasters, or environmental disasters. Sociological disasters have a strong human motive, such as criminal acts, stampedes, riots and war etc.

Acts of war, terrorism, fires, water (broken pipes, leaking roofs, blocked drains), explosions, liquid chemical pollution, building deficiencies (Structure, design, environment, and maintenance), Power failures etc. are the examples of man-made disasters. (Biswas and Choudhury)

**Technical Disaster:** Disasters occurred due to technical errors are termed as technical disaster.

Collapse of shelving, other indoor structural accidents, computer system failure, elevator failure, power failure, heating and cooling system failure, telecommunication failure etc. are the examples of technical disaster. (Ata Ur Rehman, 2014)

### 5. Disaster management:

Disaster Management is defined by the Disaster Management Act 57 of 2002 as a continuous and integrated multi-sectoral, multidisciplinary process of planning, and implementation of measures, aimed at

- a) Preventing or reducing the risk of disasters;
- b) Mitigating the severity or consequences of disasters;
- c) Emergency preparedness;
- d) Rapid and effective response to disasters; and
- e) Post-disaster recovery and rehabilitation. (Dr. Dewald van Niekerk, 2007)

**6. Library disasters and disaster planning :**

We know there are three kinds of disasters namely natural disasters, human/man-made disasters and technical disaster.

Natural disaster is caused due to natural hazard. This includes the rain, flood, earthquake, volcano etc. These disaster may harm the libraries and library materials. For preventing natural disaster we can do the preventive measures like planning library building resistance to these natural disasters. We can't avoid these disasters to full extent because these are natural but we can make sure to reduce effect of these disasters.

Disasters occurred due to human actions, negligence, error, or involving the failure of a system are called man-made disasters. These are further categorized as technological or sociological disasters. As these disasters are caused due to human actions we can avoid these disasters in libraries. For that expertise should be used, proper training should be given to human resources.

Disasters which are occurred due to technical errors are called as technical disaster. This includes technical failures. We can avoid these disasters in libraries. For this standard procedures and materials should be used in libraries. We can avoid this type of disasters to full extent because these are in the hands of human being.

**7. Conclusion:**

Disaster is a serious phenomenon which affects human, nature, society and environment. It also has serious effect on libraries also. For that library professionals should be aware about various disasters and accordingly proper preventive measures should be taken to avoid damage to library and library materials.

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**Importance of Disaster Management in College Libraries****Dr.Ashish A.Thanekar**

Librarian

Vidyasagar kala Mahavidyalaya

**Abstract**

*The present paper highlights the importance of library and information centres in managing a disaster or any emergency. The main thrust of the paper is to explore the possible roles that the library professionals may assume in case of disasters besides their regular or routine jobs. The concept of disaster management, types of man-made and natural disasters have also been discussed in detail. The paper discusses library professionals' role in managing the emergencies for the local community in particular and for the library and information centres in general. Libraries are important institutions that provide information to users. Disasters in Libraries are not new. Different kinds of disaster affect the libraries. Disaster threatens human safety or endangers a library building, its resources human, documents, equipment's and services. It is vital for the management of a library to make sure that the building and library premises are safe for public to come, for the staff to work and provide services.*

*Keywords - Disaster, Disaster Management, College libraries, Earthquake. And new technology*

**Introduction**

The library and information centres world over have experienced a sea change in the methods of acquiring, processing, storing and making that information available to the end users especially after a revolution in the information and communication technologies. Libraries have very successfully geared themselves to adopt any new technology that is emerging with new innovations every day. Libraries are now functional 24x7 day and night in a networked world. Disasters not only damage the library collections, the library building, and harm the library staff and the readers but also disrupt the services. If libraries are prepared, it will help the library to minimize the impact of a disaster and restore collections and resume services at the earliest. So, Disaster management and planning should be one of the most important aspects of library management. Such disasters in any library can damage the print material, documents, records, computer systems and the invaluable information stored in different storage media.”

**Objective**

The objective of the present study is to ascertain and suggest the roles, a librarian and the supporting staff, library and information centre may assume or perform during any disaster or emergency. How the institutional level or college level can be helpful during any emergency for the community and how a disaster can be best managed by pre planning, preparation and response are the other angles of this study. So, in this paper its aims to spread awareness among people and sensitise the library professionals in particular for their prospective roles in case of any emergency.

**Concept of Disaster Management**

Eden and Mathew (1996 ) define disaster as an incident which threatens human life/ or/ and damages or threaten to damage a library building, collections, equipment and systems. The Dictionary for Library and Information Services (2005) defines a disaster plan as a set of written procedures prepared by the library staff in advance to deal with an unexpected occurrence that has the potential to cause injury to personnel or damage to equipment or to collections and/ or to facilities sufficient to warrant temporary suspension of services.( Pardeep Rattan12)

**Various Types of Disasters**

Disasters or emergencies can be caused or produced by a variety of natural and man made agents. The natural agents or reasons of disasters can be climate and weather with their different phenomena such as clouds,



precipitation, avalanches, blizzards, dust storms, drought, earthquakes, floods, tsunamis, hurricanes, landslides, wildfires, tornadoes, volcanic eruptions and many more. The man made reasons may vary from the poor design, warand quality of the buildings and properties to no or very poor maintenance, leakages, electric short circuits, burglary, etc.

### **Some of the other Disasters**

#### **Natural Disasters**

- \* Rain and wind storms
- \* Floods
- \* Biological agents (micro-organisms, insect or vermin infestation)
- \* Earthquakes
- \* Volcanic eruptions

#### **Man-Made Disasters**

- \* Acts of war and terrorism
- \* Fires
- \* Water (broken pipes, leaking roofs, blocked drains, fire extinguishing)
- \* Explosions
- \* Liquid chemical spills
- \* Building deficiencies (structure, design, environment, maintenance)
- \* Power failures
- \* Natural disasters cannot be prevented, but measures can be taken to

### **Disaster Management for College Library**

Disaster management plan is a must be incorporated in initial planning of establishing a library and information centre. Several smaller pointers for a comprehensive disaster management plan, which are independent of each other but are interlinked, as parts of whole plan are set forth. The disaster and its control mechanism normally go through three stages – before, during and after. All these three stages are kept to be kept in mind while planning to minimise the impact and recover out of potential emergencies. Each disaster plan must cover whole of the library and information centre including staff, readers, sources of information, equipment and infrastructure and it must be a team effort. The disaster control plan involves four stages as following

1. Prevention ,
2. Preparedness,
3. Reaction , and
4. Recovery.

### **Information Technology for Disaster Prevention**

The technological advancements especially in the information and communication sector have provided a real yardstick to warn, prepare, share, respond, quickly to a disaster for minimising its impact and in some cases it is even possible to avoid the damages by a natural disaster .Following technologies can be helpful in the reduction of damage by a disaster:

1. Remote Sensing Technology,
2. Geographic Information System,
3. Global Positioning System,
4. Forecasting and Warning System,
5. Communication Technology,
6. Internet.

**Prevention**

Identify and minimize the risks posed by the building, its equipment and fittings, and the natural hazards of the area.

1. Carry out a building inspection and alter factors which constitute a potential hazard.
2. Establish routine housekeeping and maintenance measures to withstand disaster in buildings and surrounding areas.
3. Install automatic fire detection and extinguishing systems, and water-sensing alarms.
4. Take special precautions during unusual periods of increased risk, such as building renovation.
5. Make special arrangements to ensure the safety of library or archival material when exhibited.
6. Provide security copies of vital records such as collection inventories, and store these off-site. Protect computers and data through provision of uninterrupted power supply.
7. Have comprehensive insurance for the library or archives, its contents, the cost of salvage operations, and potential replacement, re-binding and restoration of damaged materials.

**Preparedness**

Getting ready to cope.

- \* Develop a written preparedness, response and recovery plan.
- \* Keep the plan up-to-date, and test it.
- \* Keep together supplies and equipment required in a disaster and maintain them.
- \* Establish and train an in-house disaster response team. Training in :
  - disaster response techniques,
  - identification and marking on floor-plans and enclosures of irreplaceable and important material for priority salvage.
- \* Prepare and keep an up-to-date set of documentation including :
  - \* Building floor-plans, with locations of cut-off switches and valves.
  - \* Inventory of holdings, with priorities for salvage marked on floor-plans.
  - \* List of names, addresses, and home telephone numbers of personnel with emergency responsibilities.
  - \* List of names, addresses, and home telephone numbers of the in-house disaster response team.
  - \* List of names, addresses and home telephone numbers of trained conservators with experience in salvaging water-damaged materials, resource organisations, and other facilities able to offer support in the event of a disaster.
  - \* List of disaster control services, in-house supplies and equipment, and in any central store, including locations and names of contacts with home telephone numbers.
  - \* List of suppliers of services and sources of additional equipment and supplies, including names of contacts and home telephone numbers.
  - \* Arrangements made to access freezing facilities.
  - \* Arrangements for funding emergency needs.
  - \* Copies of insurance policies.
  - \* Salvage procedures.
  - \* Distribute the plan and documentation to appropriate locations on- and off-site.
  - \* Institute procedures to notify appropriate people of the disaster and assemble them rapidly Audiovisual Archives Associations FIAF, FIAT, and IASA.(<http://www.Disasterplanning6>)

**Future Line of Action**

Lack of planning at all levels, lack of mitigation planning, lack of coordination and networking, delayed response and lack of trained man power, forces us to think that how serious are the authorities and library professionals for having a proper disaster management action plan. The importance of planning of disaster

reduction needs serious and concerted efforts with a multi layered cooperation and coordination between all the stake holders, i.e., government agencies, NGOs, and library and information centres.

### Conclusion

Creation of a disaster management knowledge base related to different disasters occurred anywhere in the world in a networked mode, including the counter and recovery plans is the need of the hour. Mobile libraries can help to a greater extent in educating the people to safeguard themselves against emergencies. The library and information science curricula also needs to be modified keeping in view the importance of disaster management for library and information centres and above all because libraries world over act as service agencies and librarians as service and information handling managers.

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**Disaster Management in College Libraries****Mr. Karbhari Govindrao Magar**

Librarian

Sant Tukaram Mahavidyalaya, Kannad.

**Abstract:-**

*Disaster preparation and management are essential for the smooth operation of libraries. Disasters can strike libraries and information centers in a variety of ways. This presentation discusses numerous natural catastrophes and tragedies that might occur in libraries. The calamities endanger library structures, collections, equipment, and systems. Libraries and information centers must play an important role in the preservation of their collections and paraphernalia. As a result, rigorous disaster preparation is required to mitigate the dangerous effects of catastrophes on libraries. The study also tackles disaster planning, preparation, response, and recovery.*

**Keywords:-** Disaster management, Natural Disasters, Man-made Disasters, Disaster plan, Insurance.

**Introduction**

Libraries are essential organizations that would provide people with information. Disasters in libraries are not uncommon. Libraries are subjected to a variety of catastrophes. A crisis endangers human safety or the people, documents, technology, and social investment of a library facility. Library management must ensure that the building and library premises are safe for the general public to visit as well as for personnel to work and deliver services. Mishaps in libraries not only damage the library's resources and facilities, as well as its personnel and visitors, but they also create service interruptions. Libraries that are prepared can minimize the consequences of a disaster and recover collections and services as quickly as possible. As a result, disaster management and preparation should be one of the most crucial aspects of library administration. A disaster plan is defined as follows by the Dictionary for Library and Information Services (2005): "A set of written procedures prepared by the library staff in advance to deal with an unexpected occurrence that has the potential to cause injury to personnel or damage to equipment or collections and/ or to facilities sufficient to warrant temporary suspension of services. Such disasters in any library can harm print materials, papers, records, computer systems, and important information kept on various storage media."

**Disaster:-**

According to the United Nations, is a major disturbance in the operation of a community or society that involves extensive human, material, economic, or environmental consequences that surpass the afflicted community's or society's capacity to manage using its own resources.

**Disaster Management in India:-**

A disaster is described as a widespread disturbance that occurs over a short or long period of time, whether natural or man-made. Disaster management has been a prominent subject in India due to the frequency of natural catastrophes such as floods, and droughts.

The death and property damage resulting from natural disasters has been slowly increasing around the globe as a result of insufficient disaster response equipment, population increase, climate change, and continued environmental degradation. Global disaster management attempts have fallen short of meeting the magnitude and frequency of natural disasters.

**Types of Disasters:-**

As with any other institution, libraries are susceptible to natural disasters which destroy, destroy, or drown books and other valuable documents in water. These consequences are often irreversible. Fire and/or water can

be the principal cause or result of a disaster like an earthquake, flooding, or lightning. Disasters' causes have been discovered. Natural disasters are often so unforeseen that they take the organization off guard. Natural catastrophes include floods, earthquake, volcanic eruptions, winds or rain showers, lightning, and Tsunamis. Man-made disasters occur as a consequence of human negligence or purposeful criminal action. Fire, theft, war, theft, building defects, and/or personnel irresponsibility in their given jobs are examples of these.

### **1.Natural Disaster**

#### **Floods:-**

As previously reported, the River Arno inundated Florence's Biblioteca Nazionale Centrale of Italy in 1966. During the August 2000 storm in Hyderabad, the Sunderayya Vignana Kendra Library's unique collection was submerged in water. Floods destroyed Jammu University's primary source materials on acclaimed Urdu poet Iqbal's authentic writings.

#### **Earthquake:**

People who were displaced by an earthquake in Muzaffrabad, Pakistan-held Kashmir, in 2005 burned 1000 books to stay warm during the bitter winter months.

### **2.Man-made Disasters**

This category includes emergencies that occur as a consequence of people's unintended or intentional acts (staff and users). Warfare and terrorist attacks are covered, and so are fires triggered by short connections and library floods due to pipe breaches or leakage. Building problems and poor building maintenance can also contribute to an emergency. Power outages have the potential to cause an emergency. Once the flood has retreated, flooding leaves dampness in leaves its wake, which would be created by biological creatures that destroy the books.

#### **War and Arson:**

As previously noted, the Alexandria Library was burnt during Caesar's reign in the second century BC, resulting in the rights and human dignity of library loss and destruction caused by fighting. During the first half of the twentieth century, most European countries' libraries suffered devastating devastation as a result of the two World Wars. Recent examples include Serbia's invasion of Bosnia and Herzegovina in 1992, the United States' war on Iraq in 2003, and the Soviet Union's attack on Afghanistan in 1979. There were 23 reported library fires in the United States in 1980-81, including 17 (or 85%) of them being arson fires.

#### **Theft:**

Thefts have caused harm to libraries in the sense of value rather than scale. The majority of the books stolen from libraries are expensive and extremely rare volumes containing paintings or other items. "Within a few days of forces entering Baghdad, the looters ransacked the National Museum and stole about 15000 priceless artifacts"

#### **Building Deficiency and Negligence:**

The US National Fire Protection Association stated that an automatic water sprinkler system may have prevented the fire at the Los Angeles Central Library in 1986. The cause of a catastrophe with in USSR Academy of Sciences Library in 1988 was discovered to be poor electrical wiring. 1.56 million Indian and 8 lakh international patent literatures are degrading at the Patent Registration Office library, Government of India, Kolkata, due to a lack of appropriate preservation techniques.

#### **Security System:-**

The security of the library is focused on the protection of both staff and users. It also involves basic library building security and safeguarding against theft of library goods and assets.

- Avoiding unnecessary back doors and strengthening critical access points all through the design process.
- The interior arrangement should be designed to provide the best possible view of public places.
- Adding burglar-proof bars/grills to rear doors, in addition to a burglar alarm and emergency exits.
- Installation of CCTV and RFID systems.

- Adequate illumination both within and outside the building.
- Construct a barrier entrance at the exit location.
- An intruder alarm system is installed in special collection locations.

On a regular basis:

- Establishment of a restricted-access system for collections.
- The main entry and rare material room keys should be approved and logged in a payment platform.
- Standard-grade locks are used.

**Insurance:-**

The financial loss suffered by a library following a disaster is usually considerable, so it comprises loss of material, the cost of recovery, possible candidate, s new, rehabilitation of destroyed resources, and the rebuilding of damaged structural parts.

As a consequence, there is considerable justification for acquiring disaster insurance. The protection should be comprehensive enough just to cover all potential losses. Nevertheless, since insurance cover negotiation involves the use of several technical terms, it must be carried out by someone who is well-versed in insurance language. If a disaster happens, the damages must be conveyed to the company as quickly as possible once the situation has stabilized. As just a consequence, the library is required to preserve records of any valuable resources protected by policy, and these documents must be held in a safe location far away from the building. The coverage schedule must be reviewed on a frequent basis as the value of the covered items changes. In this regard, a documented disaster management plan facilitates the submission of claims with insurance companies.

**Conclusion:**

A catastrophe control strategy is not only important but also vital for catastrophe management. Disaster management infrastructure should be constructed, as well as an emergency response system should indeed be established and updated as needed. It is crucial and incredibly necessary to educate people and increase their understanding of disaster management. Different kinds of libraries should collaborate, as well as the national Government should lead the way in building a disaster preparedness paradigm. To help in disaster relief, libraries might give or pool their institutional resources. Collaboration between libraries in crisis management can take many forms, including coordinated training programs, the buying and warehousing of emergency supplies, and so on. Through crisis management counseling, government bodies and professional groups might also assist libraries and library workers.

Natural disasters, including floods or earthquakes, as well as human negligence or purposeful action, such as war, fire, and robbery, are examples of disasters. Numerous libraries have already been damaged in the past as a result of natural disasters. National and worldwide awareness and preventative actions are now in place to safeguard libraries from disasters. Disaster management is becoming an increasingly important aspect of library administration.

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**Disaster Management in Public Libraries****Mrs. Sandhya Girish Yadav**Smt. Putalaben Shah College of Education, Sangli  
RajwadaPaga Chowk Sangli**Dr. Satyaprakash Nikose**Professor and Head  
Department of Library and Information Science,  
Rashtrasant Tukadoji Maharaj Nagpur University,  
Nagpur**Abstract:**

*Disaster management in libraries is an essential component to keep libraries safe and secure. Implementing tools and strategies to mitigate risk, handle emergencies efficiently, and plan for the future are all important aspects of the library profession with respect to disaster management. It is important to be properly prepared with adequate knowledge to handle any crisis situation properly. By incorporating disaster management in libraries, it is possible to create a safe environment.*

*This paper examines the challenges faced by libraries in Maharashtra in disaster management and makes some suggestions for possible solutions. Survey method was used in this study questionnaire and interview techniques were used for data collection.*

**KEYWORDS:** *Disaster management, Disaster plan, public libraries, Maharashtra State Library Authority, Challenges faced by libraries, Libraries affected by the disasters*

**INTRODUCTION:**

Disasters can happen anywhere in the world at any time. The type of disaster that is likely to occur is largely determined by the current environmental, political, economic or social conditions of the region or country. In recent years, the devastating effects of disasters on communities and libraries have been felt across the country. In response to these challenges, it is necessary to develop necessary strategies for libraries to prevent damage from any disaster.

Information resources are kept safe by libraries because they have very old collections that preserve our cultural heritage. The libraries are represents the goals of the parent organization so the value of these resources is very high. Many people in Maharashtra depends on libraries for information services as they can hardly afford to purchase the necessary resources themselves. A catastrophic events can easily result in the loss of the entire investment. Disaster management in this context tries to reduce loss and damage as much as possible.

This article discusses the challenges faced by public libraries in Maharashtra in disaster management and makes some suggestions for possible solutions.

**Definitions:****1. Disaster**

The World Health Organisation (WHO) defines Disaster as "any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services, on a scale sufficient to warrant an extraordinary response from outside the affected community or area."

**2. Disaster management**

According to Kelly (1996),"Disaster management" can be defined as the range of activities designed to maintain control over disaster and emergency situations and to provide a framework for helping those who are at risk to avoid or recover from the impact of the disaster.

**3. Disaster plan**

A set of written procedures prepared in advance by the staff of a library to deal with an unexpected occurrence that has the potential to cause injury to personnel or damage to equipment, collections and/or facilities sufficient to warrant temporary suspension of services (Reitz, 2004).

#### 4. Public Libraries

The public library, the local gateway to knowledge, provides a basic condition for lifelong learning, independent decision-making and cultural development of the individual and social groups.' (IFLA/UNESCO Public Library Manifesto, 1994)

#### **DISASTER IN PUBLIC LIBRARIES OF MAHARASHTRA:**

The public libraries of Maharashtra have been facing a number of disasters in recent years. These disasters have had a devastating impact on the library system, resulting in the closure of many libraries and the loss of valuable resources.

The most significant disaster to affect the public libraries of Maharashtra was the floods of 2019. This natural disaster caused extensive damage to the library infrastructure, with many libraries being completely destroyed. The floods also caused the loss of many books and other resources, which had been collected over the years. This has had a significant impact on the availability of resources for the public, as many of the books and other resources were irreplaceable.

The floods of 2019 were not the only disaster to affect the public libraries of Maharashtra. In 2020, the state was hit by a severe drought, which caused a significant decrease in the availability of water. This had a direct impact on the library system, as many libraries were unable to operate due to the lack of water. This resulted in the closure of many libraries, and the loss of valuable resources.

The public libraries of Maharashtra have also been affected by the COVID-19 pandemic. The pandemic has caused a significant decrease in the number of visitors to the libraries, as people are encouraged to stay at home. This has had a significant impact on the library system, as many libraries have had to reduce their hours or close completely due to the lack of visitors.

The disasters that have affected the public libraries of Maharashtra have had a devastating impact on the library system. Many libraries have been forced to close, and valuable resources have been lost. This has had a significant impact on the availability of resources for the public, as many of the books and other resources were irreplaceable. It is essential that the government takes steps to ensure that the public libraries of Maharashtra are protected from future disasters, and that the resources that have been lost are replaced.

#### **PUBLIC LIBRARIES AFFECTED BY DISASTERS:**

Maharashtra is home to a number of public libraries, many of which have been affected by disasters over the years. The most recent disaster to affect the state was the 2005, 2019, 2021 floods, which caused extensive damage to many of the public libraries in the state. For this research, the researcher has collected information from public libraries in different regions of Maharashtra, such as Amravati, Nashik, Pune, Mumbai, Aurangabad and Nagpur.

The Maharashtra State Library Authority (MSLA) is responsible for the maintenance and upkeep of the public libraries in the state. The MSLA has reported that more than 200 public libraries in the state were affected by the floods, with some of them being completely destroyed. They have taken steps to rebuild and restore the affected libraries, and has also provided financial assistance to the affected libraries.

The MSLA has provided assistance to the affected libraries in the form of research materials, training, and other resources. Overall, the MSLA has taken steps to ensure that the affected libraries are able to continue to serve the public, and to provide access to books, digital resources, educational resources, cultural resources, recreational resources, and research resources.

#### **DISASTER MANAGEMENT IN PUBLIC LIBRARIES**

Disaster management is an important part of every library in Maharashtra. It involves planning, organizing, and managing resources to mitigate the effects of natural disasters or other emergencies on library collections and services. Disaster management includes strategies for preventing damage to library collections

and services, training programs for librarians on disaster preparedness, and collaboration with other agencies and developing plans for recovery in the event of a disaster. Additionally, libraries can use technology such as mobile apps and digital tools to help them prepare for disasters and manage their recovery efforts. These tools can help librarians quickly assess damage and take appropriate action in order to reduce losses due to natural disasters

In Maharashtra, public libraries are responsible for implementing disaster management strategies that focus on protecting both physical and digital library collections from floods, fires, earthquakes, and other natural disasters. These strategies include risk assessment and emergency planning to outline procedures for responding to disaster situations. In addition, public libraries should ensure that staff members are trained in the proper protocols for responding to disaster situations and that appropriate safety measures are in place to protect library patrons in the event of an emergency.

Disaster management is an important area of public libraries in Maharashtra. Public libraries are vulnerable to natural disasters such as floods, earthquakes, and fire. It is essential for public libraries to have a plan in place to prevent and mitigate the effects of these disasters. Public libraries must also be prepared to respond quickly and effectively when a disaster occurs.

### **DISASTER MANAGEMENT CHALLENGES FACING PUBLIC LIBRARIES IN MAHARASHTRA**

Public libraries in Maharashtra face a number of challenges when it comes to disaster management. The state is prone to natural disasters such as floods, cyclones, and earthquakes, as well as biological and man-made disasters. In order to effectively manage these disasters, public libraries must be prepared to respond quickly and efficiently.

Some of the major challenges facing public libraries in Maharashtra are discussed below.

#### **1. Lack of resources:**

One of the biggest challenges facing public libraries in Maharashtra is the lack of resources. Many libraries reported a lack of funding to purchase equipment and supplies needed to respond to a disaster. This can include items such as emergency generators, water pumps, water sprinklers, alarms, smoke detectors, Vacuum cleaner, Fire extinguisher, Sand buckets, and other emergency supplies.

#### **2. Training:**

Many libraries complain that they lack the staff and training needed to respond to a disaster. Without the proper training and resources, libraries may not be able to respond quickly and effectively to a disaster.

#### **3. Communication and Coordination**

Another challenge facing public libraries in Maharashtra is the lack of communication and coordination between libraries. In the event of a disaster, it is important for libraries to be able to communicate and coordinate with each other in order to provide the best possible response. However, many libraries lack the necessary communication infrastructure to do this. Without the ability to communicate and coordinate, libraries may not be able to provide the best possible response to a disaster.

#### **4. Access to information:**

Many libraries reported they faces the challenge of limited access of information. In the event of a disaster, it is important for libraries to be able to access and disseminate accurate and up-to-date information. However, many libraries lack the necessary resources to access and disseminate this information. Without access to accurate and up-to-date information, libraries may not be able to provide the best possible response to a disaster.

#### **5. Financial constraints**

Many libraries are facing budget constraints. Many organizations deliberately exclude disaster management in their annual budgets. It is being neglected to meet other needs. Many libraries in Maharashtra reported that Books are stolen by some users especially where technical security measures are not in place. Manual security checks are used but those not useful. Electronic security systems are expensive and not all libraries can afford them.



**6. Limited insurance covers**

Libraries have special insurance needs but institutions do not insure their library assets. Some libraries insurance coverage includes personnel, building and possibly available facilities. But information resources are abandoned which cost more. Many libraries do not have a proper approach to insurance.

**7. Rare occurrence of major disasters**

It has been observed that earthquakes, volcanoes, cyclones and man-made disasters have affected fewer libraries. The number of libraries with high disaster intensity is small. Especially in the 2005, 2019, 2021 floods some public libraries in Maharashtra were hit by floods.

Overall, public libraries in Maharashtra face a number of challenges when it comes to disaster management. Without the necessary resources, communication infrastructure, and access to information, libraries may not be able to provide the best possible response to a disaster. In order to effectively manage disasters, public libraries must be prepared to respond quickly and efficiently.

**SUGGESTIONS:**

Disasters include critical information loss, technology failures, and lack of effective backup and recovery operations. Solutions to these challenges include automation, conducting regular audits to identify system vulnerabilities, and using secure cloud computing. Libraries requires strong strategies for disaster management, including disaster preparedness and response. Every library should educate library staff on how to save library materials and equipment during and after a disaster. Libraries must have insurance coverage policies for staff, building and available facilities and resources. Organizations must have provisions for disaster management in their annual budgets.

By doing so, librarians can better mitigate the risks associated with potential disasters and ensure that their libraries data remains secure.

**CONCLUSION:**

Predicting the future is difficult. Climate change caused by global warming also affects public libraries. Flooding, biological hazards, Earthquakes and man-made hazards have been identified as potential threats to public libraries in Maharashtra. Low frequency of occurrence of major disasters in Maharashtra should be seen as an opportunity for proper disaster management. It is therefore important that libraries should have preventive measures and emergency procedures in place to protect against the impact of disaster and gradually raise and set aside funds as well as establish facilities for disaster management. It will help to avoid disaster.

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## Green Technology in Library

**Dr. Sanjay Yadav**

Late C.M.Kadhi kala MV Paratwada

### Abstract

*The world is facing the unknown consequences of climate change, where the terms pollution-waste, and reduction of natural coffers has come a part of our diurnal lives. Libraries of the 21st century have the eventuality to play the leadership part and address the issue of environmental sustainability by developing green libraries. The end of the paper is to give a holistic approach and understanding to the conception of green libraries. The composition has distributed four major measures and practices to help develop a green library( 1) by having a green design and innards,( 2) by incorporating green practices in day- to- day operations of libraries,( 3) green collection development and knowledge programmers, and( 4) espousing arising innovative and smart technologies that can be integrated into the functioning of libraries. Significant findings of former literature on the status of green libraries in India and the impact of green libraries in energy reduction are also banded. The paper analyses the LEED and GRIHA green- structure standing system, green library enterprise accepted in India, and the objects of the IFLA Green Library Award. The composition gives an sapience into the strategic green library practices espoused by Rangsit University, winner of the IFLA Green Library Award 2020, and the donation of a green library in achieving the UN Sustainable Development Goals 2030. The composition concludes with major perceptivity that the author has observed, after assessing green library literature, giving suggestions for promoting and enforcing green libraries.*

**Keywords:** Green Libraries, Green Library in India, Technologies for Green Libraries, Green Library Challenges

### Introduction

The expression “Green library” enters in library sphere and seems to suffuse the library and information wisdom literature. Green or sustainable libraries are the edifice that's designed, erected, repaired, operated or reused in an ecological and resource effective manner. It colloquially refers to a library structure that's certified as an environmentally friendly structure. This trend implies that a green structure is a needful qualification for a library to be considered a “green library”. Green Library contributes towards maintaining the natural ecological balance in the terrain and conserving the earth and its natural systems and coffers. It also improves day to day operations and procedures of the library as well as clearing the community about responsible environmental practices. Libraries considering green design will frequently look at the Leadership in Energy and Environmental Design (LEED) standing system. Brown (2003) identifies the following green design rudiments which can be incorporated into libraries

- Community Collaborations Make sure that community means are efficiently used and help to maintain public support.
- Daylight Pair daylight with artificial lighting to reduce energy costs.
- Green accoutrements Use renewable accoutrements like wood, linoleum, bamboo and cork.
- Green roofs
- Raised bottom systems.
- Energy effectiveness.
- Natural ventilation.
- Green power and renewable energy.
- Inner environmental quality.

### What's a Green Library?

The consideration of the part of humanity in climate change and the notion of sustainable development are core enterprises of society, and accordingly of libraries. ”



According to the Online Dictionary for Library and Information Science( ODLIS), herbage Libraries are “ designed to minimize negative impact on the natural terrain and maximize inner environmental quality by means of careful point selection, use of natural construction accoutrements and biodegradable products, conservation of coffers( water, energy, paper), and responsible waste disposal( recycling,etc.) ”

They also concentrate on affiliated services, conditioning, events, literature and systems, demonstrating the social part and responsibility of libraries as leaders in environmental sustainability.

Under the US Green Building Council's LEED performance system, a green structure is one that's erected incorporating the following design rudiments.

- Sustainable point selection and development
- Water conservation
- Energy effectiveness
- Original coffers, material conservation and waste reduction
- Inner environmental quality
- Innovation in design

### **Green Library enterprise in India**

India ranks third on the US Green Building Council's( USGBC) periodic ranking of the top 10 countries for Leadership in Energy and Environmental Design( LEED) certified structures. According to the check by USGBC, the top 10 list highlights countries outside of the US that are using LEED and India, with further than 752 LEED- certified systems totaling over 20.28 million gross square measures of space, ranks third. Anna Centenary Library, Chennai is the Asia's first LEED Gold rated library structure in India.

### **Smart and Innovative Technologies for Green Libraries**

The new- age innovative and slice- edge technologies have the eventuality to reduce energy consumption and contribute to the charge of a green and sustainable world( Ferreira, 2016). These technologies can be abused by libraries to ameliorate the energy performance of the library.

**Solar Panels Installation** of solar panels on the roof of the library structure helps reduce the dependence on non-renewable sources of energy. It also promotes the use of renewable sources of energy and creates mindfulness among people.

**Stir Sensor bias** Cases of destruction of electricity are prominent in libraries where druggies leave the place without switching off the bias. With the help of a stir detector device, which can automatically descry your absence and switch off the electrical appliances, will help conserve energy. For illustration, at the National Library, Singapore, detectors are used to shroud or buck up the lights.

**Automatic Lighting Controls** It's an effective strategy that contributes to energy- saving significantly by operating the lighting as per the demand. The quantum of available light adjusts according to the space enthralled.

**Smart Automatic Energy Saving System** Detects the entry of a person with PIR detector, covering the room temperature and brilliance, and conforming the speed of the addict consequently; also shuts down the complete system in the absence of any existent, which helps in reducing destruction of energy.

**Inner Air Quality Monitoring** With the operation of the Internet of effects and medium- supported living technologies, it's possible to cover and assess the air quality of the structure (Marques, Saini, Dutta, Singh & Hong, 2020). The IAQ covering systems helps maintain energy effectiveness in structures and provides excellent ventilation to insure healthy air quality in the library and the well- being of the druggies.

### **Green Library Challenges**

While green libraries are related to the overall green structure movement, libraries have specific requirements that raise some redundant challenges. for their preservation, books must be kept down from sun as well as humidity and temperature changes. Still, numerous individualities find sun to be the most pleasurable light for reading. Sun also plays a major part in green design, because it can be used to reduce the reliance on

artificial lighting. For a long time, libraries demanded to cover the collection from the dangerous ultra-violet shafts of the sun. New developments in glass technology over the once ten times have given contrivers more inflexibility in their capability to place collections ( McCabe, 2003).

Another, frequently overlooked, challenge the library presents is the weight of the books. A common strategy in green design is to raise the bottoms to increase rotation, but the weight of the heaps can be an manacle to this strategy. To deal with this challenge, numerous contrivers have resorted to zoning the library into designated areas, so these strategies can be legislated in certain areas and druthers can be used in others( Lamis, 2003).

Libraries need to be erected flexibly, in order to make room for expansions in size and in wiring capabilities. Library structures are long term investments made to profit the community, so when designing those engineers need to be looking 50 or 100 times into the future. These obstacles by no means present invincible challenges to green libraries. The special requirements of the library just need to be taken into consideration from the morning of the design.

Notwithstanding the green library movement and sustainable practices are realized across the world, still there are some challenges to be dealt with

- Though cost of constructing green structure has come affordable to other realities, libraries will face issues in meeting green pretensions as they're subject to strict budget cuts especially when reengineering or reconstructing library structures one can not forget the cost associated with it.
- Library structures are most neglected part especially in sodalities. At utmost places librarians are helpless as he has to work in an distributed space indeed when new structures are being proposed or are under constructions. Engineers too don't bother for well- constructed green library structures.
- Green practices in sustainable manner bear considerable degree of moxie or faculty from general operation to ordinary position of conservation throughout library functions. It's likely to anticipate lack of mindfulness in green technology and among the workers who have been signed with traditional knowledge and chops.
- Attitudinal walls play significant part in decelerating down the sustainable practices in libraries. There are possibilities to move the administration who would else expostulate the idea executing green library practices due to their incognizance. A well laid plan for green library structure will remove resistance to change.

## Conclusion

To epitomize, a ' Green Library ' or ' Sustainable Library is a ultramodern library that uses environmentally kindly erecting accoutrements , maximizes the use of natural coffers, reduces waste, maximizes the use of renewable coffers, and conducts its operations in a further cost effective and effective manner. Greening the library terrain has come significantly more important in recent times. In this terrain, library professionals should make some real opinions and take necessary sweats to green their libraries, as well as share in the green library movement. Numerous public and transnational associations are offering backing in making libraries more environmentally friendly. Still, library druggies, librarians, and the government should all take action and laboriously share in the green library movement to insure its success. It's worth noting that moment's libraries, as knowledge gateways, are especially responsible for not just promoting the conception of sustainability, but also for leading by illustration. Always flash back that taking bitsy conduct toward turning green might yield enormous prices over time.

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**Disaster Planning and Management in Academic College Libraries: A Study****Dr. Ravindra P. Adhav, Navanath Vitthal Burungale**<sup>1</sup>Research Guide, Librarian, The New College, Kolhapur, Maharashtra, India<sup>2</sup>Research Scholars, DLISc. Shivaji University, Kolhapur, Maharashtra, India

Corresponding Author - Navanath Vitthal Burungale

**Abstract**

*Disaster Planning and Management is indispensable for the efficient functioning of libraries. The academic college libraries are vulnerable to the wide range of disasters. This paper studied on Disaster planning and management in academic college libraries in Mangalwedha city. This paper highlighted various disasters and natural calamities that can be fall upon academic college libraries. The disasters pose threat in library buildings, collections, equipment and systems. Academic college libraries have to play a vital role in preserving their proper collections. Therefore meticulous disaster planning is inevitable for mitigating the hazardous effect on academic college libraries. The study employs the survey method with questionnaire as chief tools used for collecting relevant data from academic college libraries. This study found that majority of the academic college libraries lacked disaster preparedness such as emergency exits, written disaster plans, fire alarms, emergency power supply, prohibiting activities such as smoking, data backup and insurance earthquake proof building etc. But some of the libraries under the study also indicated that they are less prepared to handle a situation coming out of the disasters.. Disaster can disturb the regular services of academic college libraries. the study will help the library and information science professional to know about different disaster preparedness used in academic college libraries.*

**Keywords:** Disaster Planning and Management, Academic College Libraries, Disaster Preparedness, Earthquake, Natural Calamity, Library Collection.

**Introduction:**

Libraries are important institutions that provide information to users. Disasters in Libraries are not new. Different kinds of disaster affect the libraries. Disaster threatens human safety or endangers a library building, its resources human, documents, equipment's and services. It is vital for the management of a library to make sure that the building and library premises are safe for public to come, for the staff to work and provide services. Disasters not only damage the library collections, the library building, and harm the library staff and the readers but also disrupt the services. If libraries are prepared, it will help the library to minimize the impact of a disaster and restore collections and resume services at the earliest. So, Disaster management and planning should be one of the most important aspects of library management. Disaster causes a catastrophic loss of life and property in a society which may be caused by nature or man-made situations. It is a calamitous occurrence which is triggered either by fury of nature or by human folly which results into wide spread damage, destruction, ecological disruption, loss of human life, human suffering, deterioration of health and health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area to mitigate and alleviate the intensity of sufferings of the victims.

Academic College Libraries are gateways of knowledge. In an institution, library plays the same role as the heart plays in a human body. Disaster has been defined as an unexpected event that may drastically threaten the lives of humans or buildings which destroy the information infrastructure etc. In case of libraries, disaster brings unexpected risk to the collection, the library buildings, staff and also disrupt the services. The management of a library have to give emphasis on the building and library premises so that it become safe for public to come and safe for the staff to work and provide services. A proper disaster planning is very much important in order to minimize the impact of the disaster.

The Dictionary for Library and Information Services (2005) defines a disaster plan as "a set of written procedures prepared by the library staff in advance to deal with an unexpected occurrence that has the potential to cause injury to personnel or damage to equipment or to collections and/ or to facilities sufficient to warrant

temporary suspension of services. Such disasters in any library can damage the print material, documents, records, computer systems and the invaluable information stored in different storage media.”

**DISASTER PLANNING:**

Disaster management encompasses activities directed towards meeting disastrous situations. It includes disaster control planning, risk assessment, training and finance necessary for its successful implementation. According to Lyall (1995) ‘Disaster Plan’ is, “a document which describes the procedures devised to prevent and prepare for disasters, and those proposed to respond to and recover from disasters when they occur. The responsibility for performing these tasks is allocated to various staff members who comprise 'the disaster team’”. Good disaster plan aims to prevent potential disasters, to minimize the impact, to enhance its capability in preventing, preparing and responding to disasters effectively and efficiently and to generate confidence among stakeholders.

The disaster management should be treated as a key area of library management. Library staff should be treated as a key instrument for disaster management. Library staff should be trained at regular intervals to combat any disaster. Disaster plan normally includes four stages-

- 1) Prevention
- 2) Preparedness
- 3) Reaction
- 4) Recovery

**Disaster Management:**

Libraries should follow an effective disaster control plan. The plan should be periodically monitored and reviewed. Periodic full scale mock drill should be carried out. Library buildings, equipment, collections and computers should be completely insured. There should be good drainage and flood-proof system. Library building should be built in such a way that it may be seismically safe. Regular checks of library building regarding water leakages should be carried out. Library building and resources should be properly maintained and regular inspections of buildings and equipment should be conducted. Fire-extinguishers should be checked and staff members should be trained in handling the equipment in case of emergency. The lay-out of library building should be such that the ground floor does not have any valuable reading materials that could be lost in floods.

**Statement of The Problem:**

The present study is on “**Disaster Planning and Management in Academic College Libraries in Mangalwedha city**”. Further researcher is studying whether the users use Disaster Planning and Management are up-dating their knowledge and get the information of current awareness as per their requirement and as per the needed time.

**Scope And Limitations:**

This study is confined to the Disaster Planning and Management in Academic College Libraries in Art, commerce and Science Senior colleges in Mangalwedha city. such as 1) Shri Sant Damaji Mahavidyalaya, Mangalwedha 2) Madansinh Mohite-Patil Science Mahavidyalaya, Mangalwedha. So this study is limited to only two colleges, in Mangalwedha city

**Objectives of The Study:**

The purpose of this study is to find out the Disaster Planning and Management in Academic College Libraries of Art, Commerce & Science students the specific objectives of the Present studies are as follows.

1. To know about the present disaster management planning of the College libraries.
2. To know about the contribution of librarian an library committee in planning of disaster management in Academic College libraries.
3. To know about the preventive measures used in the Academic College libraries.
4. To know about the problems faced by the libraries during implementation of disaster planning.

**IMPORTANCE OF STUDY:**

Any types of information play a very important role in student life. The Students are trying to get information so they can increase their knowledge. The Study on Disaster Planning and Management in Academic College Libraries in Mangalwedha city. This study only impact of a library for a Internet and Web technology services. An disaster Planning and Management for study on Arts, Commerce and Science Colleges in Mangalwedha city.

**RESEARCH METHODOLOGY:**

Researches make a good scientist who helps our society to solve their problems. The present study is undertaken to throw light on “**Disaster Planning and Management in Academic College Libraries in Mangalwedha city: A Study**”. Research methodology is a way to systematically present our knowledge where as to solve problem. The word self indicates its meaning re-search or searching of new things which is useful to create something new novel. It is must know the entire researcher, what is the accurate methods to do research because research does not allow without systemizes and techniques. There are many methods of data collection and survey & descriptive research.

**Descriptive Method:**

Descriptive method is the simplest and is applicable to a number of social problems especially in under developed countries. It is essentially a fact finding research related to present study and current situation.

**Questionnaire Tool:**

The data required for the survey is collected through questionnaire technique. In this method questionnaire is sent to respondent who are expected to read and write down the reply in the space meant for purpose in the questionnaire itself. On the basis of these guidelines a detailed questionnaire was prepared considering the present study. The questionnaires and as a response the questionnaires will be received with filled information. The researcher will be considering these questionnaires for the data analysis.

In this research study the researcher has used the self prepared questionnaire and distributed within the library users of Mangalwedha city colleges and collected the data. Further, the researcher will made the findings, suggestions and conclusions on the basis of the analysis of the all gathered questionnaire in the form of percentage, tables and diagrams. The study **Disaster Planning and Management in Academic College Libraries in Mangalwedha city: A Study** for the present study. The researcher has used the random sampling method for research.

**Sample Design:-**

There are only two colleges for present study.

Name of colleges in Mangalwedhacity:-

- 1 SDM: Shri Sant Damaji Mahavidyalaya, Mangalwedha
- 2 MMP: Madansinh Mohite-Patil Science Mahavidyalaya, Mangalwedha

**Table No: - 1: Distribution of Response**

Sr. No	Type of Users	Questionnaire Distributed	Total of Numbers		Percentage	
			Respondent	Non-Respondent	%	%
1	Male	100	85	15	85	15
2	Female	100	90	10	90	10
	<b>Total</b>	200	175	25		

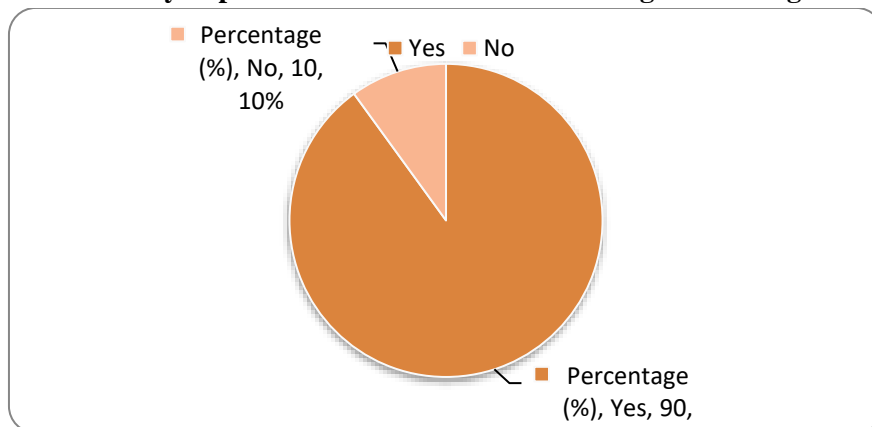


From the above Table No: 1 show that, number of Male & Female respondent. There are 200 questionnaire distributed between 175 respondent. That 100 Male & 100 Female were included, but only 85 Male & 90 Female responded to this questionnaire and 15 Male & 10 Female ignored to this questionnaire. It means that 85% Male & 90% Female are good respondent so 15% Male & 10% Female are not good respondent.

**Table No: 2: Availability of present effective disaster Planning and management of Libraries**

Type of Answer	Respondent	Percentage (%)
Yes	180	90
No	20	10
<b>Total</b>	<b>200</b>	<b>100</b>

**Graph No:1: Availability of present effective disaster Planning and management of Libraries**

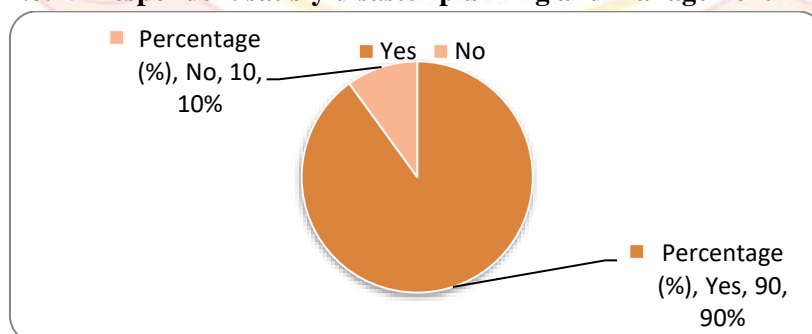


The Table No-2 and Graph No-1 indicates that the responded are Availability of present effective disaster planning and disaster Management in libraries. The 180 Students are responded yes Availability of present effective disaster planning and Management in libraries s and their percentage is 90%. The 20 students do not Availability of present effective disaster planning and Management in libraries their percentage is 10%.

**Table No: 3: Respondent satisfy disaster planning and management in libraries**

Type of Answer	Respondent	Percentage (%)
Yes	180	90
No	20	10
<b>Total</b>	<b>200</b>	<b>100</b>

**Graph No:2: Respondent satisfy disaster planning and management in libraries**

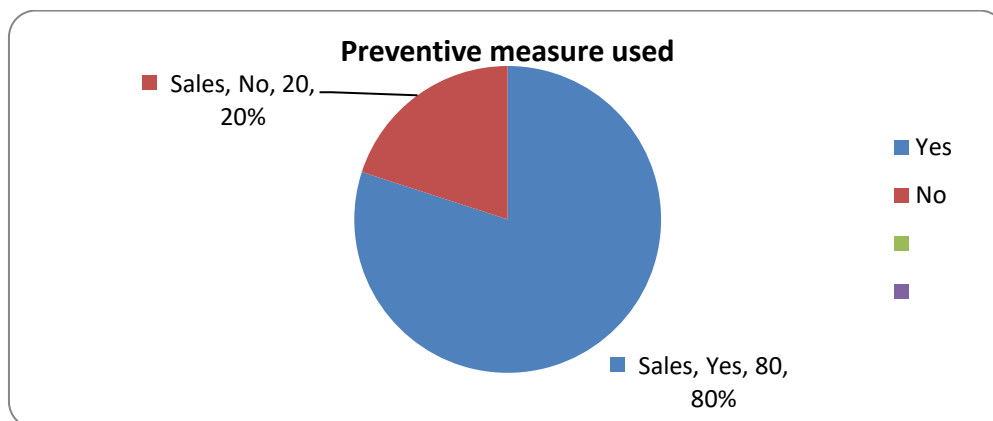


The Table No-3 and Graph No-2 indicates that the responded are satisfy disaster planning and management in libraries. The 180 Students are responded yes satisfy disaster planning and management in

libraries and their percentage is 90%. The 20 students do not satisfy disaster planning and management in libraries their percentage is 10%.

**Table No:4 preventive measures used in the Academic College libraries**

Type of Answer	Respondent	Percentage (%)
Yes	160	80
No	40	20
<b>Total</b>	<b>200</b>	<b>100</b>



The Table No-4 and Graph No-3 indicates that the preventive measures used disaster planning and management in libraries. The 160 Students are responded preventive measures used disaster planning and management in libraries and their percentage is 80%. The 40 students do not preventive measures used disaster planning and management in libraries is 20%.

**Findings:**

- 1) The 180 Students are responded yes Availability of present effective disaster planning and Management in libraries s and their percentage is 90%. The 20 students do not Availability of present effective disaster planning and Management in libraries their percentage is 10%.
- 2) The 160 Students are responded preventive measures used disaster planning and management in libraries and their percentage is 80%. The 40 students do not preventive measures used disaster planning and management in libraries is 20%.
- 3) The 180 Students are responded yes satisfy disaster planning and management in libraries and their percentage is 90%. The 20 students do not satisfy disaster planning and management in libraries their percentage is 10%.

**Suggestions:**

- 1) To increase satisfy level on students and users in academic college libraries through Disaster Planning and Management.
- 2) To Increase Prevention of power cut problems in academic college libraries.
- 3) To Increase the fund of disaster planning and managements in academic college Libraries.
- 4) To need of trained staff in disaster planning and managements in academic college Libraries.

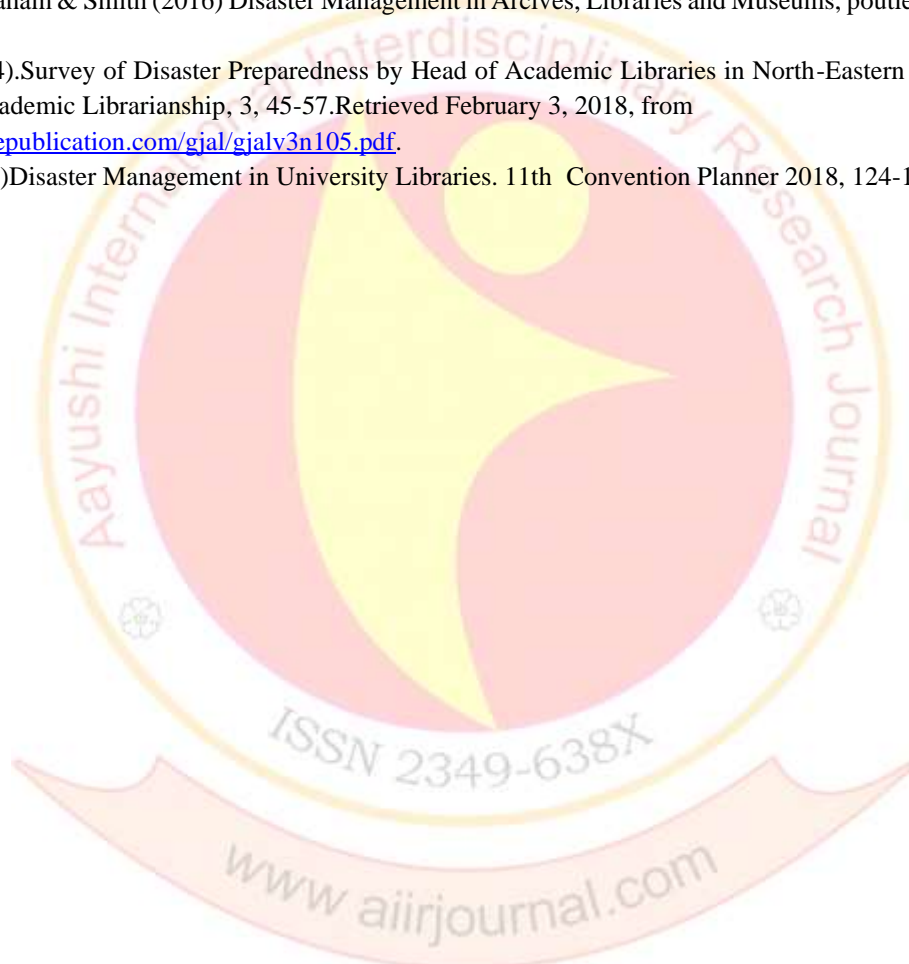
**Conclusions:**

Disasters are not predictable; it can cause major losses of library resources and disruption in the library services. Since Assam is a disaster-prone area, Academic College Libraries in Mangalwedha city should be well

prepared for it. Due to different problems like financial constraints and non-supportive administration the area of disaster management in libraries is still a neglected. Disaster control plan for disaster management is not only indispensable but also of paramount importance. Necessary infrastructure for disaster management should be created and emergency response mechanism should be put in place and upgraded if required. Educating people and generating awareness among them regarding disaster management is of crucial nature and has immense significance. Different types of libraries should collaborate with each other and national library should take a lead role in preparing a model for disaster planning. Libraries can share or pool their institutional resources in order to rescue from disasters. Library cooperation in disaster management can be ensued in different ways like joint training programmes, procuring and storage of emergency equipment, etc. The government bodies and professional associations should also guide the libraries and library professionals about disaster management through reading materials and training programmes.

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**Information Technology Based Employment Designations in Library and Information Science****Mr. Harshal Bhimsen Pawar**Librarian, Prof. Sambhajirao Kadam College, Deur  
Tal. Koregaon, Dist. Satara: 415524, Maharashtra  
(India)**Dr. Pradipkumar Baburao Ghante**Librarian, Arts & Commerce College, Khapar  
Tal. Akkalkuwa, Dist. Nandurbar: 425419,  
Maharashtra (India)**Abstract**

*This review based research paper is a sincere attempt to find out emerging employment designations in the library and information science field. The paper mainly focuses on information technology based employment designations. It also highlights the work descriptions, desirable qualifications and experience required for the specific employment designations. The paper also discusses the competencies and skills required for the IT based designations in general. It is seen that the title of employment designation in LIS have changed according to organization type, nature of work as well as responsibilities assigned. Most of the employment designations emerged in the 21st century, especially in the second decade. This paper reviews more than 50 numbers of emerging employment designations in the LIS field with an IT based background.*

**Keywords** Employment, Job, Employment Designation, Job Designation, Information Technology, LIS

**1. Introduction**

Library and information science is recognized as a dynamic field for building bright and promising careers in a different way. It offers a variety of employment opportunities in different types of organizations and in the different sectors. In today's IT era, the LIS field mainly deals with searching, processing, organizing, accessing and disseminating information and its resources to the users.. All these processes can be handled effectively with the help of information technology. LIS professionals who have good knowledge of IT are in high demand in the employment market in LIS. IT has ruled the LIS job market day by day and hence, on the other hand, IT based employment designations have emerged. It is needed to explore such employment designations and the skills and abilities they require. In this regard, this review-based study is important.

**2. Scope and Methodology**

This study covers the employment designations in the Library and Information Science (LIS) field which have an IT based background. The researcher has reviewed relevant studies done in context of IT based employment designations in LIS, their work descriptions, competencies and skills. The major concerning studies done at national and international level from 1980s to 2021 have been selected for review purposes. On other hand, the job advertisements related to IT based designations in LIS, appeared on the job portal- indeed.com has been scanned in support to explore the qualifications and professional experience required for the individual IT based employment designation in LIS.

**3. Review of Related Literature**

A number of studies have been conducted at national and international levels, especially in foreign countries concerning job designations in LIS and their required competencies, skills and professional experience. Following are some selected studies focused on exploring 'IT based Job Designations' in LIS.

**Park and Park (2021)** in his content analysis based study, identified the core duties and competencies of 'Data Librarians'. He analyzed 75 U.S. based job advertisements of data librarians. The core job duties identified were data management, professional collaboration, conferences, workshops, providing data services, research consultation etc. and core competencies identified were communication skills, diversity, inclusion, and equality etc.

**Zhang et al. (2021)** did the content analysis of job advertisements for 'Digital Humanities' related positions in academic libraries. The study was aimed to investigate and assess the qualifications and knowledge mentioned in the job advertisements regarding 'Digital Humanities' related positions. The results of the study revealed that

there should be practical applications in ‘Digital Humanities’ related education and professional training to meet the requirements of this sector.

**Silveria et al. (2020)** investigated core skills, soft skills and technical competencies of ‘Data Scientists’ through analysis of related job postings. He followed a descriptive approach by using qualitative and quantitative typology. The researchers found the skills required for these professionals such as team coordination, communications as well as in technical grounds, the knowledge of Python, English, and SQL was mandatory.

**Stuart (2020)** predicted a future of ‘Data Science and Information Professionals’ in his book article. He expressed the need of involving library and information science professionals in the data science revolution to position themselves in the changing information system and rapid growth of data in future.

**Volpe and Esposito (2020)** in his study, threw light on the status of the ‘Data Scientist’ jobs in Italy. He examined the requirements of ‘Data Scientist’ in different companies in terms of working functions, required skills, sectors, nature of employment etc. The researchers collected 400 job advertisements from the professional networking website- LinkedIn to identify the requirements. The research was conducted for the period from 27 December 2018 to 15 January 2019 only.

**Ohaji et al. (2019)** explained the role of a ‘Data Librarian’ in academic and research libraries in context with research data management (RDM). The study focused on the ‘Data Librarians’ in research organizations in New Zealand applying qualitative case research approach. The results provided the conceptual understanding of the ‘Data Librarian’ role and may be used further to prepare professional education and training programmes for this designation.

**Khan and Du (2018)** identified the requirements for ‘Data Librarian’ designation through content analysis of job advertisements appearing on job portals- Indeed, International Association for Social Science Information Services & Technology (IASSIST), ALA JobLIST, and Glassdoor etc. The research results were helpful to LIS curriculum designers for implementing the suitable framework to match the requirements of emerging job positions like ‘Data Librarians’ in academic libraries.

**Mbotela (2018)** in his doctoral research, examined the role of ‘Emerging Technologies Librarian’ in the context of the digital library system at the University of Nairobi Library in Kenya. The researcher collected data from interviewing concerning librarians. The study showed that ‘Emerging Technologies Librarian’ plays crucial role in managing Integrated Library Systems, digital services, library web and e-Resources

**Skene (2018)** reviewed the evolution of IT based ‘Digital Initiatives Librarian’ and their desired skills as well as responsibilities in his research. He examined 49 job advertisements found on Code4Lib listserv related to digital initiatives. The research explored emerging IT based job titles such as ‘Metadata Librarian, Digital Projects Librarian, Coordinator of Digital Collections, Digital Collections Archivist, Digital Curation Librarian, Digital Infrastructure Librarian, Digital Production Coordinator, Digital Programmes and Initiatives Manager, Digital Resources Librarian and Web and Digital Initiatives Librarian’ etc. The study identified 24 skills and responsibilities of ‘Digital Initiatives Librarian’ such as digital preservation, digital collection, digitization, and metadata etc. and ‘Administration of digital collections’ are the top desired skills.

**Shank (2017)** in his study investigated job announcements of newly emerged employment designation- ‘Instructional Design Librarian’. He used job advertisements published in the periodicals- Library Journal, The Chronicle of Higher Education and College and Research Libraries News,, and job website- Educause (from 1999 to 2004) as a research data for analyzing the job announcements of Instructional Design Librarian. The study identified the qualifications and responsibilities of this designation.

**Shahbazi and Hedayati (2016)** conducted a study to identify the necessary competencies for the ‘Digital Librarian’ job positions. The findings indicated that there were more than 100 new IT-based librarian job titles emerging and communication skills were a major requirement. The study was limited to the year 2013 and only ‘Digital Librarian’ job category advertisements were considered for the study.

**Shahbazi et al. (2016)** studied the necessary competencies of ‘IT Librarian’ categories and explored the market of IT-based jobs in the LIS field through analysis of 596 related advertisements posted on Indeed.com in the

year2013. The study explored 4 types of IT-based job designation categories- 'IT Librarian, Metadata Librarian, Digital Librarian/- Digital Services Librarian and Digital Archivist' and skills as well as competencies required for these designations

**Shongwe (2015)** observed the impact of ICT on job designations in the LIS employment market in South Africa. The study investigated the job titles in the library sector under 10 major categories and emerging job titles explored were- Systems Librarian, Electronic Resources Librarian, Library Web Application Specialist, Archives and Records Manager, Knowledge Specialist, Knowledge Resource Officer, e-Repository Administrator, and Library Technology Application Specialist etc.

**Peacock and Wurm (2014)** in his book explained the changing roles and responsibilities of 'Academic IT Librarian' in terms of technology. They threw light on the IT based practices such as web development, managing digital resources and special collections and outreach activities using technological tools etc. The study realized the varied IT based positions of librarians in the academic libraries in the 21st century.

**Xia and Wang (2014)** identified qualifications, competencies and responsibilities of 'Social Science Data Librarians' through analysis of a total 167 job descriptions published on the website of International Association for Social Science Information Services and Technology. Job advertisements published from 2005 to 2012 were selected for the study. An increasing requirement of data management planning was also found for data librarians. It was found that there are increasing requirements of data management skills for 'Social Science Data Librarians'.

**Shahbazi et al. (2013)** identified modern information technology based Librarian jobs for LIS graduates. The study was undertaken to measure the impact of IT on jobs in the LIS sector through content analysis of LIS job advertisements. The researcher found 95 new LIS job titles emerged related to information technology that were categorized in four major groups- 'Systems Librarian, Metadata Librarian, Electronic Resources Librarian and Web Librarian'.

**Dey (2012)** described the changing role of librarian into 'Cybrarian' in today's digital era. The study identified the 'Cybrarian' designation in terms of their skills and responsibilities of managing digital resources, handling institutional databases and digital repositories as well as providing support to the users in seeking information in minimum time as possible.

**Chapman (2011)** explored the multitasking role of the 'Metadata Librarian' in a research library. The multitasking role refers to the activities such as metadata management, cataloguing, digital initiatives, and technical services etc. The researcher identified the role of Metadata Librarian in four segments: collaboration, research, education, and development.

**Ohaji (2010)** in his study explored the representative titles of 'Digital Librarian' positions in academic libraries in the USA. He identified the titles of 'Digital Librarian' related positions such as Digital Services Librarian, Head of Digital Library Initiatives, Digital Projects Librarian, Web and Digital Library Specialist, Digital Curation Librarian, Music Librarian and Digital Resources Manager etc.

**Steven (2010)** in his blog post, explained the importance of 'Social Media Librarian' in school libraries as they use social networks and allied tools effectively to connect with students and faculty members. The article expressed the need of creating an independent and devoted 'Social Media Librarian' designation for handling social media responsibilities. For that purpose LIS students should be educated with handling social media tools to create more library awareness among its users.

**Choi and Rasmussen (2009)** examined the skills and qualifications required for the 'Digital Librarian' positions in academic libraries. The researchers analyzed the job advertisements related to 'Digital Librarian' posted in College and Research Libraries News during the period from 1999 to 2007. The results of the study showed that a 'Digital Librarian' is an emerging designation in academic libraries.

**Knight (2009)** in his article discussed the mandatory IT based skills and knowledge of 'Library and Information Services Manager' considering the paradigm shift of LIS towards information technology and its applications in providing information services.



**Simpson et al. (2005)** in their survey based research discussed the functions and technical services of ‘Electronic Resources Librarian’ in Academic Health Sciences Libraries. The researcher prepared a model for managing e-resources. It was found that the job descriptions and features of the ‘Electronic Resources Librarian’ are similar to ‘Information Services Librarian’ and ‘Public Service Librarian’.

**Albitz (2002)** surveyed the job announcements for ‘Electronic Resource Librarian’ posted in College and Research Libraries News in the period of 6 years from January 1996 to December 2001. The researcher reviewed the responsibilities, reporting structures as well as professional experience required for this designation.

**Cronies and Henderson (2002)** did the content analysis based study of job announcements related to ‘Electronic and Digital Librarian’ appeared in the College and Research Libraries News from 1990 to 2000. The study focused on the functional areas of this designation in context with public services, technical services, integrated library systems and networks, digital projects and preservation etc.

**Kwasik (2002)** examined the professional qualifications and knowledge required for a ‘Serials Librarian’ in a digital environment through analysis of job advertisements in academic institutions posted between 1999-2001. The study revealed that ‘Serial Librarian’ needs IT based skills and competencies to manage the electronic journals and other related information.

**Budd (1990)** in his study focused on the salaries of ‘Automation Librarian’ or ‘System Librarian’. The researcher scrutinized job announcements published in College and Research Libraries News, American Libraries and Library Hotline during the year 1988 for that purpose. The study addressed the different facets of automation related activities in the libraries.

**Chu (1990)** evaluated the skills of ‘System Librarian’. The researcher explained the System Librarian’s responsibilities like installation of integrated systems in the library, testing hardware, software and interfaces, choosing relevant modules and supervision of training sessions etc.

**Sherwood (1980)** discussed the newly emerged designation- ‘Library Systems Analyst’ in terms of job description, education and technical experience. He identified the core tasks for this designation in automation activities like system analysis, design, implement and maintenance

**Nayar et al. (1979)** assessed the demand for ‘Information Scientists’ in India through analysis of LIS related vacancies advertised in the newspapers. The researcher studied over 400 advertised posts related to information processing. The advertised post designations were Librarians, Documentalists, Data Translators, Data Processing Personnel, Editors, Data Bank Officer, Programming Officer etc.

**4. Impact of Information Technology on Employment in LIS**

The advent of information technology has radically changed the functioning of the conventional work system of libraries and library science professionals. Moreover, IT has had a significant impact on the overall library and information science sector. With the help of information technology it is possible to provide advanced and efficient services to library users. This has increased the demand for the LIS professional who have good knowledge of applying IT tools in library services. Due to this, the conventional employment designations in the LIS have also changed over the time and IT based designations have emerged.

**5. Emerging IT based Employment Designations in LIS**

The previous studies showed that there is a huge job market available for the LIS professionals having IT and other technical skills. In the 21st century, especially in the last 10-15 years, new IT based employment designations have emerged in the LIS field. The most relevant and remarkable studies of them are as follows:

	<b>Employment Designation</b>	<b>Work Description in brief</b>	<b>Desirable Qualifications &amp; Professional Experience</b>
<b>5.1</b>	<b>Audio-Visual Librarian</b>	Supervising information delivery through Audio-Visual technology, planning and producing documentary for non-print	Master's Degree in Library Science or Mass Communications with an experience of handling A/V and other in non-print media.

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		material, organizing training for utilization of Audio-Visual materials and equipment.	
<b>5.2</b>	<b>Automation/Technology Librarian</b>	Supervising, planning, analyzing and coordinating in the process of automation, communication and on-line systems in the library, managing the library automated systems and workstations, developing and recommending policy and procedures for use of computer systems and conducting related training sessions.	Master of Library Science (MLS) from an ALA accredited school with experience of automated systems
<b>5.3</b>	<b>Archive Manager</b>	Administering all activities related to historical archives, special manuscripts and organizational rare documents, managing archival collections, cataloguing and granting access to the archives, organizing, copying and protecting data for long-term preservation.	Master's Degree (MLS, MSI, MLIS) from an ALA accredited program with an undergraduate degree in Art History
<b>5.4</b>	<b>Cybrarian</b>	Exploring digital resources on the web, migrating web content using web technology and the internet. Locating, evaluating, organizing, preserving and disseminating digital/ online sources to patrons.	Master's Degree in Library and Information Science or equivalent discipline.
<b>5.5</b>	<b>Database Manager</b>	Performing electronic database management activities, developing, maintaining, and providing the secured access to the authentic users, securing the organizational data using advanced IT tools.	Master's degree from an ALA accredited library school with knowledge of metadata content, structural standards, subject analysis and classification systems
<b>5.6</b>	<b>Data Librarian</b>	Managing data in different formats as well as processing institutional research data and organizing sessions for researchers in collaboration with subject librarians, designing search and retrieval systems for retrieving data as and when needed.	Diploma in Library Science with experience in maintaining a software database which records all new, existing, and transfers for software licenses.
<b>5.7</b>	<b>Database Librarian</b>	Organizing library databases and helping users in finding the reading materials and resources, planning database maintenance related activities like bibliographic quality control, and database management solutions to insure bibliographic records for meeting national and global standards.	Master of Library Science (MLS), Master of Library and Information Science (MLIS), or equivalent degree in computer science, operations research, mathematics, or statistics.
<b>5.8</b>	<b>Data Scientist</b>	Searching and gathering required data from web resources, analyzing and processing data by using IT based tools for improving the productivity and efficiency of the business.	MLS, MS in Statistics, Bioinformatics, Economics, Engineering, Math, Computer Science, Physics or other quantitative field.
<b>5.9</b>	<b>Digital and Web Services Librarian</b>	Access and maintenance of the digital resources, managing content for web and mobile-enabled services, use of digital	Master's degree in Library and Information Science from a graduate school accredited by the ALA with

		technologies for developing and delivering library programmes.	knowledge of current web technologies, CMS.
5.10	<b>Digital Archivist</b>	Creation, organization, storage, and retrieval to digital rare materials, creation of metadata records for retrieving digital content. Use of technology to preserve digital archives for a long period.	Graduate degree in African American or American history, Library Science with a concentration in archival management, experience in handling video/AV material resources.
5.11	<b>Digital Asset Librarian</b>	Initiate the planning, implementation, management, and assessment of organizational digital assets and developing discovery and repository tools for managing digital collections, dealing with IPR Issues- copyright, fair use, license and other related matters.	Bachelor's degree in Information Technology, Marketing or relevant field with experience in handling digital material and technology platforms.
5.12	<b>Digital Cataloguer</b>	Preparing catalogue for digital reading material. Managing bibliographic records through entering inputs about materials into the electronic catalogue.	Bachelor's Library Science degree and knowledge of cataloguing of digital resources.
5.13	<b>Digital Collections Librarian</b>	Performing technical work related to digital collection such as digital collection development, acquisition, evaluation, and weeding out digital collections, designing policies for digital material.	ALA accredited graduate programme- MLS or MLIS from with knowledge of handling digital collections
5.14	<b>Digital Humanities Librarian</b>	Digitizing reading resources for the patrons, planning for digitization related activities, i.e. digital curation, crowdsourcing, database archiving and coding texts, editing, visualization etc.	MLS from an ALA accredited library school with demonstrated experience with digital humanities research tools and approaches e.g., text mining, data visualization.
5.15	<b>Digital Information Officer</b>	Providing digital information support services, electronic document delivery and offering secured online access of library resources to patrons.	Bachelor's degree in MLS, Communications, Public Relations, Journalism or related field.
5.16	<b>Digital Initiatives Librarian</b>	Providing information, readers advisory and digital reference services, collecting, maintaining and reporting digital resources and services statistical data to higher authorities.	Master's degree in Library and Information Science with experience in providing high-quality digital reference, research, instructional, and outreach services.
5.17	<b>Digital Librarian</b>	Management of digital resources, virtual spaces, application of web tools for enhancing the digital library services, acquisition and secured dissemination of digital resources to digital library users.	ALA accredited Master's library degree or its equivalent and experience in handling digital collections and digital collection platforms, such as institutional repositories, digital asset management systems.
5.18	<b>Digital Learning Librarian</b>	Planning and conducting learning/ digital literacy programmes for the users to enhance the digital library experiences, creating and updating websites and digital learning resources.	ALA accredited Master of Library and Information Science degree or equivalent



<b>5.19</b>	<b>Digital Media Librarian</b>	Managing digital media collection in terms of collecting, preserving, sharing and preparing policies and strategies, digitizing physical records and providing online access to the users, placing library's digital presence on social media and institution websites.	Master's degree in Library Science (MLS) or Library Science and Information Systems (MLIS) with experience in handling digital media in a multimedia news environment.
<b>5.20</b>	<b>Digital Projects Librarian</b>	Preparing documents, policies, planning and procedures for the proposed digital projects of the library, designing and developing instructional material, tutorial and other objects supportive to digital projects, evaluating feasibility of proposed projects and initiatives within the local situations.	Master's Degree in Library Science, Computer Science, Education, or related field with knowledge of handling digital projects.
<b>5.21</b>	<b>Digital Resources Librarian</b>	Technical documentation, registration, distribution, and reproduction of digital resources and media files, taking initiatives for developing collection of digital resources, and applying security provisions for digital content.	Master's Degree in Library/ Information Science with experience of handling digital resources.
<b>5.22</b>	<b>Digital Services Librarian</b>	Assisting users in their search for digital information, offering virtual services using digital aids, equipment, collaborating with IT staff to develop service strategies that manage digital technology resources and satisfaction to the patrons.	Master's degree in Library Science from an ALA accredited library school and experience of handling integrated library systems, digital resources and preservation of online resources.
<b>5.23</b>	<b>Digital Systems Librarian</b>	Designing and developing and coordinating all factors involved in library digital systems and automation related tasks, maintaining hardware and software in the library.	Master's in Library Science from an ALA accredited institution with knowledge of library management systems, web services, metadata standards programming languages.
<b>5.24</b>	<b>Director of Library and Information Technology</b>	Administering to deliver key projects and initiatives across multiple technological applications in libraries, initiatives for IT based digital library services and programs including digitization, institutional repositories, information discovery, scholarly communication, and applications of web technologies.	Master's in Library Science from an ALA accredited institution with professional experience of library administration, technology applications.
<b>5.25</b>	<b>Distance Services Librarian</b>	Offering remote access to the library resources and services, promoting use of open educational digital resources, organizing library marketing and outreach activities.	Master Degree in Library Science with experience in distance information, computing and instructional services, marketing initiatives.
<b>5.26</b>	<b>Documentalist</b>	Documentation management in libraries, technical processing of library reading material using advanced tools and technologies.	Bachelor's Degree in Library Science and knowledge of institutional documentation, information resources.

5.27	<b>Electronic and Digital Librarian</b>	Responsible for maintaining library portals, ensuring content to be updated and accessible to the users, managing digital information services, access to e-Resources, including e-databases and streaming media.	An ALA accredited Master's Degree in Library with knowledge of handling e-Resources in libraries
5.28	<b>Electronic Information Librarian</b>	Providing virtual reference, electronic information support services using web tools, preparing user databases for web based information delivery.	Master's Degree in Library Science from an ALA accredited institution with professional experience in providing virtual reference, information services.
5.29	<b>Electronic Resources Librarian</b>	Implementing an electronic resources management (ERM) system in libraries, managing electronic resource acquisition and access, analysis and evaluation of electronic resources, maintaining policies and procedures related to e-Resources, assisting users in electronic access problems and queries.	ALA accredited Master of Library and Information Science, MLS degree, MS in Library and Information Science degree, Management Information Systems degree, or equivalent combination of education and experience required.
5.30	<b>Electronic Services Librarian</b>	Design and delivery of web based services to library patrons, communicating users regarding newly added resources, managing online information delivery and publicity platforms- website, social media etc.	A Master's degree in Library & Information Science accredited by the ALA (or foreign equivalent) with prior relevant experience in handling electronic services, content management systems.
5.31	<b>Emerging Technologies Librarian</b>	Knowing the recent developments in library technology, applying emerging technologies in libraries to enhance the online experience of library users regarding digital technology based services.	A Master's degree in Library & Information Science accredited by the ALA (or foreign equivalent) with prior relevant experience in handling knowledge of current web technologies.
5.32	<b>e-Resources Librarian</b>	Acquisition, storage and granting uninterrupted access to all of the library's electronic resources to the authentic library users, supporting e-Resource collection development, dealing with publishers for data license agreements, offering electronic document delivery to clients.	ALA accredited Master's Degree in Library or Information Science or certified foreign graduate study and experience in managing e-Resources.
5.33	<b>e-Resource Manager</b>	Overall management of electronic resources subscribed by the organization, designing policies for the collection development of e-Resources, responding to user queries regarding access of e-Resources.	Master's Degree in Library and Information Science from an ALA accredited institution and knowledge of handling issues, workflows, acquisition, license, acquisition, access and management of e-Resources.
5.34	<b>Global Data Librarian</b>	Developing tools for managing organizational and other data required for business, managing activities related to data such as mining of data from online resources, archiving, packaging and	Master's degree in Library and Information Science or another similar discipline from an ALA-accredited institution (or international equivalent) with sound

		dissemination etc., providing a platform for data search.	experience in analyzing, processing and providing data to the researchers.
5.35	<b>Information Literacy Librarian</b>	Organizing information literacy programmes, library liaison programmes, operational support in library promotions, assist library head in conducting teaching, learning, instructional design and assessment of library programmes	Master's degree in Library Science from an ALA accredited institution and experience with evolving technologies, demonstrated ability in instruction in group and individuals.
5.36	<b>Information Scientist</b>	Managing organizational information flow, acquisition, supply, and distribution of information to the users within the organization, making information easily accessible to users, processing information as per user needs.	Ph.D/ Masters in Information Science, Computer Science, Computer Engineering, Data Science, Applied Mathematics, or related areas with documented research experience specific to Information Science.
5.37	<b>Information Services Librarian</b>	Designing and delivering web based information services to users, conducting orientation about library resources to research groups.	Bachelor's degree in Library Science or an equivalent discipline with knowledge of providing research services support with the selection and use of appropriate research materials.
5.38	<b>Instructional Technology Librarian</b>	Applying instructional technology and tools for performing scholarly communication, open access, and other initiatives and communicating core information to library stakeholders.	MLS from an ALA accredited institution with professional experience in managing an integrated library system and website design and technology management
5.39	<b>Integrated Technologies Librarian</b>	Performing operations related to library systems and IT applications, maintaining IT equipment, reviewing library hardware and software systems, promoting the use of emerging IT technologies, implementing digitization and allied projects in the libraries.	MLS from an ALA accredited institution with experience in managing ILS and supporting users with technology applications and database management
5.40	<b>Interface Specialist</b>	Design and development of web interfaces for the library users to search and explore the library resources and services, enabling users to communicate with digital systems in the library.	Masters in Information Science with experience in technical planning, implementation, and maintenance of interface platforms in digital ecosystem.
5.41	<b>IT Librarian</b>	Resolving IT related issues in libraries, investigating, troubleshooting and finding solutions on technical problems in library IT systems such as linking issues, platform changes, technology upgrades etc.	ALA-accredited Master's degree in Library and Information Science with knowledge of exploring emerging technologies that promotes advancement of library infrastructure and services.
5.42	<b>Library Media Specialist</b>	Handling library's media resources, applying strategies for planning, implementing and monitoring the social media related activities to improve the organization's image.	Bachelor's degree in Library Science with experience of handling media applications
5.43	<b>Library Systems Analyst</b>	Maintaining software systems in libraries, analyzing and solving system errors,	Graduate degree in Library, Information or Computer Science



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		supervising lower level technical staff involved in system management, identifying technological needs of library systems and providing appropriate solutions.	from an ALA accredited school (or equivalent) with experience in design, develop and maintain library system applications and user interfaces in support of library services and collections.
<b>5.44</b>	<b>Metadata Librarian</b>	Coordinating associate team for developing metadata for digital collection and linking same for discovery and management of digital content.	Master of Library or Information Science with experience of cataloging of physical and electronic resources and using metadata standards.
<b>5.45</b>	<b>Research Data Librarian</b>	Providing assistance to researchers for managing, archiving and disseminating research data by applying specialized software programmes and other technological solutions.	Master's degree in Library and Information Studies from an ALA-accredited programme
<b>5.46</b>	<b>Resource Sharing Specialist</b>	Using modern resource sharing techniques to provide satisfactory service and efficient delivery of resource materials to the clients, developing policies, processes and procedures documentation related to resource sharing, facilitating access to library materials, and providing directional information.	ALA accredited Master's degree in Library or Information Science with experience in e-resource acquisition, cataloging, and knowledge of troubleshooting e-resource access
<b>5.47</b>	<b>Serials Librarian</b>	Handling activities related to acquisition and overall management of periodicals literature, maintaining online database of serials, evaluating e-journals and their aggregators, resolving access problems related to electronic periodicals.	MLS/ MLIS or equivalent advanced degree with knowledge of the electronic resources and print serials life cycles
<b>5.48</b>	<b>Social Media Librarian</b>	Acquiring and managing electronic reading material for teaching, learning, research and other purposes, handling social media, conducting library publicity programmes and activities.	Bachelor's degree in Library Science, Journalism with knowledge of handling institutional social media applications.
<b>5.49</b>	<b>Software Librarian</b>	Identifying software needs and related issues, analyzing and customizing software applications used in libraries, providing technical support and solutions in library automation, communication and on-line systems.	Graduate degree in Library, Information or Computer Science from an ALA-accredited institution or equivalent with sound knowledge of designing and developing custom software programmes for effective delivery of library services
<b>5.50</b>	<b>System Analyst</b>	Research, analyze, design and development of information systems for facilitating organizational projects and MIS related operations in libraries.	ALA accredited Master of Library and Information Science, Master of Library Science, Master of Science in Library and Information Science, Management Information Systems degree with knowledge of integrated library systems, database management, CMS etc.

5.51	<b>Web and User Interface Librarian</b>	Designing and developing web based user interfaces for communicating with library and other online database systems, helping users in accessing information from online sources.	A Master's degree in Library and information Science, Computer Science from a graduate school of accredited by the ALA (or foreign equivalent) with experience in designing and developing web programmes.
5.52	<b>Web Librarian</b>	Exploring and searching information from online repositories, databases, and websites for the clients. Designing the web interface for ease of access to online information.	ALA accredited Master's programme in Library and Information Science, Bachelor's degree in Computer Science with experience in information design and network technology

**Competencies and Skills for IT based Employment Designations in LIS**

The terms 'Competency' and 'Skill' are often used synonymously but there is a slight difference between these two terms. 'Competence' can be defined as a person's or professional's mental ability in how he/she interacts with the world in a particular situation, while 'Skill' can be defined as a person's practical ability or act of accomplishing a particular task in a particular way. Studies conducted by various researchers that explored job designations in LIS, particularly in the context of information technology-based designations, have shown that certain types of competencies and skills are mandatory for those who wish to apply for these job positions. These abilities and skills can be stated as follows:

**6.1 Competencies**

- Ability to maintain healthy and effective relations with the library team.
- Ability to work with library associates and willing to assist, train and support them.
- Ability to manage and adapt a change due to technological development in the library sector
- Ability to learn about new hardware and software applications.
- Ability to plan, design and implement technology based projects and apply strategies to complete them.
- Ability to organize orientation, literacy programmes and perform library demonstrations for the patrons.

**6.2 Technical Knowledge and IT Skills**

- Knowledge of library systems and tools, media, virtual cloud based platforms and web-based communications, collaborative technologies in libraries.
- Knowledge of emerging IT tools, products, technologies and information delivery platforms.
- Knowledge of digital library software for developing Digital Libraries and Institutional Repositories.
- Knowledge of commercial and open source software for automating libraries.
- Knowledge of searching specific information on the internet and retrieving the online resources from search engines, directories and databases.
- Knowledge of web 2.0 services- social and professional networks, Wikis and Weblogs.
- Knowledge of Intellectual Copyrights (IPR) in the digital environment.
- Knowledge of resource sharing through collaborative library networks.
- Database Management and Development Skills
- Web Design and Development Skills
- Digital Resources Management skills.
- Knowledge of Digital Archiving and Preservations.
- Social Media Handling Skills.
- Digital Marketing Skills.
- Computing Skills.

- Knowledge of computer operating systems and application software programmes.
- Knowledge of maintaining digital resources and instructional design principles.
- Experience with customizing open source software, digital library software, library automation packages and mobile apps.
- Familiar with digital resource technologies such as link resolvers, proxy systems, APIs, XHTML, XML, SQL etc.

### 6.3 Interpersonal and Communication Skills

- Commitment for working honestly and effectively as part of the library team to gain fruitful results for an individual and organization.
- Positive attitude towards learning new things, taking on new responsibilities and changes in the library environment.
- Sharing novel ideas while working on projects.
- Leadership skills and ability for interacting, guiding to working associates in a respectful and positive manner.
- Ability to make ethical decisions and critical thinking for finding solutions to problems.
- Good interpersonal skills to interact with library patrons and other public for establishing cooperative relationships
- Communication in English, foreign and other regional languages, able to communicate effectively in both verbally and in writing.
- Writing, listening and presentation skills to express effectively before a professional community.
- Strong desire to observe LIS profession's ethics and courtesy.

### Conclusion

IT is a great boon for libraries and library and information science professionals to provide customized, value added and qualitative services to their users in minimum time. The advent of information technology has radically changed the role of library professionals in the 21st century. It has affected the current LIS education system and of course the employment sector. Similarly, the employment designations in this sector seem to have changed. IT has a major impact on emerging IT-based employment designations in LIS. The related studies in this context revealed that numerous information technology based job titles have emerged in the LIS sector, especially in the 21st century period. It may be concluded that there are multi-type IT based employment designations in the LIS field for which IT skills and other professional competencies are mandatory for catching the relevant job opportunities. The title of employment designation and their skills, competencies vary according to the nature of the work and the type of employing organization.

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**A Comparative Study of Traditional Library and Digital Library.****Mrs. Puja Baban Khutale**

(M.A, M.Lisc)

Department of Library and Information Science

Shivaji University, Kolhapur.

**Abstract**

*Reading is important part of human life to develop the personality. The readers fulfill their desire about reading through various reading materials like newspaper, magazines, books and a day article on digital media. Library is the place which provide the atmosphere for reading and enhance the knowledge. In this present study researcher tried to make comparison of traditional library and digital library. For this researcher study the awareness about digital library and satisfaction of readers through traditional library and digital library as well as researcher tried to study the sources which created awareness about digital library.*

**Keywords:** Digital library, traditional library, awareness, readers

**Introduction**

Reading is important because it develops the mind. The mind is a muscle. It needs exercise. Understanding the written word is one way the mind grows in its ability. It is how we discover new things. Books, magazines and even the internet are great learning tools which required the ability to read and understand what we read. A person who knows how to read can educate themselves in any area of life they are interested in. The reading habits complete the role of important to library. As gateway to knowledge and culture, libraries play a fundamental role in society. The resources and services they offer create opportunities for learning, support literacy and education, and help shape the new ideas and perspectives that are central to a creative society. In a world without libraries it would be difficult to advance research and human knowledge.

Library is the place which provide the atmosphere for reading and enhance the knowledge. Libraries are havens for the readers because they provide them chance to improve their level of thinking, their lifestyle as well as their whole life. In traditional library readers get facility to choose the books as per their choice with the help of librarian who is specially appointed to guide the readers.

The world is changing so fast and readers choices for reading the books is also changing rapidly, they like to use technology in reading for this use multiple gadgets for this because internet is easily available on low cost. This digital devices force publishers, libraries and readers to use digital media for reading. It is not possible for each kind reading to use digital platform for reading but remarkable readers are using digital platform.

The pandemic covid-19 situation creates the positive environment for digital reading sources as well as for libraries, because traditional libraries was closed and the people were need to spend their time in home. They had many time to develop new habits which will benefited them in future and enhance their knowledge and experience through reading. Digital library fulfill that things through providing them the access to readers home. People use digital library in different ways utilized benefits of the digital library.

In the current study researcher study the awareness about library and satisfaction level of the reader about the services and facilities provided by traditional library and digital library.

**Objectives**

1. To study the awareness about digital library.
2. To study the readers preference and satisfaction level between traditional library and digital library.
3. To study the sources creating awareness about digital library.



**Research Methodology**

This is exploratory research. This study is based on primary data. To collect this primary data questionnaire was developed and distributed with the help of Google form. To share the link of Google form what's app has used. 55 respondents have responded to questionnaire.

**Data Analysis and Interpretation**

**Demographic Analysis:**

Address (Location):	Sr No.	Particulars	Respondent	Percentage
	1	Urban	25	45.5
	2	Semi urban	8	14.5
	3	Rural	22	40.0
		<b>Total</b>	<b>55</b>	<b>100</b>
Gender:	Sr No.	Particulars	Respondent	Percentage
	1	Male	29	52.73
	2	Female	26	47.27
		<b>Total</b>	<b>55</b>	<b>100</b>
Age:	Sr No.	Particulars	Respondent	Percentage
	1	Below 18	00	00
	2	19 to 25	34	61.8
	3	26 to 35	12	21.8
	4	36 to 45	06	10.9
	5	46 & above	03	5.5
		<b>Total</b>	<b>55</b>	<b>100</b>
Education:	Sr No.	Particulars	Respondent	Percentage
	1	Primary	00	00
	2	Secondary	00	00
	3	Graduation	24	43.6
	4	Post graduation	31	56.4
	5	Other	00	00
		<b>Total</b>	<b>55</b>	<b>100</b>
Occupation:	Sr No.	Particulars	Respondent	Percentage
	1	Service	12	21.8
	2	Business	03	5.5
	3	Agriculture	00	00
	4	Student	32	58.2
	5	Any other	08	14.5
		<b>Total</b>	<b>55</b>	<b>100</b>
Annual income (lacks):	Sr No.	Particulars	Respondent	Percentage
	1	Less than Rs. 1,00,000	43	78.2
	2	1,00,001 to 3,00,000	04	7.3

	<b>3</b>	3,00,001 to 5,00,000	02	3.6
	<b>4</b>	More than 5,00,000	06	10.9
		<b>Total</b>	<b>55</b>	<b>100</b>

This demographic study shows that urban respondents has take initiative in this study. Male respondents who's age is between 19 to 25 post graduate students responded to the questions ask them mostly. The 78% respondents annual income is less than Rs.1,00,000

**Respondent's ability of reading:**

Sr No.	Particulars	Respondent	Percentage
<b>1</b>	<b>Yes</b>	52	94.5
<b>2</b>	<b>No</b>	03	5.5
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 94.5% respondents knows how to read and only 5.5% respondents has problems in readings.

**Do you like to read regularly?**

Sr No.	Particulars	Respondent	Percentage
<b>1</b>	<b>Yes</b>	46	83.6
<b>2</b>	<b>No</b>	09	16.4
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 83.6% respondents like to read regularly. 16.4% respondents do not like to read regularly.

**Are you the member of any library?**

Sr No.	Particulars	Respondent	Percentage
<b>1</b>	<b>Yes</b>	24	43.6
<b>2</b>	<b>No</b>	31	56.4
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 43.6% respondents has taken membership of library but 56.4% are not the member of any library.

**Do you know about "Digital Library"?**

Sr No.	Particulars	Respondent	Percentage
<b>1</b>	<b>Yes</b>	37	67.3
<b>2</b>	<b>No</b>	18	32.7
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 67.3% respondents knows about the digital library and 32.7% still don't know about digital library.

**Have you used "Digital Library"?**

Sr No.	Particulars	Respondent	Percentage
<b>1</b>	<b>Yes</b>	24	43.6
<b>2</b>	<b>No</b>	31	56.4
	<b>Total</b>	<b>55</b>	<b>100</b>

The above shows that 43.6% respondents has already used digital library. 56.4% respondents still has not used digital library.

**Where do you get awareness about “Digital Library”?**

Sr No.	Particulars	Frequency	Percentage
1	College	38	30.65
2	Office	09	07.26
3	Friends	22	17.74
4	Advertising	14	11.29
5	Family	10	08.06
6	Relatives	08	6.45
7	Other sources	23	18.55
	<b>Total</b>	<b>124</b>	<b>100</b>

The above table shows that college creates the awareness among the respondents mostly, but the relatives has not creating the environment to discuss about digital library.

**Which library you have used?**

Sr No.	Particulars	Respondent	Percentage
1	Traditional library (Offline)	20	36.4
2	Digital library(Online)	07	12.7
3	Both	28	50.9
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 50.9% respondents has used the both kind of library but still 36.4% respondents only used the traditional library.

**Which library’s membership you have taken?**

Sr No.	Particulars	Respondent	Percentage
1	Traditional library (Offline)	28	50.9
2	Digital library(Online)	09	16.4
3	Both	19	34.5
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 50.9% has the membership of traditional library and 34.5% respondents has the membership of both library.

**Have you availed following services of “Traditional library” and your satisfaction level?**

**5- Excellent 4- Good 3- Satisfactory 2- Poor 1- Very poor**

Sr.No	Description	5	4	3	2	1
1	Guidance of librarian	21	25	06	03	00
2	The physical and logical organization	14	27	12	01	01
3	Interaction with library employees	17	24	10	04	00
4	Free and universal access	17	24	12	01	01
5	Advance search of information	19	21	11	04	00
6	Cost to user/readers (Charges of library)	14	26	13	01	01
7	Timing of library facility	20	24	08	02	01
8	Availability of sufficient book	17	26	09	01	02



9	Accuracy of previous used references/books record	15	24	11	03	02
10	Fines/penalties	19	22	11	03	00

The above table shows that respondents feel good about the facilities or services available in traditional library. Have you availed following services of “**Digital library**” and your satisfaction level?

5- Excellent 4- Good 3- Satisfactory 2- Poor 1- Very poor

Sr.No	Description	5	4	3	2	1
1	Guidance of librarian	20	23	06	05	01
2	The physical and logical organization	16	26	09	03	01
3	Interaction with library employees	16	24	10	03	02
4	Free and universal access	24	21	07	03	00
5	Advance search of information	22	25	06	02	00
6	Cost to user/readers(Charges of library)	20	23	10	00	02
7	Timing of library facility	27	20	07	01	00
8	Availability of sufficient book	22	22	08	03	00
9	Accuracy of previous used references/books record	22	26	06	01	00
10	Fines/penalties	17	22	11	02	03

The above table shows that respondents feel excellent about the facilities or services available in digital library.

**Which kind of library do you like to use in future?**

Sr No.	Particulars	Respondent	Percentage
1	Traditional library (Offline)	05	9.1
2	Digital library(Online)	18	32.7
3	Both	32	58.2
	<b>Total</b>	<b>55</b>	<b>100</b>

The above table shows that 58.2% respondents like to use both type of libraries in future and only 9.1% respondents like only traditional library.

**Findings**

1. Nowadays most of the people can read properly.
2. The people like to read something regularly.
3. People like to read regularly but they has not taken membership of any library.
4. People know about the digital library.
5. People know about the digital library but most of the people has not utilized or experienced the services of digital library.
6. College is the main source for creating the awareness about digital library.
7. Friends and some other sources also creating awareness about digital library.
8. Relatives of the people have not creating any kind of awareness about the digital library.
9. People still rely on traditional library for their reading. They use digital library but not wholly they are relying on digital library.
10. The people have taken the membership of traditional library mostly.

11. As compare to digital library guidance from librarian is mostly available in traditional library. The librarian can suggest the books or sources of data as per his experience.
12. Physical organization is available in traditional library mainly. People can choose or read and feel the book physically in traditional library.
13. Library employees can help the readers in book suggestion, update the record of books etc. the readers in traditional library.
14. Digital library opened the doors of world reading sources for the readers which is not possible in traditional library.
15. Technology, new structure and internet charges increasing the expenses of the institutes who providing the digital library facility, which become costly for reader compare to traditional library.
16. Traditional library has time limitations but readers can use digital platform anytime when they needed.
17. Purchasing multiple books and maintaining books is the difficult task, so it is not possible in traditional library to purchasing each book and make available for the readers which possible in digital library.
18. Digital library provide updated record to the readers regarding their previous books or any other reading documents.
19. Traditional library need to make available the book for every reader and they have limited copies for reading so they have to demand the issued book in time for another reader for this purpose they has to charge fine to reader who gave back book after due date of book. Compare to digital library this amount is more.
20. In future readers are like to use both the sources of books which is traditional library and digital library but they do not want rely wholly only on single source.

### Suggestions

1. The institute who providing digital library facility should promote this to create awareness and get membership.
2. The institute should provide sufficient facility to use digital library in campus or through any other place.
3. The librarian can play important role in digital library also, librarian should spend some time for improving the experience of digital library users.
4. In traditional library their should be the focus on the variety of books and not on the copies of the books.
5. The institute should increase the members of library to minimize the charges of readers for the both libraries.
6. Traditional libraries should focus on the technology to updating the record of the readers.

### Conclusion

The future of the digital library is very bright. The number of sources of information is available for the readers, which creating the faith of readers on digital library.

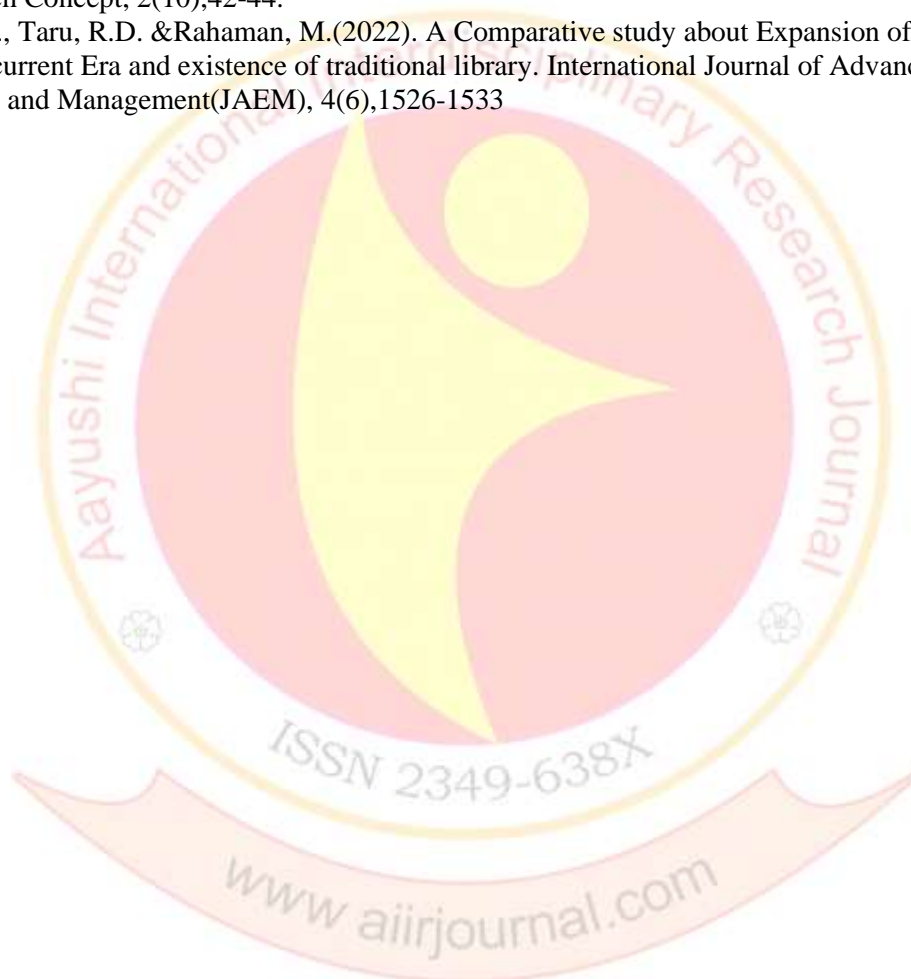
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**Changing Nature of Academic Libraries and its Impact on Faculty and Students****Kumari Prasima Yadvendu,**

Assistant Librarian,

Anugrah Narayan Magadh Medical College, Gaya(Bihar)

**Abstract:-**

*The libraries are essential to every educational system , the resources offered by the libraries are also required by the people in improving their knowledge. Academic libraries are equipped, moral and spiritual advancement and community.*

*Today academic libraries give vital position to every higher education institution. The libraries express a purpose to organize, preserve, and make knowledge accessible. In what ways, academic libraries likely and come to take place in information technology? The libraries tries to answer to academic libraries with the need to recognize and reconstruct means by which they support teaching and learning community in research and educational fields. Now the ability of academic libraries to deliver authenticated and reliable information is continuously challenged by new technologies.*

**Introduction:-**

Now a day's technology has changed the mode of delivery of services from traditional information sources to e-resources such as online database, online information storage and retrieval etc. It provides a tool for the delivery of library service technology faster and those technologies form our traditional library to the modern library.

At the twenty-first century, The academic libraries are information centres which play important roles as sources of Information Technology (IT) in order to facilitate information, aquisition, circulation, dissemination and access to resources in repositories which where before not possible. Library automation software, Electronic resources management software and search software support academic library for efficient and effective performance and library professional will be able to fulfill their duties and responsibilities.

**Changing Nature of Academic Libraries:-**

An academic library is a library that is attached to a higher education institution and to support the curriculum and the research of the university faculty and students. It is unknown how many academic libraries there are worldwide. An academic and research portal maintained by UNESCO links. In the past, the material for class readings, intended to supplement lectures as prescribed by the instructor, has been called reserves. In the period before electronic resources became available, the reserves were supplied as actual books or as photocopies of appropriate journal articles. Modern academic libraries generally also provide access to electronic resources. Academic libraries must determine a focus for collection development since comprehensive collections are not feasible. Librarians do this by identifying the needs of the faculty and student body and the mission and academic programs of the college or university. When there are particular areas of specialization in academic libraries, these are often referred to as niche collections. These collections are often the basis of a special collection department and may include original papers, artwork, and artifacts written or created by a single author or about a specific subject.

Academic libraries have transformed in the 21st century to focus less on physical collection development, information access, and digital resources. Today's academic libraries typically provide access to subscription-based online resources, including research databases and ebook collections, in addition to physical books and journals. Academic libraries also offer space for students to work and study, in groups or individually, on "silent floors" and reference and research help services, sometimes including virtual reference services. Some academic libraries lend out technology such as video and audio. Around the turn of the century, this approach began to change. The American Library Association (ALA) was formed in 1876, with members including Melvil Dewey and C.A.Cutter. Libraries reprioritized to improve access to materials and found funding increasing due to increased demand for said materials.

Academic libraries today vary regarding the extent to which they accommodate those not affiliated with their parent universities. Some offer reading and borrowing privileges to members of the public on payment of an annual fee; such fees can vary greatly. The benefits usually do not extend to such services as computer usage other than to search the catalog or Internet access. Alumni and students of cooperating local universities may be

given discounts or other considerations when arranging for borrowing privileges. On the other hand, some universities' libraries are restricted to students, faculty, and staff. Even in this case, they may make it possible for others to borrow materials through inter-library loan programs. In a rapidly changing educational environment; academic libraries need more time and staff resources to meet the needs of faculty and students. They are also looking for tools that shine a light on their vital contributions toward the success of their academic institutions. OCLC services help simplify library workflows, giving staff the tools and time to invest in relationships across campus, to evolve local collections and to create new programs.

**Advantages of Information Technology (IT) in Libraries :-**

- Library Automation has been help to the library workers.
- It improves the efficiency of library work.
- It reduce the expense of library like on e-book, e-journal etc.
- The Online Public Access Catalogue (OPAC) is the computer form of assisting library users to catalogue library materials such as book, journal etc.
- It has large number of databases in digital form which occupies little space but it has large capacity.
- It supports library functions such as circulation, acquisition, serials control, stock maintenance and other work also.
- It also provides better information services etc

**Conclusion:-**

In recent years, both universities and academic colleges have increasingly required that faculty members conduct research, thus blurring the traditional distinction between researchers and teaching faculty members. A major reason for this change in requirement appears to be related to the continuous development of the information world, as conducting research enriches the lecturers, develops their teaching capabilities, and, consequently, contributes to their promotion in the academic institutions.

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**Role of NDL in the Life of Language & Literature Students****Miss. Shraddha Toraskar**

(M.A. SET English)

Assistant Professor Kamala College, Kolhapur

**Abstract :**

*This study concerned the importance of digital library in the life of language students. In the country like India , the students of language and literature face a lot of problems of an offline library e.g. limitations of distance, budget, time, travels etc. For that reason so many language students from remote areas are unable to take advantage of those facilities. So in the 21st century ,we have a great invention – Digital Library. Digital library is a virtual platform which provides tons of reading materials to every student. Digital libraries do not have any boundaries, they can easily reach to the students who belong to remote areas, they also do not have any restrictions about time and place. So for a language student who loves to read literature, Digital library is like an ocean for them. Digital libraries will allow teachers and students to use information resources and tools that have traditionally been physically and conceptually inaccessible. In India we have National Digital Library in short we call it NDL. In this research paper usage of NDL (National Digital Library) in the life of literary student is discussed.*

**KEYWORDS :** NDL, NMEICT, Digital libraries , Digital resources, electronic resources.

**Introduction**

Creativity, originality, and the individuality reflected in works of literature of writers from every corner of the world are the factors that interest everyone to study English. Literature opens up a new world for the reader. Whenever someone feels upset by anything or stressed out about the little or big things in life, going back to books gives them an escape from the hard and rough material fact. English literature opens minds toward intellectual activities and also helps to define feelings and emotions. (Mathew)

A student of literature is always hungry to read something new, to learn something new, to get new ideas which can give him or her new knowledge. They just fall in love with every book they touch. They have some favorite books but when someone asked they could never choose. For them books are like gems. Books which leaves your spine aching from sitting up all night reading them. Books whose characters lives in the glittery corner of your mind. (Alllen) To fulfill this hunger, libraries play a very important role.

**Role of Library**

Library plays a very healthy role in the life of a literary students. The atmosphere in the library is very calm and disciplined. It helps readers to keep a very good concentration on their readings. Freedom is the keyword for the libraries. Readers are allowed to read whatever they like and also read the book according to their own manner. Nobody would disturb them. It is an essential part of the student's life. They should take full advantages of the libraries available. The resources and services they offer create opportunities for learning, support literacy and education, and help to shape the new ideas and perspectives that are central to a creative and innovative society. (Importance of library in our life, 2018)

A literary student always wants to read books of his favorite authors, poems , even theories of criticism, dramas, old and new literature. So a library offers him access to all sorts of books, magazines, music and movies that he could never afford to buy. It is the place where all walks of life may be present, including children-youth and the aged. For a common man, it is difficult to purchase more than one or two daily newspapers or monthly magazines, but it is the sharp desire of educated people to know all possible shades of opinion as expressed in different newspapers. (KMEA) Libraries provide the students very healthy environment for learning.

In new India, digital library is becoming famous day by day. They combine technology and information resources to allow remote access to reading content. Breaking down physical barriers, it give access to multiple contents with a potentially number of resources and selections at hand. The main limit for traditional libraries is



represented by physical space- books consume a lot of it and people often have to walk around in search of a particular material. (technology) It is helpful for a literary students because they provide a lot of reading content to them, they don't have financial boundaries also and because it is online, students can get updated content easily. Government of India has launched National Digital library.

**About NDL :**

The National Digital library of India is a virtual treasury of learning tools which is not only just a treasury with a search/browse facilities but also provides a host of services containing textbooks, articles, videos, audio books, lectures, simulations, fiction and all other kinds of learning media for the learners/users community. It is a project under Ministry of Education, Government of India, through its National Mission on Education through Information and communication Technology (NMEICT). NDL provides many books , content of any languages and provides interface support for 10 most widely used Indian Languages. (wikipedia) Teachers and students can easily take advantage of wider ranges of materials and communicate with people outside the formal learning environment. This will allow more integration of the different types of learning. (Gary Marchionini)

**English Literature And NDL :**

For language students , NDL is like a miracle, everything is available what they want just on a click. NDL gives numbers of reading content on the platform. When we click on the option of 'Study of English Literature' , we can see a lot of study material is available on the platform. Students can easily get those library facilities. It has so many materials related to English literature in different forms(Books, Audio lectures, video lectures, articles etc.). To get this advantage ,one should first go on the chrome browser and type National Digital Library then it will show a lot of options like engineering, school, science, humanities, literature. If someone choose English literature then it will show another options. Some important points/options have mentioned further below :

1. History of English Literature
2. 20th century world literature
3. Indian writing in English
4. English language and literature
5. English literature : Its History and Significance for English Speaking world'
6. Classical Indian Literature
7. European Classical Literature – Homer's Iliad : Article
8. Greek Tragedy
9. British Poetry and Drama
10. War Literature
11. American literature
12. Literary theory & Criticism
13. War Literature
14. Pre-Modern literature
15. Women's literature

Each topic carries lot of reading material with it. For example in the option of 'History of English literature' , it will get us through all the points of the history means form the Anglo-Saxon age to renaissance, Elizabethan age to romantic age, Victorian age to postmodern age. It also provides reading materials about the historical criticism like Alexander Pop, Coleridge as critic, Dryden's Criticism , Chaucer, Philip Sidney, Wordsworth as critic etc.

In Indian Writing English, it has everything like renaissance of Bengal, Decline of Mughals and rise of the English, India theory of drama/ theater/ performance , Kashmiri Poetry : Romantic Form, Shakespeare in India, Short independence India, Short story in Modern India, Women playwrights. It also provide reading materials from ancient great authors like Bhas's Swapnavasavadatta, Folk theatre forms :Jatra and Qissa, GirishKarnad as

Dramatist, Hellenic Criticism, Indian theatre : Datta Bhagat, R.k. Narayana as a novelist, Rabindranath Tagore and Premchand, Sarojini Naidu : the poet, Vijay Tendulkar etc.

Option of British poetry shows the content about the age of expression, the great discoveries and its effect on the language, rise of renaissance Elizabethan poetry, romantic poetry, Shakespearean sonnets, songs, romantic poetry, and also provides content of authors like Chaucer, Shakespeare, Wordsworth, Coleridge, William Blake etc.

If you choose the option of Women writers, it will get you through the reading materials are like Simone de Beauvoir's The second sex, treatment of gender inequality in the poetry of Sylvia Plath, A Reassessment of Sylvia Plath, lectures on R.K. Ramanujan (Poetry Criticism), Lectures on Virginia Woolf. (ndl)

Like this, each point provides lots of reading material as well as audio and video lecture which can help students to learn difficult concepts of literature.

### Conclusion –

Clearly, National Digital library plays an important role in the life of literary students. The achievement of digital library is really helpful in order to fulfill the requirement of readers. Digital library offers many options to the library users to do the task as quickly as possible. Use of the digital library enables the library to save spaces and time of the users. Although there are some challenges in the digital library. To meet these challenges librarians should play an important role. The library should possess to have well trained library staff who can guide the users and also can teach them how to use the digital resources. Most important thing librarian should do efforts to create more awareness among users about digital resources. (Khan, 2021)

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## Emerging Technologies and Their Impact on the Libraries

**Manisha Hatgine**

Asso.Prof., Kamala College, Kolhapur

### Abstract:

*In libraries ICT has assisted library and information science professionals to provide value-added services and give more remote access to available information resources, information and communication technologies provide faster retrieval of stored information and reform our traditional library to a modern library.*

*The rapid growth in ICT has made a great impact on libraries with the effect of ICT. The people have changed the way to think, behave, communicate and work. Globalization has changed the libraries, from traditional to digital libraries where every work is done by computer. In such a way library working has been changed from service oriented to user oriented.*

*Emerging technologies provide librarians with a unique opportunity to substantially enhance user centered services and to facilitate and promote collaboration between libraries and their users. The shift to digital services and delivery models is one way that libraries are responding to changing expectations among patrons but libraries are also looking for other ways to improve the experience for their users such as by making it easier to find and check out materials that match users' needs and interests.*

**Keywords:** ILS, Web 2.0, e-books, e-readers, mobile technology, digitalization, virtual technology, artificial intelligence, and maker's space

### Introduction:

The technological change is quick. The new library technologies are emerging today. Technology change is over all process of invention and innovation. Technological change covers the invention of technologies.

The shift to digital services and delivery models is one way that libraries are responding to changing expectations among patrons. But libraries are also looking for other ways to improve the experience for their users', such as by making it easier to find and check out materials that match users' needs and interests. Libraries have experienced dramatic changes in the last several years as a result of covid and other external forces. As librarians look ahead to the future the ICT has assisted library and information science professionals to provide value added services and give more remote access to available information resources. Information and communication technology provide faster retrieval of stored information and reform our traditional library to a modern library

### Circulation model

An integrated library system(ILS) also known as library management system(LMS) is an enterprise resource planning system for a library, used to track items owned, orders made, bills paid ,and patrons who have borrowed an ILS usually is constituted of a relational database software to interact with that database and two graphical user interfaces.

Most ILSes separate software functions into discrete programs called modules, each of them integrated with unified interface. Examples of model might include:

- Acquisitions
- Cataloging
- Circulation
- Serials
- Online public access catalogue

Each pattern and item has a unique ID in the database that allows the ILS to track its activity.



**Meta searching:**

A Meta search engine is an online information retrieval tool that uses the data of a web search engine to produce its own results. Metasearch engines take input from a user and immediately query search engines for results. Sufficient data is gathered, ranked, and presented to the users.

Problems such as spamming reduce the accuracy and precision of results. The process of fusion aims to improve the engineering of a meta search engine.

Examples of metasearch engines include skyscanner and kayak.com which aggregate search results of online travel agencies and provider websites and are free and open source.

By sending multiple queries to several other such engines, this extends the coverage of data of the topic and allows more information to be found. They use the indexes built by other search engines, aggregating and often post-processing results in unique ways. A metasearch engine has an advantage over a single search engine because more results can be retrieved with the same amount of exertion. It also reduces the work of users from having to individually type in searches from different engines to look for resources.

Meta searching is also a useful approach if the purpose of the user's search is to get an overview of the topic or to get quick answers. Instead of having to go through multiple search engines like Yahoo! or Google and comparing results, metasearch engines are able to quickly compile and combine results. They can do it either by listing results from each engine queried with no additional post processing or by analyzing the results and ranking them by their own rules.

A metasearch engine can also hide the searcher's IP address from the search engines queried, providing privacy to the search.

With meta searching, one more new technology which is single search box tools, which is also known as discovery tools. This product collects different resource types from different places into a single database and then permits that single database to be readily searched from one box. If we see that this technology is still new, it is clear that discovery tools provide noteworthy benefits over the existing other technologies.

**E-books and e-readers**

Many of the readers still prefer books rather than the digital version. The studies also reveal that even though students can type more on their laptops, they tend to simply transcribe the lecture verbatim. This robs them of the opportunity to process and grasp information in such a way that they can reframe it in their own words.

An e-reader, also called an e-book reader or e-book device, is a mobile electronic device that is designed primarily for the purpose of reading digital e-books and periodicals.

Any device that can display text on a screen may act as an e-reader, however, specialized e-reader devices may optimize portability, readability, and battery life for this purpose. Their main advantage over printed books is portability. This is because an e-reader is capable of holding thousands of books while weighing less than one book, and the convenience provided due to add-on features.

E-readers can hold thousands of books limited by only their memory and use the same physical space as a conventional book. Most E-ink displays are not back-illuminated and therefore seem to cause no more eye strain than a traditional book and less eye strain than LCD screen, with a longer battery life. Features such as the ability to adjust font size and spacing can help people who have difficulty reading. Some e-readers link to definitions or translations of key words. Amazon notes that 85% of e-readers users look up a word while reading.

E-readers can instantly download content from supported public libraries by using apps like Overdrive.

**Social media and mobile applications**

Social media platforms allow users to have conversations, share information, and create web content. There are many forms of social media including blogs, micro-blogs, Wikis, social networking sites, photo-sharing sites, instant messaging, video sharing sites, podcasts, widgets, virtual worlds, and more.

Social media are interactive technologies that facilitate the creation and sharing of information, ideas, interests, and other forms of expression through virtual communities and networks. While challenges to the

definition of social media arise due to the variety of stand-alone and built-in-social media services currently available, there are some common features.

1. Social media are interactive web 2.0 internet based applications.
2. User generated content such as text posts or comments, digital photos or videos and data generated through all online interactions-is the lifeblood of social media.
3. Users create service-specific profiles for the website or app that are designs and maintained by the social media organization.
4. Social media helps the development of online social networks by connecting a user's profile with those of other individuals or groups.

Social media are computer mediated which allow users to create content and interact with each other. The main advantage of social media is connectivity and main advantage of the social media is that you update yourself with the latest happenings around the world

### **Maker Space**

Makerspace is a collaborative work space inside a school, library or separate private facility for making, learning, exploring and sharing that uses high tech to no tech tools. These spaces are open to kids, adults and entrepreneurs and have a variety of maker equipment including 3D printers, laser cutters, CNC machines soldering irons and even sewing machines. a makerspace however doesn't need to include all of these machines or even any of them to be considered as maker space. These spaces are also helping to prepare those who need the critical 21st century skills in the field of science, technology, engineering and math. They provide hands on learning, help with critical thinking skills and even boost self-confidence. Some of the skills that are learned in a makerspace pertain to electronics, 3d printing, 3d modelling, coding, robotics and even woodworking.

### **Digitization and institutional repository system**

- Information storage can be simplified if the resources are available electronically.
- It helps the libraries in reducing space utilization and budget. On other hand all the archived materials can be stored with the support of IR systems like E-print and D- space

### **AI technology**

This aspect of AI programming focuses on acquiring data and creating rules for how to turn the data into actionable information. The rules, which are called algorithms, provide computing devices with step-by-step instructions for how to complete a specific task. AI requires a foundation of specialized hardware and software for writing and training machine learning algorithm. No one programming language is synonymous with AI, but a few, including python, R and Java are popular. In general AI system work by ingesting large amount of labelled training data, analyzing the data for correlations and patterns and using these patterns to make prediction about future States. AI programming focuses on three cognitive skills: learning, reasoning and self-correction.

### **Conclusion**

This study clearly indicate that there will be impact on technologies not only in the field of libraries but also rest of the world. It shows us transformation of libraries from the conventional to the computer generated technologies especially in the academic libraries.

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**Emerging Technologies in Libraries and Library Automation Softwares****Smt. Manisha Manohar Kakade**

(M.C.A. B.Ed.)

Full Time Lecturer

BCA Department Kamala College , Kolhapur

**Abstract**

*The trending technological advancement has brought a lot of changes to library . Librarians are expected to also change with the system in order to render user centric service by adapting to the trending web technologies being used globally to provide library services to people. Any librarian who fail to keep abreast of the trending issues and adopt the latest technologies in rendering services to users will be left behind and redundant in the field of information science. Therefore, it is very important Librarian to change with the system by ensuring knowledge and skills update as well as the utilization of emerging web technologies in library service delivery. Based on this fact, this paper attempt to identify the emerging technologies for library so that readers can specifically focus on them for effective library services. Also we know the latest library Automation Software's for best library management.*

**Keyword** - Web technology, Automated library softwares ,Library Services , Emerging technologies for libraries.

**Introduction**

Local and international businesses are now benefiting greatly from library in terms of access to new ideas, knowledge and information needed to grow their businesses. Libraries are viewed as important information sources and resources for people seeking mission-oriented information. It also serves as professional services provided by librarians in helping many business originator, researchers, students as well as educators in finding, accessing and utilizing information resources to the fullest extent, especially with regard to electronic resources. Studies also found that business information resources were significantly more valuable with expert help of library staff.

Although many are receiving the information in form of instruction in schools and through seminars but these cannot be complete without the backing of libraries. Libraries and information centers sare an indispensable companion to formal education. The current technological era is accompanied by a corresponding increase in knowledge and skills with a rapid grow of information sharing. This new library and information science environment requires new skills, products, equipment and platforms in seeking, processing and disseminating information.

**Emerging Technologies in Library Management System**

Libraries are one of the foremost critical social institutions. No society is complete without a library storing information from the world over. Information and Communication Technology (ICT) have extensively impacted libraries and their services.

Earlier, libraries offered manual information resources and services to their users, but now, libraries are opening up to digitalization, primarily in the form of online libraries, eLibraries, or digital libraries.

**The Top 9 Current Trends in Library And Information Services**

1. **Electronic Resource Management** : Electronic resources refer to e-journals, e-books, online databases, and other materials in digital formats, which are accessible electronically. e-Resource Management Software can be employed by libraries to trace the collection, access, authorization, maintenance, usage, evaluation, reservation, and selection of a library's electronic information resources.
2. **RFID Implementation**: Radio-Frequency Identification (RFID) uses electromagnetic fields to select and track tags attached to library items automatically. The RFID-based library management system is the



newest technology used to track inventory and strengthen library theft detection systems. This technology enhances the security of libraries and increases their efficiency by streamlining the processes and reducing human dependence. For the users, RFID accelerates the borrowing and return procedures. Hence, RFID saves time and reduces library costs.

3. **Cloud Computing** : Libraries across the world are adopting cloud computing to make library services more streamlined and cost-efficient. This library management system plays a significant role in building digital libraries or repositories. Cloud computing also ensures optimal use of library resources, infrastructure, human resources, etc. Moreover, the technology is also used for library automation and quick data search. Additionally, in a digital library, cloud computing ensures that third-party services can manage servers, carry out upgrades, and create data backups.
4. **Internet of Things** : The best-integrated library software and LMS software have started using the Internet of Things (IoT) to transfer data without human intervention. Libraries use IoT to control inventory, prevent theft, and identify users. It also helps in improving the quality and speed of circulation desk activities. Moreover, IoT expedites reservation of books, fire detection in the library and its prevention, and streamline eLibrary services.
5. **Big Data and Data Visualization**: Big Data and Data Visualization is the method of displaying a large volume of data through charts, graphs, maps, and other visual forms. This makes the info more natural for the human mind to grasp and makes it easier to spot trends, patterns, and outliers within large data sets. This technology is helping digital libraries become more globalized while accessing a vast amount of data. It makes the libraries more easily accessible to readers who can find a plethora of information at their fingertips.
6. **Artificial Intelligence** : Artificial intelligence (AI) uses the power of a robot or a computer that tries to do tasks that humans usually do. The most common application of AI in a library is the chatbots that receive directional questions from users and resolve them. They can alert the user about their book submission due date, direct a user to the relevant library segment, and automatically schedule appointments.
7. **Mobile-Based Library Services** :The three main objectives of a library are to promote literacy, disseminate useful daily information to the people and encourage lifelong learning through its reading materials and resources. Mobile libraries bring resources outside of the library's fixed location to users who otherwise might not get an opportunity to profit from them. With the help of mobile services like SMS and WhatsApp, libraries can produce new services and provide faster access to their collection. It also includes a learning management system (LMS), a software application that provides the framework that handles all aspects of the learning process and tracks your training content.

An example of the best LMS software is Moodle. The OPAC mobile application is a classic example of mobile-based library services. The platform is operated by SLIM Softwares and aims at converting conventional libraries to digital libraries.

8. **Intelligent Library Search & Federated Search** : Federated search and Intelligent Library Search are techniques to retrieve information from many different content locations with only one query and one search interface with federated search. The technology complements main libraries in retrieving information quickly and makes indexing seamless. Libraries also use this technology for descriptive cataloging, subject indexing, database searching, and collection development.
9. **Academic Integrity and Plagiarism** :Any discussion about current trends in library systems will be incomplete without mentioning academic integrity and plagiarism. Plagiarism is using another's ideas, words, theories, illustrations or graphics, opinions, or facts without giving credit. For students, copying others' work damages the intellectual integrity of their academic experience. Therefore, avoiding plagiarism has become the need of the hour.

Technology has undoubtedly made our lives much simpler. A library is no more the same it was a decade ago. Modern-day school and corporate library software ensure that you get the latest technologies in library

systems right at your fingertips.

**Library Automation Softwares**

1. Easylib Library Automation Software :Easylib is a library services platform that reduces costs, increases user satisfaction, and gets single-window search. This platform includes physical library management, digital library management, and visitor management in one place.
2. Surpaas :Surpass is a library automation software designed to help public, corporate, church, museum, and school libraries handle cataloging and circulation of books. The integrated patron management module enables administrators to import patron lists, create photo ID cards, and automatically send email reminders and payment overdue messages to users.
3. Mandarin :Mandarin is a web-based library management system targeting smaller private & public facilities with support for cataloging, circulation & inventory management.
4. ResourceMate:ResourceMate is a library automation software designed to help businesses across various industry verticals, such as public libraries, schools, museums, government institutions, non-profit organizations, and more. Supervisors can catalog available resources, import or export MARC files, and maintain a record of textbooks.
5. Alexandria : Alexandria is a centralized library software solution for managing and cataloging libraries, giving patrons the ability to search resources from any location.
6. Evolve Library : Evolve Library is a cloud-based library management system designed for use by school, public, academic, and specialist libraries of varying sizes. The software offers a range of modules covering acquisitions, catalog, circulation, and periodicals, and can be accessed through any web-enabled device.
7. Destiny Library Manager : Follett Destiny Library Manager is a web-based software designed to help K-12 schools manage and record their library's available inventory on a centralized platform. With Follett Destiny Discover, students can receive access to various print and digital resources including audiobooks, subscription databases and more.
8. Handy Library Manager : Handy Library Manager is a library automation software designed to help small to midsize school, church, community, business or public libraries manage book catalogs, generate reports, check-in/out items, maintain a database of records, and more. Professionals can preview and print ID cards and barcode or spine labels according to requirements.
9. Liberty : Liberty is a web-based knowledge management & library automation solution which enables the management of all physical, virtual & electronic library resources.
10. Accessit : Accessit Library is a web-based library management system for schools which enables the recording & searching of all teaching resources, including video & audio content. The platform offers Z39.50 cataloguing, intelligent search, engaging dashboards, integrations with existing IT systems.

**Conclusion :**

In Library Management System there are major scope in Information Technology world all emerging technologies built up more resources for implementing library functionalities and minimizing complexity for managing students faculty as well as people who use library for enhance their knowledge and more softwares are available in the market for librarians their easy work.

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**Social Media and Its Tools of Library Services in India****Dr. Gauri Bhimrao Patil.**Assistant Professor  
Kamala College, Kolhapur.**Abstract:**

*The Library and its services are mostly dependable on social media in this internet age. The use of various social media tools in libraries services is not a new topic and is in vogue for more than a decade now. Academic libraries around the globe are widely using social media tools to reach to their users and promote their products and services. This paper is basically highlights the availability of different types of social media tools, Social networking sites like Facebooks, Twitter, Myspace, LinkedIn, YouTube, Ning, Library thing, Wikis and Blogs etc. Also study the advantages and disadvantages of social media tools in Library services. Also state the use and its application in library services. This paper aims to give a brief overview of the social media tools used in particular to library activities/services.*

**Keyword:** Social Media, Social Media tools, Social Networking Sites, Librarything, Flickr, Wiki etc.

**1.1 Introduction:**

The use of social media tools by individuals of all ages are on increase and the practice is most common in today's younger generation. The libraries understand the role of social media in connecting, communicating and engaging with users and promoting library products and services. Today social media plays an essential and central role in communication and in building relationships. The online communities are increasingly showing their presence on such platforms which is significant and demands attention, and one will gain by connecting and engaging with people via such channels of communication Bell and in case of libraries, whether that be to reach and engage with library users, to promote library products & services, to promote events etc. The present libraries covers all the digital collections like E journals, E books, E-Database, CDs and DVDs, Scanner, Computer, Kewos etc. Online services and database are the buzz word of the day for the users and library using the latest tools & technology. So also the users are well connected with social media like LinkedIn, Myspace, Twitter and Facebook. To satisfy the users many Libraries are providing service through different social media like Facebooks, Twitter, and Myspace during the last couple of year. Libraries have their own Facebook page and connected to other social networking & academic sites. Social media are used by the people to connect themselves with their friends and relatives and groups through the different social media. Similarly the Libraries connect with the users, professionals, organisations, classes, and others using the Social media /Social networking sites / web 2.0.

**1.2 Review of Literature:**

(Mishra, 2008) in his paper states that Social networking may be a scheme that allows the user to move and work collaboratively with alternative users, as well as the power to browse, search, invite friends to attach and move with internet world.

(N. & Jagadish, 2012) mentioned the uses of social media in academic libraries are increasing to benefit the users in rendering online information services on account of the changes in various activities like adopting technologies, social interaction, service context, procurement of information resources.

(Gupta et al., 2014) opined that to promote the library services and highlights the resources, patrons use of social media are increase in Academic Libraries.

(Smeaton & Davis, 2014) said the uses of social media are increasing in Public Libraries to meet users in their own spaces. Social Media are used optimally to generate a participatory library service emphasizing engagement with users.



**1.3 Objective of Study:**

1. To study the concept of Social Media in India.
2. To examine the different tools for using social media channels.
3. To state the advantages & disadvantage of social media using for library.
4. To Conclude that the using of social media application in library services.

**1.4 Social Media: The Concept:**

According to Wikipedia “Social media are computer mediated tools that allow people, companies and other organizations to create, share, or exchange information, career interests, ideas, and pictures / videos in virtual communities and networks”.

Definition by ( Young Adult Library Services Association, 2011 ) says “It is a term commonly used to refer to a variety of web-based tools used to connect, collaborate, and create web content and experiences. Websites that allow visitors to send email, post comments, build web content or take part in live audio or video chats are all considered to be social media sites”.

(Neti, 2011) has define term ‘social media’ can be derived from two words which constitute it. Media generally refers to advertising and the communication of ideas or information through publications / channels. Social implies the interaction of individuals within a group or community.

Social media is web based communication media which a user can interact with other user in terms of social life, professional life, and educational purpose. It is just like a communication channel that all wows user communicate among them. The social media are web based applications, user generated information, user creates their own profile, manage them and share with other users, same circle of pictures, personal ideas, text, videos other content. Basic feature like enable many and may interactions, User generated contents.

**1.5 Different Tools for Using Social Media Channels:**

Social media can be categories based on their characteristics. Social media are 8 types. These are as follows:

**1. SOCIAL NETWORKING SITES**

Social networking sites facilitates the users to create own profile, manage and share it. It also having the privileges to add friends, find friend from other sites, creating a group id with linking the people having common interest. Connect with various groups of people like friends, family members & relatives, professional colleagues etc. with like; minded people are the basic purpose of the social networking sites. Examples of the social media are Facebook, LinkedIn, Myspace, Ning, Google+ etc.

**2. MICROBLOGGING**

It is a web based interface application which allows the user or subscriber to get updates the short form of message like text, video link from other user that they have already subscribed and can post a short piece of digital content such as text, video, or image. Twitter is one of the popular example of micro blogging. It gives instant short message to the users. According to Wikipedia Twitter has 320,000,000 users till date worldwide (Wikipedia).

**3. BLOGS**

It is a platform of personal thoughts, ideas, in a single place on the web. Basically it is the platform shared by an Individual for his/her thoughts, ideas, opinions, news and other contents and messages arranged in reverse chronological order. Hence the most recent post will be displayed on the top. Some of the examples are Problogger.net, Libercafe, Infoliberalian, Lislinks, Library Soup, and India Libraries etc. Librarian can use this tools can share the topic, ideas related to library services and share information like job posting, training and seminar etc. to its member.

**4. WIKIS**

It is a webpage which allow anyone to edit, modify, write the text and edit other contents. It is a web based platform for user to share their knowledge and skills with others. It is a collaborative work of an individual

or a group of person using a simple markup language and a web browser. Examples are Wikipedia, Appropedia and Library success etc.

### **5. PODCASTS**

According to Wikipedia “a podcast is a form of digital media that consists of an episodic series of audio, video, digital radio, PDF, or ePub files subscribed to and downloaded automatically through web syndication or streamed online to a computer or mobile device”. Examples of podcast are voice from the valley, Radiolab, Buzz out loud etc.

### **6. MEDIA SHARING**

This type of social media tools allow the users specially to upload and share the multimedia files like video, images, songs over the internet. These types of social media are very popular now-a-days among the people. Some of the examples of media sharing are YouTube and Flickr. The users : can view, download and make the comments to the uploaded content.

### **7. BOOKMARKING SITES**

It is allow user to save and organize links to any number of online resources and websites. According to wiki “a social book marking service is a centralized online service which enables users to add, annotate, edit, and share bookmarks of web documents”. The popular social book marking sites are Delicious having 1,500,000 Approximate Unique Monthly Visitors and Stumble Upon 28,000,000-estimated Unique Monthly Visitors as on July, 2016 (Ebizmba Inc, n.d.)

### **8. SOCIAL NETWORKING SITES (SNS) IN LIBRARY SERVICES**

There are lot of SNS used in Library services namely Facebook, YouTube, LinkedIn, Blogger, Google+, Flickr, MySpace, Twitter etc.

### **9. FACEBOOK**

It is one of the popular social sites that are used by millions of peoples worldwide. Now its active users are around 1.65 billion monthly (Wikipedia.com, 2016.). In recent few years many of the Library has its own library page and offers different kind of services using the Facebook. The concerned libraries use this social media to provide the information on new Databases, New arrivals of Books & Other resources, Opening Hours, Book Exhibitions, to provide reference services, about upcoming workshops / training programme of Library. It facilitates the user to get instant messages and reference services.

### **10. TWITTER**

Twitter is another popular social networking site among the social media it can be used by the libraries for marketing of library services like reference services and alert services. It is a free micro blogging site developed in the year 2006. It has 310 million active users by March, 2016 (Wikipedia, 2016.). Most of the Libraries are using these tools for promoting library services like new arrivals, event information, news announcements, new database etc. Some of notable Libraries that are actively using the Twitter accounts are Library of Congress having 817k Follower, 10.5 K tweets and National Library of Australia has more than 34 k Followers 9,245 tweets as on 28 July, 2016.

### **11. MYSPACE**

Many a Libraries are active with Myspace site. Like Facebook, MySpace a popular social networking sites allows the user to create their profile with aim to provide better services by way of making friends, groups, sharing views, images and videos etc. Libraries are providing services and receiving feedback from the user related to the services offered by them. The examples are Birmingham public library (<https://myspace.com/birminghampubliclibrary>), and Schwarzwald library (<https://myspace.com/schwarzwaldlibrary>).

### **12. YOUTUBE**

This is one of the important social media site widely used by the libraries in and around the world. This helps the Libraries for marketing the information products; share their programs, conferences, and workshops instructional videos of the methods and steps for the use of database, books, E-books etc. Application of YouTube

in library improves the services through tutorial and other video mode. Some of the examples of the institute using You Tube are FedUniLibrary by Federation University Australia and Library of Congress.

### **13. NING**

It is a web based service that facilitates users to create their own profile on social networks and to join and participate in other networks. Librarian uses these tools to connect with the user, the Library Association and with other people for sharing the information to user about the library services.

### **14. LINKEDIN**

It is one of the prime social media platforms that allow the user to connect with the like; minded people and same interest. This site is basically a professional social networking site. Application of this site can increase the professional's network with other librarians; Professional's share their expertise knowledge, ideas with others. Also it is useful to the Library for marketing their services

### **15. LIBRARYTHING**

It is an online web application specially designed for the library activities. It facilitates the user for cataloguing of books, Share it and connects with related people. Many libraries now connect with Library Thing. It is also used for copy cataloguing. Users can catalogue up to two hundred books. It enriches the library OPAC and the Librarians can use current publications of university and send it to the user. It is largely used by the Libraries, Publishers, Authors and Individuals.

### **16. FLICKR**

It is a social media basically used for sharing of bulk photos with unlimited storage space. Library can share the poster, brochures, information bulletin and other library photos to the library patrons. Flickr is created and manage by Yahoo.

### **17. SECOND LIFE**

Second Life is a social media used as an online virtual service for sharing of the videos, voice records, 3D images etc. The libraries are using this service to invite the users by way of streamed media, discussions, classes etc.

### **18. GOOGLE+**

It is one of the social media tool like Facebook which allow the users to add, invite, post, edit, upload videos feature with the help of this tool library can share the information service with the member group for the services like News & events, New services, Video Tutorial etc.

### **19. TEACHER TUBE**

It is a video sharing website similar to YouTube that allow users to share videos and designed for educational purpose. Librarians can use this tool to provide various educational related contents for library users and also useful for teachers in adding teaching content for the students.

### **20. WIKI**

It is a very important and powerful tool which acts as knowledge management tool. This tool helps the library to share the information about its holdings like Library resources, Reference sources and also different section of library can connect with the library patrons.

### **21. PINTEREST**

It is a free web based tool which allows sharing content like images, videos and other objects. Pinterest provides great platform to market the library resources. A library can make its own profile and create boards, pinning photos and video showcasing of the library (Jain, 2013).

### **1.6 Application of Social Media In Libraries:**

- Social media can be used for survey purpose for feedback from the user related to the Library services,
- Library can promote library resources using this social media for Ex.: -Orientation programme of the database, EBooks, Journals etc.
- Library can create book discussions group using social media.
- New arrival of Books, E-resources and other materials.



- Instructional videos for new database and its use.
- Library can link to article, database and other resources.
- Library can provide reference services through the social media.
- Online quiz for Library resources and services.
- Provide research tips.
- Library can also communicate to other library and share their library services to other library.
- Library can provide entertainment or amusement for users as well as the learning tips using the social media.

### **1.7 DISADVANTAGE OF SOCIAL MEDIA IN LIBRARIES**

The important advantages of the social media are:

- Most of the social media are freely available on internet.
- Library can easily share; connect with other libraries and its members free of cost.
- Social media is easy to find the information and sharing purpose.
- It is accessible 24X7 on internet. There is no time limit to access the information.
- Social media are very user friendly and simple to use and it needs no extra training.
- It facilitates the user to connect with other people worldwide over the internet. Create the network globally and built professional link.

### **1.8 DISADVANTAGE OF SOCIAL MEDIA IN LIBRARIES**

Some of the limitations and disadvantages of social media are:

- Opens up the possibility for hackers to commit fraud and launch spam and virus attacks.
- Potentially results in negative comments from employees about the institute and library.
- Too many social media tools to learn.
- Users spending much more time on social media than required.
- Privacy decrease and identity theft.
- Lack of validity of information.
- Lack of knowledge how to use it.
- Lack of interest among the majority of librarian for using social media.
- Inadequate training opportunities for library staff.
- Need uninterrupted internet connectivity and electricity connection.
- Slow speeds of Internet hamper the services.

### **1.9 Conclusion**

The social media tools are gaining its importance day by day. In the field of library science and library it is one of the most important and powerful tool for disseminating the library services. Library professional are using these tools for the purpose of the promoting library services and resource. But in India due to the lack of IT knowledge, awareness among the LIS professionals so also the internet connectivity problem, it is seen only used by the modern IT savvy people and modern libraries. There are different kinds of social media tools available globally but it is the librarians responsibility to make it use and choose a best available among them.

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**Open Source Software Applications In Libraries: Issues And Challenges****Mr. P.S. Kalloli**

Librarian

Bhogawati Mahavidyalaya, Kurukali  
Tal- KarveerDist- Kolhapur State- Maharashtra  
(INDIA)**Dr. Shalini R. Lihitkar**

Associate Professor

Department of Library and Information Science  
Rashtrasant Tukadoji Maharaj Nagpur  
University, Nagpur Maharashtra (INDIA)**Abstract**

Technology has made a great impact on library development and an opensource software become a boon for libraries. Due to characteristics of open source; free and open source code change the entire scenario of automation of libraries. Community based development support leads the innovation in application. This paper describes how open source software are helpful for libraries in various areas of automation. Researcher identified the various categories and listed various open source software are available for libraries to be implemented for rendering quality services. Limitations of open source also discussed here with reasons of failures of open source projects in libraries. To implement the open source software in libraries, librarian s requires the advanced skill sets for effective and successful implementation.

Keywords: Open Source Software, OSS, Open Source evaluation model; Libraries

**Introduction**

Information technology has a key role in development of libraries. An Open source concept is strengthening his root in application development world. Developer communities were contributing the quality-based applications to the world. Technology plays an important role in libraries, as it allows libraries to improve services and operations while managing costs. Open source software is playing a vital role in development of libraries. Libraries are using open source software to enhance the library services. Due to the characteristics of Opensource, libraries are shifting from proprietary applications to open source.

In recent years, open-source software has become more popular in libraries. Many libraries have adopted open-source software for their management systems, digital collections, discovery and search, and online resources. Some libraries have also adopted open source analytics and reporting tools for measuring the usages of online resources. Cost-effectiveness is one of the key reasons for adopting open source in a large scale in library environment. For the purpose of data security and privacy, open source software enables libraries to have greater control over their IT infrastructure and data. Open-source software allows libraries to easily customize and adapt their systems to meet changing needs, which is important in today's rapidly changing technological environment.

Additionally, many libraries are taking part and making contributions to the communities that build open source software, which enables them to directly influence the growth and development of the software.

**Open Source**

Open source refers to a software licensing model where the source code is publicly accessible and can be freely modified, distributed, and inspected by anyone. This approach fosters collaboration, sharing of knowledge and resources, and drives innovation and customization.

Raymond (2000) defines, "Open source is a development method for software that harnesses the power of distributed peer review and transparency of process. The promise of open source is better quality, higher reliability, more flexibility, lower cost, and an end to predatory vendor lock-in."

Open Source Initiative (OSI) definition of open source not limited with freely "access to source code", it also focuses on the free distribution of open source, share, edit and redistribute source code, modifications and derived works, Integrity of The Author's Source Code, No Discrimination Against Persons or Groups and Against Fields of Endeavor, Distribution of License, License Must Not Be Specific to a Product and software, License



Must Be Technology-Neutral. They not only describing the free source code but also enlightening the distribution and licences to all human community (“The Open Source Definition | Open Source Initiative”).

### Characteristics of Open Source

Open-source software is generally free to use, distribute, and modify, which can save organizations a significant amount of money. Source code is available openly so users have the ability to customize the software to fit their specific needs. Application developed through the community support and as per the need of user and such environment open-source allows for greater transparency. The source code is freely available, so no issue of any vendor lock for future development. Open-source software going through community development phase and code is reviewed by many developers so there is possibility of fewer security vulnerabilities. Quality OSS rises to the top in the in the same way cream rises to the top of the milk (Morgan, 2002). Open-source development allows for a more rapid pace of innovation and the ability to build on existing work. Open-source software has a large community of developers and users that contribute to the development and support of the software (Fitzgerald, 2006).

### Open Source Technology And Libraries

Open source technology has had a significant impact on libraries. Variety of applications ae available for managing library service management and services. Recent years, so many libraries coming forward to implement the open source applications, this number is increasing day by day due to huge advantages of it. Libraries are using open source applications due to number of ways i.e.:

- To eliminates the need to purchase proprietary software
- To modify open-source software to meet their specific needs
- To take the benefits of community collaboration based innovative applications for providing quality library services to users
- To use reliable and quality software product with integration of data sharing, migration and exchange standards and protocols
- To implement innovative platform for users

Open source applications have allowed libraries to become more efficient, effective and innovative in providing innovative and effective services.

### Areas of Implementation in Libraries

Most of libraries intend to collect, share information through the available resources. To manage, collect, storage and disseminate and also for retrieving information management and content management systems are required to implement. Wide variety of open source software are available for libraries to assists in management and processing their content workflow, library management software, institutional repository and content management system are the popular open source categories of libraries (Salve, Lihitkar, &Lihitkar, 2012). There are several areas in libraries where open-source software can be used to improve services and operations:

- **Library management systems:** Open-source library management systems can be used to manage library collections, check-out processes, and patron information.
- **Digital collections:** Open-source software can be used to create and manage digital collections, such as digitized books, articles, and photographs.
- **Discovery and search:** Open-source software can be used to improve the discovery and search of library resources, such as through the use of open-source search engines and metadata management tools.
- **Content management:** Open-source content management systems can be used to manage and publish library websites, blogs, and social media.
- **Data visualization:** Open-source software can be used to create interactive data visualizations of library usage, circulation, and collection data.

- **Digital preservation:** Open-source digital preservation tools can be used to ensure the long-term preservation and access of digital library collections.
- **E-resources management:** Open source software can be used to manage e-resources such as e-books, e-journals, and databases.
- **Learning management systems:** Open-source learning management systems (LMS) can be used to provide online learning and training for library staff and patrons.
- **Analytics and reporting:** Open-source software can be used to collect, analyses, and report on library usage data and resource statistics.
- **Outreach & Community Engagement:** Open source software can be used to develop the community engagement platforms i.e. forum, wiki, blogs.

Wide variety of open source software are available for library management, e-resource management, digital content management, library forum, wiki pages, archive management, library website and blog development, document management, learning management. Libraries can use open source software developed for the discussion, feedback mechanism, cloud storage management, polls and surreys and also for reporting and analyses of resources. There is huge collection of open source software are available and libraries cand adopt as per their needs. Table-1 showing various categories of open source with various software available under each categories.

Table – 1: Different Open source software categories

Sr. No	Open Source Software category	Open Source Software
1	Library Management Software	Koha, NewGenlib, Evergreen, SLiMS,OPALS, OpenBiblio, PMB,
2	Digital library software	Dspace, Greenstone, E-Print, MyCore, Fedora, KORA, Invenio, Samvera, CONTENTdm, Islandora
3	Electronic Resource Management System	CORAL
4	Learning Management System	Moodle, ATutor, Chamilo, Claroline, eFront, Dokeos, DoceboLMS, TCExams, ILIAS, Forma LMS
5	Open Data Repository Management System	CKan, DKan, Inverse
6	Wiki Management System	Mediawiki, Docuwiki, Foswiki, Tikiwiki, Twiki, Xwiki
7	Content Management System	Joomla, Wordpress, Drupal, Concrete5, CMS Made Simple, Composr, Mambo, TYPO3, Fork, ProcessWire, Pluck, ImpressCMS, PopojiCMS, Microweber, Croogo, Jamroom,Saurus, WonderCMS, Hotaru CMS, ClipperCMS, Plone,
8	Customer Support/ Reference Service	OSTicket, Faveo Helpdesk, HelpDeskZ, OpenSupports, HelpDEZk, Handesk, Trellis Desk, phpOnline
9	Document Management System	OpenKM Document Management, LogicalDOC Document Management, OpenDocMan, Quotero (Kimios), Xinco, LetoDMis, PhpfileNavigator
10	Discovery Interface	VuFind
11	Cloud Management System	OwnCloud, ProjectSend, Next Cloud
12	FAQ / Bulletin Board	phpMyFAQ
13	Kiosk Management System	Libki
14	E-Book Management System	Calibre
15	Image Gallery Management System	4images, Piwigo, Coppermine, Zenphoto, Gallery, PhpAlbum, Lychee, Plogger, iGalerie, Chevereto
16	RSS Feed	Tiny Tiny RSS, selfoss, SimplePie, FreshRSS, Miniflux,

17	Data Visualization Tools	Candela, Charted, Datawrapper, Leaflet, MyheatMap, Gephi,
18	Plagiarism	Plagie, plagScan
19	Reference Management Systems	Zotero, JabRef, DocearMendely
20	E-portfolio	Mahara, Epearl, Elgg
21	Feedback management System	PHPBack
22	Library Guides	SubjectPlus,
23	Archival Description / Management Software	Omeka, AtoM, Archivematica, CollectiveAccess, ArchivesSpace
24	Digital Cultural Heritage Management	Mukurtu (CMS)
25	Video and Audio Management System	ClipBucket, CumulusClips, MediaDrop, Razuna, Avalon Media System
26	Polls, Surveys	LimeSurvey, LittlePoll, phpESP
27	Journal Management and publishing System	Open Journal System (OJS)
28	Conference Management System	Open Conference Management System (OCM)
29	Forum Management	phpBB, SimpleMachine Forum, Vanilla, FluxBB, Phorum, FUDForum, miniBB, Beehive, MyBB
30	Web Analytics Tool	Matomo (FormerlyPiwik), Open Web Analytics (OWA), Little Software Stats

### **Open Source Software Selection Criteria For Libraries**

Selection of a right software the first step of any automation work. Predefined selection criteria help people to select a right software as per their need. In open source domain, so many evaluation criteria were defined time to time. In 2003 Open Source Maturity by Model (OMM) was designed by Capgemini, Navica's Open Source Maturity Model (OSMM), Atos Origin Method for Qualification and Selection of Open Source Software (QSOS) by Atos origin and Open Business Readiness Rating (OpenBRR) has significant efficiency to select a prominent open source software for user. All these models evaluating software support, documentation, update and maintenance, security aspects, data management elements. Some of these also evaluate the quality and user perspective parameters to evaluate. Thus, there are availability of evaluation models to evaluate overall software quality for selection the right one. These evolution models aimed to design for all the open source software. Here there is no special parameters for specific industry. There was a huge study on implementation of open source in libraries and also the comparative and descriptive study on specific open source used in libraries. This all study were limited to implementation and usability of open source. There a lack of evaluation models specific for open source software used in libraries. So many specialised open source software are used in libraries as per the bias recommendation of others. So, there is strong need of evaluation models for selection open source for libraries. This will be a great challenge in future to select a right open source for libraries. Such selection criteria helpful for libraries to implement a best project in library.

### **Limitations Of Open Source Software Applications For Libraries**

While open-source software has many advantages, there are also some limitations to consider.

- Open-source software may not have the same level of support as proprietary software, and users may need to rely on community-based support. They may not always be compatible with proprietary software, which can limit its usefulness in some environments.



- Installation, customization, and maintenance support, Updates, Modules/components missing, Accountability and Management decisions are most common reasons for the limited use of open source in libraries in India (Upasani, 2016).
- The quality of open-source software can vary, and it may not have the same level of polish as proprietary software. Users may need to have a certain level of technical expertise to use and customize open-source software. Some open-source licenses may have certain restrictions or requirements, such as the requirement to make any changes to the software open-source as well
- Open-source software can be developed in different ways and in different languages, which can make compatibility and integration difficult. Open-source software may have a lack of dedicated maintainers, which can result in a lack of updates, bug fixes, and security patches.

### Failure of Open Source Application in Libraries

Open-source software can fail in libraries for a variety of reasons. Some possible reasons include:

- **Technical expertise:** Open-source software often requires a certain level of technical expertise to install, configure, and troubleshoot, and libraries may not have the necessary staff or resources to do this effectively.
- **Limited support and assistant:** Open-source software may not have the same level of support as proprietary software, and libraries may struggle to find help when they encounter problems.
- **Integration issues with external application:** Open-source software may not integrate well with other systems and software that libraries are already using, leading to compatibility issues and data loss.
- **Data security and privacy:** Some libraries may be concerned about the security and privacy of their patron data and resources when using open-source software, and may be hesitant to adopt it.
- **Customization and scalability:** Open source software may be difficult to customize or scale to meet the specific needs of a library, which can make it less efficient or effective.
- **Funding Issues:** Some libraries may not have the budget to invest in open-source software, or may not be able to allocate the necessary resources to implement and maintain it.
- **Lack of training:** Librarians may not have the proper training or support to make the most out of open-source software, this could lead to a lack of adoption and usage.
- **Limited resources:** Some libraries may not have the necessary resources to implement and maintain open-source software, such as adequate staff, hardware, or bandwidth.
- **Misaligned priorities:** Some libraries may not see the benefits of open-source software, or may have different priorities, which can make it difficult to justify the investment.
- **Lack of Documentation:** Lack of proper documentation, its becomes so problematic to implement the open source software in libraries.

It's important to note that these are potential reasons, and that open-source software can be a great solution for many libraries. However, it's important to carefully evaluate whether open-source software is a good fit for a particular library before committing to its implementation.

### Skills For Librarians for Adoption of Open Source Applications

Librarians who want to adopt open-source software in their libraries will need to have a certain set of skills. These may include:

- **Technical knowledge:** Librarians will need to have a good understanding of the technical aspects of open-source software, including installation, configuration, and troubleshooting.
- **Programming skills:** Librarians will need to have some programming skills, as open-source software is often customizable and requires some level of coding knowledge to modify or improve it.
- **Automation management skills:** Librarians will need to be able to manage the implementation of open-source software projects, including planning, coordination, and budgeting.

- Communication skills: Librarians will need to be able to communicate effectively with other library staff, patrons, and vendors to ensure the successful implementation of open-source software.
- Knowledge of open-source licenses: Librarians will need to have a good understanding of open-source licenses, to ensure that they are in compliance with legal requirements and to avoid any potential legal issues.
- Knowledge of data security and management: Librarians will need to have a good understanding of data security and the measures that need to be taken to protect patron information and library resources.
- Knowledge of data management: Librarians will need to have a good understanding of data management, including data migration, data integration, and data backup, to ensure that library data is properly managed and protected.
- Knowledge of open-source community: Librarians will need to have a good understanding of the open-source community and how to engage with it for support, resources, and contributions.
- Technological Adaptability: Librarians will need to be flexible and adaptable to new technologies and new ways of working.
- Continuous learning: Librarians will need to be open to learning new skills and technologies to keep up with the rapid pace of change in the field of open source software.

### **Future of Open-Source Software Applications In Libraries**

The future of open-source software in libraries is likely to continue to evolve as libraries seek to improve services and operations while managing costs. With the ever growing need to manage and organize large amounts of library data, open-source library management systems are likely to become more widely adopted. Libraries are likely to continue to digitize their collections and open-source software will be used to manage and make these collections more accessible to patrons. Open-source search engines and metadata management tools will be used to improve the discovery and search of library resources. Libraries are likely to continue to use open-source content management systems to manage and publish library websites, blogs, and social media. Libraries will use open-source software to collect, analyse, and report on library usage data and resource statistics. Libraries will increasingly rely on open-source software to manage e-resources such as e-books, e-journals, and databases. Libraries will use open-source digital preservation tools to ensure the long-term preservation and access of digital library collections. Libraries will use open-source Learning management systems to provide online learning and training for library staff and patrons. "The future Is cloudy", development of cloud management will boost the open source initiatives in libraries (Upasani, 2016).

The future of open-source software in libraries looks bright, as open-source software provides cost-effective and customizable solutions that can help libraries to improve services and operations while managing costs.

### **Conclusion**

Development of open source-based applications are becoming the most important aspect of library development. Libraries are coming out of the mentality of using propriety software which are a huge financial burden on libraries. Applications like Koha ,Dspace, Vufind, NewGenlib, WordPress, Joomla and other content management software improving the quality based library services. Libraries are taking steps to implement open source software in their working environment. Worldwide developer communities were working on the innovative modules of information management and contributing the great initiative to develop the remarkable and bug free software to user community. Libraries have to come forward to implement the open source software successfully. Though, skills are new and changing and librarians must be adopt these modern skills binding with this new open source development. In future open source will become the foremost option and powerful tool for library domain.

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## Changing Nature of Academic Library Resources and Services for Based on Users Need

Dr.Salunkhe Vandana<sup>1</sup>

Librarian,  
BVDU,SOPH,Sangli

### Summary

The purpose of this research is to learn more about how satisfied library patrons in Sangli, Maharashtra, are with the library's materials and services and what kinds of issues they run into while using the library. The study used a quantitative survey-based methodology to collect data. Using convenience sampling, information was gathered from patrons of Academic libraries using a pre-made questionnaire. Users of four large Academic libraries in Sangli, Maharashtra were included in the research population. The survey results reveal that most of the respondents use Academic libraries on a daily basis and are satisfied with the services they receive from the distribution staff. According to them, Academic libraries are the go-to places for finding credible information in the community. However, they are disappointed with the internet based administrations presented by nearby libraries and the absence of linkages between libraries and their sponsors. User Need and quality of library services have been improved in Academic sector libraries in Sangli through the data provided by this research. It also emphasises the necessity for policymakers in Maharashtra to establish standards for the nature of administrations given by open libraries.

**Keywords:** Users Need Academic library services, library materials and Academic libraries in Sangli, Maharashtra.

### Introduction

The Academic library is an important community institution because of its role as a reservoir of knowledge and a hub for reputable information. It is maintained for the sake of facilitating access to and dissemination of published materials for the purposes of instruction, reference, scientific inquiry, and recreational reading. Libraries build knowledge bases and provide essential services to help communities realise their ideals. As such, Academic libraries should assess their patrons' informational, instructional, and research requirements before developing appropriate resources (Akbarpour, 2004).

The term "information services" is used to describe the work done by libraries (Aina, 2004). In today's world, it's crucial for everyone to keep current, and libraries can help with that (Manjunatha and Sivalingaiah, 2004). It is possible to define library services as any action taken by a librarian to fulfil the information demands of a patron. It is possible to classify them as fundamental or necessary library services (Popoola & Haliso, 2009).



### Nature of Academic Library

It's important to check in on the library's progress every so often to see whether it's living up to users' hopes and expectations and to solicit their thoughts on how to make any required adjustments. Lack of capacity to enhance services to an acceptable level. If the views of senior library users are unknown, Academic libraries should take steps to urge clients to take advantage of the data assets and services they provide, leading to higher levels of information use (Parvathamma & Reddy, 2009). Libraries should also have a system in place for

addressing patron concerns (Goulding, 2016). The information demands of library users necessitate that librarians create and provide a set of standard, long-standing library value-added services. It is important to underline that Academic libraries should engage in such marketing initiatives in request to move clients to utilize the library's data assets. Esteem added administrations, for example, proficiency preparing for making the most of collections and services, should also be provided, both online and in local communities (Parvathamma and Reddy, 2009).

**SMART (Academic Library)**

<b>S</b>	<b>Specific</b> Clearly State your Goal
<b>M</b>	<b>Measurable</b> Ensure you can Measure Success
<b>A</b>	<b>Attainable</b> Set Goals you know you can Achieve
<b>R</b>	<b>Relevant</b> Set Goals Relevant to your Career or Education
<b>T</b>	<b>Time-Based</b> Set a Deadline for Completion

Customer Happiness There is two distinct ways of looking at "user pleasure," each of which is grounded on a different methodology. Need is seen as a characteristic derived from a product or service after consumption in a "outcome-oriented" approach, whereas in a "process-oriented" approach, it is seen as the difference between predicted and realised Need (Lee, 2009). It is hypothesised that the greater the contentment of library patrons, the more beneficial their library visits will be. Superiority of the Library Industry in Terms of Focus on the Customer

In other words, it means never having to worry about losing a client again. And importantly, quality is determined not by library standards but by the client. Long-term library patronage is based only on the Need of those customers who have a positive subjective experience using the library's services (Gomati &Thanavanthan, 2012). Changes to the library's physical location, library operations, capabilities, and economics as a result of digital library services may also have an impact on customer Need with Academic libraries. It is possible that digital library services offered by Academic libraries may either help or hurt their long-term viability (Michnik, 2015).

**Recommendation**

Academic libraries, particularly successful ones, should get more funding from the government. The library and the computer lab both need climate control systems. To ensure that all library patrons can use the library's Online Access Catalogue (OPAC) to find the resources they need, it should be translated into as many languages as possible. Library users should be encouraged to seek for and acquire digital materials independently. Every Academic library needs a variety of reference desks to better serve its patrons. There needs to be more access to digital resources and online discussion groups for library patrons. At the state and national levels, there is an immediate need to build a network connecting all Academic libraries for the purpose of sharing the most effective practises and most useful information resources.

**Conclusion**

The Academic library serves as a focal point for any culture that values education and national development throughout the course of a lifetime. The majority of people who use the Sangli Academic library are pleased with the building's design, layout, and amenities, including its architecture, ambience, and sitting options, according to this survey. Users complained that the library was closed too early and that there were nowhere to congregate that was visible to passers-by. Currently, books and periodicals are the mainstays of Academic library holdings. Subscribing to the digital library of Maharashtra's Higher Education Commission (HEC) is essential if you want to have access to academic research materials online. Academic libraries in Maharashtra are in dire need of enhancements across the board, particularly in the areas of services, facilities, and resources. There is a pressing need to implement cutting-edge communication channels in libraries, such as web-based chat rooms, IM, and electronic mail. Adequate library resource marketing and promotion is also required. Academic libraries have lagged behind in the Information and Communication Technology (ICT) era because they have not invested in creating technology laboratories to serve the needs of their patrons. It's also not possible to meet the demands of people with impairments or learning problems.

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**Use of Digital Libraries in Learning English Language and Literature****Dr. Neeta Satish Dhumal**Professor and Head, Department of English  
Kamala College, Kolhapur.

Since ancient time libraries have played pivotal role in sharing knowledge. Libraries are the backbone of teaching and learning process. The role of libraries in opening new avenues of knowledge and preserving the culture is indispensable. Because of libraries innumerable opportunities of learning are available which help in shaping innovative ideas which ultimately help an individual to grow and prosper in particular and leads the society to be creative in general. Libraries have evolved in the course of time to a considerable degree. Their resources, processes and services are changing according to the demand of the society. Students, teachers, researchers and scholars are also accepting the innovative services provided by digital libraries. Before a decade or two, use of digital libraries started increasing which accelerated rapidly in the last three years of pandemic. The unprecedented restrictions and lockdown led the stake holders of education field to take shelter of digital resources. Ultimately, demand for digital libraries multiplied tremendously. In this changing scenario the role of libraries are also changing. The teaching learning process is becoming digital and the stakeholders in education field have become resources-centrists. In these days libraries have become the facilitators digital resources. New digital avenues have been made available to the students researchers and scholars.

For the study of English language and literature digital libraries have been playing an important role and the demand for such libraries in English classrooms has increased rapidly. In the English classrooms text books and reference books are essential without which the teaching learning process is incomplete. Today, not only text books and reference books, but also hyperlinks, annotations in the digital form are helping the students in a great manner. Students of English literature need illustrations and explanation of a particular text the hypertext facilitates the study of the original text in an easy way. There are many digital interactive editions which help the students in many ways. Citation of books, old question papers, reference books have been helping the students a lot. Obviously, in the last few years the demand for such resources is increasing. Because of the abundant availability of the digital resources from every corner of the world the resources are also evolving in their nature. These resources are getting more authentic, updated and reliable. Thus, the students of English Language and Literature are seeking thorough knowledge of the concerned subject.

Digital libraries are helping the students of English in improving the four basics skills of language in an effective manner. N-number of audio books, videos, animations, etc. Have made learning experience more enjoyable. Because of these interesting and easy access of e-libraries, students need not go to libraries or seek guidance from the teachers. These resources are self-explanatory and students can do language learning activities by their own. These digital resources are updated and quite relevant as well as reliable. Because of its attractive aspect it has been capable enough in sustaining attention of the learners, sufficiently. Teachers also save their time of preparation of study material. With the help of well-prepared digital material like images, audio, videos, text dialogues, practices, and quizzes the teachers get well-equipped while dealing with the class. There are interesting exercises like scrambled sentence exercise, the image guessing exercise, collocation matching exercise, etc. That keep the students engaged. Teachers make their teaching more effective and interesting with help of these resources. Interaction between the students is increased while learning through digital libraries. Through such language learning resources the process learning is getting more enjoyable. As there is large storage available, ultimately large content is easily stored and it is easily accessible. The digital data is stored in hardware and cloud storage. Considering the importance of digital libraries, it is but obvious that such digital libraries are becoming indispensable in acquiring English language. Such Language Learning Digital Libraries (LLDL) are made available by many universities and other resource generating professionals.

There are many English speaking and listening digital resources which help in widening the horizon of experience of the students. They can easily practice the tasks provided and master the skills. A wide study has been undertaken by the researchers to find out the effectiveness of use of digital resources versus print resources and it is observed that digital resources are getting momentum because of its impact and easy access. Today, many such digital archives are incorporated in the teaching learning process. The print media has its own limitations, for example pronunciation of a particular word, in spite of having transcription, may sometimes fail to reach the expected result while the digital resources available in front of the students are very effective. They can see and listen it properly which increases their comprehension of word pronunciation. English Language Learning Exercises ELLE provide diverse kinds of interactive practice exercises.

While learning History of English literature the multi-modal digital resources are quite helpful for the students and teachers. With the help of interactive audio-visual aids, the students get better experience of learning the history of literature which otherwise would have been boring and painstaking to memorize the same for the examination. Today we have a number of videos digital picture books to explain the exact contemporary scenario of the bygone era. National Digital Library of India has such a vast collection of the same that for the students it is as if a treasure opened at the click of the mouse. Many videos of lectures by the eminent personalities are available there. Same is the case with reading the fiction of various era. Along with fictional works, analysis, interpretation, explanations of these fictional works are available in abundance. There are many projects like 19th Century Collections Online which are used widely while studying particular age, genre or movement. Open Access Institutional and Subscription only digital data basis are utilized for the advance studies in literature. Several projects on fiction, culture or race in various Era are discussed and used for Research and classroom teaching.

MLA international bibliography provides citations to articles, books, book chapters and dissertations which help the researchers in many ways. There are Literature Resource Centers that provide biography, literary criticism and other resources also are made available. Even OED Online Oxford English Dictionary is all the time available for the users. Some Universities like The Princeton University Library has made all these facilities available in the digital format. University libraries also provide arts and humanity citation index or project news which offers innumerable titles from many scholarly publishers. There is JSTOR archive which provides image and full text online. Access to back issues of selected scholars' presentation, abstracts are also made available where millions of entries are found for doctoral dissertations. Even the new publications have been made available to help the researchers. There are certain links for electronic thesis and dissertation centre with the help of such resources research activities have increased. INFLIBNET is involved in modernizing university libraries in India using the state-of-art technologies for the optimum utilization of information. INFLIBNET Shodhganga, e-Shodhsindhu, Shodhgangotri, etc. are providing abundant information which is useful in knowledge expansion.

Certain digital libraries like M Library Research Guides provides selected sources and useful research related sites in the field of English Language and Literature. Whereas on the Online Books Page there is a vast range of online literature, large, general-purpose collections with substantial English-language listings. In National archives Acronyms, Abbreviations, and Initialisms, Books and Book reviews, Citations, Dictionaries, Natural language processing and text analysis, Quotations, Style guides, Technical writing, Text analysis, Thesauri, Vocabulary development, Writing skills, etc. are available. "The **National Digital library of India** is a virtual repository of learning resources which is not only just a repository with a search or browse facilities but it also provides a host of services containing textbooks, articles, videos, audio books, lectures, simulations, fiction and all other kinds of learning media for the learners and users community. It is a project under Ministry of Education, Government of India, through its National Mission on Education through Information and Communication Technology (NMEICT). The objective is to collect and collate metadata and provide full text index from several national and international digital libraries, as well as other relevant resources." Thus, digital libraries have been at the center of teaching learning process. Many such resources are enriching the experience of English Language and Literature Learning.

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**Disaster Management in College Libraries: An Overview****Sachin Suresh Deth**

Assistant Professor

Kamala College, Kolhapur

**Akshaykumar Tanaji Redekar**

Assistant Professor

Kamala College, Kolhapur

**Abstract:**

*Libraries are custodians of information resources. These resources are highly valuable bearing in mind that the collections are usually built over a period of time. By extension, they represent the values and efforts of the library staff, parent institutions and users. The objective of the present study is to ascertain and suggest the roles a librarian & the supporting staff perform during any disaster or emergency. How a disaster can be best managed by pre planning, preparation and preventions. The paper also aims to spread awareness among library professionals in particular for their prospective roles in case of any emergency.*

**Keywords:** Disaster, Disaster Management, Libraries, Types of disaster, Component of disaster plan, Technology, Disaster Preventions.

**1.1 Introduction:**

Prevention is always better than cure; this is also true for libraries. The vitality and relevance of academic libraries are increasingly at risk due to insecurity and visions of ongoing chaos. Faculty and students on/ off campuses expect more from the library due to the growth of information available through the electronic resources. Libraries have very successfully geared themselves to adopt any new technology that is emerging with new innovations every day. Libraries are now functional 24x 7 day and night in a networked world. In the era of www, internet and other technological advancements that have been implemented in library and information centres, the librarians are now facing new challenges in managing the affairs of their institutions in the present scenario of new modes and methods of information bases, new formats of storage, and ever changing information seeking behavior of the users. Librarian is now working as an information scientist, researcher, educator, psychologist, coordinator, public relations officer and what not. With huge responsibilities on the shoulders of a librarian or the information scientist one has also to safeguard and preserve the variety of precious and invaluable information sources from any disaster or any risk. These disasters –natural, man-made or technical can completely damage the information sources. In fact there is no library in the world that is free from risk. In order to avoid disasters to affect the library and information centre in research institutions, it is necessary to have a disaster management plan. Disaster management is the process of measuring or assessing risk and then developing strategies to manage the risk.

**1.2 Review Of Literature:**

**More S.P (2017)** He has studied disaster management plans prepared by college libraries in Ratnagiri district. The main objective of the study is to Determine the level of staff training and awareness on disaster preparedness of the libraries. and Find out the availability of insurance policy of academic libraries. He has concluded that Multi-Faculty colleges are more than single stream colleges in Ratnagiri districts. It is due to the demand and scope of the curriculum available in the colleges.

**Jaeger, Paul T. and others (2008)** in their article, “The 2004 and 2005 Gulf Coast Hurricanes: Evolving Roles and Lessons Learned for Public Libraries in Disaster Preparedness and Community Services” stated that, in the aftermath of the 2004 and 2005 Gulf Coast hurricanes, public libraries played many important roles in their communities, though ensuring access to vital information may have been the most critical service.

**Morgan, G. and Smith, J.G. (1997)** stated in their research project entitled, “Disaster management in libraries: the role of a disaster plan” that, disaster management and planning should be one of the most important aspects

of library management, but in practice it has been found to be a neglected field in librarianship, particularly in South Africa.

**Chakrabarti , Abhijit and Pramanik, Abhiji (2017)** have mentioned in “Disaster Management Methods and Techniques for Library and Information Centres: a framework” that, to save libraries from forthcoming hazards, the authorities should apply suitable methods and techniques of disaster management. To avert and alleviate the outcome of any type of disasters, the researchers present a framework for Methods and Techniques of Disaster Management for Library and Information Centers keeping in the mind of the need of Library and Information Centers.

**Echezona, R. I, Ugwu, C.I and Ozioko R. E. (2012)**, in their research entitled, “Disaster management in university libraries: Perceptions, problems and strategies” explore disaster management in terms of its perception, problems and strategies in University libraries in South Eastern Nigeria. The study revealed a number of strategies that could be put in place to ensure effective disaster management which include training of firefighting equipment in offices and raising awareness of libraries on the need to protect documents from disaster.

### 1.3 Objective Of Study:

1. To highlight the importance of the concept of disaster management, types of disasters has been discussed.
2. The objective of the present study is to ascertain roles a librarian & the supporting staff perform during any disaster or emergency.
3. To suggest the roles a librarian & the supporting staff perform during any disaster or emergency.
4. To determine the availability of disaster prevention equipment.
5. To conclude the disaster management college library.

### 1.4 Definition Of Disaster

1. The United Nations defines a disaster as a serious disruption of the functioning of a community or a society. Disasters involve widespread human, material, economic or environmental impacts, which exceed the ability of the affected community or society to cope using its own resources.
2. The Red Cross and Red Crescent societies define disaster management as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters.
3. A disaster has been defined “is a serious disruption, occurring over a relatively short time, of the functioning of a community or a society involving widespread human, material, economic or environmental loss and impacts, which exceeds the ability of the affected community or society to cope using its own resources”
4. Anderson and McIntyre refer to a disaster that affects libraries as „an unexpected event with destructive consequences to their holdings. It can be a small-scale incident or a full blown emergency, but in either case it requires prompt action to limit damage.”

### 1.5 Types Of Disaster

When we talk about disasters, the first thing that comes to the mind is the destructive forces of nature. The instances where the equilibrium of the nature is disturbed by unforeseen and uncontrollable events are often treated as disasters. They may be termed as „acts of God” which are literally speaking, beyond the control of humans. At the same time disaster may be the result of a reckless or intentional human act and technical difficulties. Three main kinds of Disaster-

#### 1. Natural Disasters

It has included Rain/ Precipitation, Flood /Avalanche, Cyclone/ Tornado, Earthquakes and Drought, Biological Damages, Micro-organisms, insects or vermin infestation, Volcanic eruptions, -Cold wave and thunder

storms/ Blizzard, Wildfires, Heat waves and Mud mud slides, Air quantity: temperature and humidity, Sinkholes etc.

## 2. Human/ Man-made Disaster

It has included Act of War and terrorism, Fires, Water (broken pipes, leaking roofs, blocked drains), Burglary, Vandalism, Arson, Poor design and quality of the buildings.

## 3. Technical Disaster

It has included collapse of shelving and other indoor structural accidents, Computer system failure, Elevator failure, Power failure, Heating the cooling system failure and Telecommunication failure.

### 1.6 Disaster Management For Library

Disaster management plan is a must be incorporated in initial planning of establishing a library. Several smaller pointers for a comprehensive disaster management plan, which are independent of each other but are interlinked, as parts of whole plan are set forth. The disaster and its control mechanism normally go through three stages- before, during and after. All these three stages are kept to be kept in mind while planning to minimize the impact and recover out of potential emergencies. Each disaster plan must cover whole library including staff, readers, sources of information, equipment and infrastructure and it must be a team effort.

Eden and Mathew (1996) define disaster as an incident which threatens human life/ or/ and damages or threaten to damage a library building, collections, equipment and systems. The Dictionary for Library and Information Services (2005) defines a disaster plan as a set of written procedures prepared by the library staff in advance to deal with an unexpected occurrence that has the potential to cause injury to personnel or damage to equipment or to collections and/ or to facilities sufficient to warrant temporary suspension of services. Libraries are the centre of learning. They act as repositories of cultural heritage. Libraries collect, stock, process, organize, disseminate and distribute information/ knowledge recorded in documents. Libraries play a pivotal role in the educational process of formal and non-formal learning, in research and development, cultural activities, spiritual realms, recreation and entertainment. It would be no exaggeration to say that libraries act as a cornerstone of the cultural and civilizational edifice. Modern society is heading towards an information society in which the central instruments of change, force and direction of change are knowledge and information. Libraries through their books, journals and other learning materials enable the readers to partake of the wisdom and knowledge. Libraries and information centres are vulnerable to the whole range of disasters. No library is entirely free from risks and disorders. Thus, libraries support and promote research, thereby contributing to the development of a nation's economy. Libraries cater to the recreational needs of the users. Libraries act as the heart of an academic institution supporting teaching and research. They provide an environment in which creativity is facilitated and fostered. They help preserve the wealth of knowledge which symbolizes the onward march of mankind on the path of progress and enlightenment from the stage of primitivism to modernism.

### 1.7 Component of Disaster Plan

The following are considered to be the main components that a disaster plan should contain:

1. **List of human resources** - This section should include the names, addresses and telephonenumber of all the members of the disaster team.
2. **Reaction procedures**- A summary of the reaction and evacuation procedures, reaction procedures relevant to different types of disasters, the location of disaster supplies must be indicated.
3. **Salvage and recovery procedures**- Once the material is in a safe storage area, prompt decisions must be taken regarding salvage procedures, according to the different types and extent of the damage. Each type of recovery procedures, for example vacuum-freeze drying, air drying
4. **Equipment and supplies**- Equipment will also be necessary, and the location of this equipment must be indicated if available on the premises. The following are examples of equipment that might be required, wet and dry vacuum cleaners, hand-or battery operated



water pumps, fire extinguishers, fans, dehumidifiers, water hoses.

**5.Priority materials-** There should be clear indication of which important and/or rare materials should be evacuated first.

**6.Directory of external services and products-** A list of local providers of services and backup Facilities are an essential part of the disaster plan. Their names, addresses and phone numbers should be given. In each case a second contact name should be given in case the first is not available.

**7.Co-operative arrangements-** The details of co-operative arrangements, which exist to share facilities and services in the event of an emergency

**8.Insurance -** The adherence to insurance conditions is important, in order not to jeopardize the validity of possible claims. For example, the damaged premises might have to be inspected by an insurance agent, before anything is moved or any clearing up begins.

**9.Procedure for obtaining emergency funding-** Very often, in an emergency, ready cash is needed for various reasons, such as the purchasing of extra disaster supplies. Arrangements should be made to have access to contingency funds to meet such needs.

### 1.8 Disaster Prevention

There are some routine activities which should be conducted regularly as preventative measures.

1. Arrangements for regular building inspections- the methods of inspection and the frequency between inspections should be indicated. If inspections are carried out by external contractors, then contract names and phone numbers should be provided.
2. Arrangement for regular inspection of security equipment- facilities such as fire extinguishers and security alarms should be regularly inspected to ensure that they are in good working order. Details of the service contractor, contact names and phone numbers should be provided, as well as information regarding the optimum frequency of such in sections.
3. Arrangement for regular emergency drills- routine emergency and evacuation drills are essential, both to ensure that staff are aware of procedures, and that emergency procedures, exits and equipment such as fire alarms, are in working order. This section should include: The list of staff members responsible for organizing emergency drills. frequency of emergency drills. Details of the evacuation route and the equipment and exits, which must be checked in the process.
4. Technological advancements- the technological advancements especially in the information and communication sector have provided a real yardstick to warn, prepare, share, respond, quickly to a disaster for minimizing its impact and in some cases it is even possible to avoid the damages by a natural disaster. Following technologies can be helpful in the reduction of damage by a disaster.
  - a) Remote Sensing Technology- this technique can be read possible threats of any weather disturbances through its weather and other observation satellites. It helps in gathering data by means of radiation from electro-magnetic spectrum.
  - b) Geographic Information Systems- this system integrates stores, edits, analyzes, and shares geographically referenced data and is helpful during floods, landslides, earthquakes.
  - c) WWW and Internet- it is provide a global platform for instant and automatic sharing of information regarding a disaster and its management.
  - d) Communication Technology- it is particularly effective in mitigation, preparedness, response and recovery. Communication technology used to spread and share information relevant during and before any disaster situations, for examples Internet, Fax, Mobile Phones, E-mail, Radio and Television etc.
  - e) Global Positioning System- this technology by means of which one can pinpoint the exact place where disaster has struck. The exact damage site then can be visited to start rescue operations. This can be very effective for search and evacuation of displaced people or people buried under debris.

- f) Forecasting and Warning System- this plays a vital role in determining the possible action of a disaster. The potentially affected area can be evacuated and people can be moved to safer places even before the disaster. It is effective for folds, cyclones. Earthquake warning systems is being used these days to warn people against its possible strike.

### 1.9 Conclusion

In conclusion it can be stated that it is important that all libraries have a formal disaster plan and disaster management procedures. The library and information science curricula also needs to be modified keeping in view the importance of disaster management for library and information centers and above all because libraries worldwide act as service agencies and librarians as service and information handling managers.

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## Cloud Computing Applications in Academic Libraries

**Dnyaneshwari Shantanu Patil**

Assistant Professor(BCA)  
Kamala College Kolhapur.

### Abstract

Cloud computing technology (ICT) has come up as a blessing for libraries and is offering various opportunities and services for libraries to connect their services with clouds. ICT has forced the libraries and librarians to change its functioning and processing of the information retrieval system. In this digital era, libraries are moving towards advanced level called cloud computing. Cloud computing offers a new importance in computing, it changes how we invent develop, scale, update, maintain and pay for applications and infrastructure on which they are run. This paper tries to highlight basic knowledge about cloud computing, its deployment models, types, and benefits. It also shows cloud computing initiatives for libraries along and its benefits in LIS/LMS (Library Information System)/( Library Management System) domain.

**Keywords-** Cloud computing, infrastructure as a service (IaaS), platform as service (Paas), and software as a service (SaaS), deployment models, LMS

### Introduction-

Cloud Computing provides us means of accessing the applications as utilities over the Internet. It allows us to create, configure, and customize the applications online. The term Cloud refers to a Network or Internet. In other words, we can say that Cloud is something, which is present at remote location. Cloud can provide services over public and private networks, i.e., WAN, LAN or VPN. Cloud computing is a computing model, not a technology. In this model “customers” plug into the “cloud” to access IT resources which are priced and provided “on-demand”.

Applications such as e-mail, web conferencing, customer relationship management (CRM) execute on cloud. Cloud Computing is the delivery of computing services such as servers, storage, databases, networking, software, analytics, intelligence, and more, over the Cloud (Internet).

Cloud Computing provides an alternative to the on-premises datacentre. With an on-premises datacentre, we have to manage everything, such as purchasing and installing hardware, virtualization, installing the operating system, and any other required applications, setting up the network, configuring the firewall, and setting up storage for data. After doing all the set-up, we become responsible for maintaining it through its entire lifecycle.

### Cloud Computing -

Cloud computing technology was designed by the National Institute of Standards and Technology (NIST) to increase the capacity of shared computing resources in a quick and secure way in various locations around the world. Cloud computing is the delivery of computing services over the internet. The name cloud originates from the use of cloud-shaped symbol as an abstraction for the complex infrastructure. Cloud services allow users and businesses to use software and hardware that are operated by third parties at dispersed geographic sites. It provides a shared pool of resources that includes huge storage, space, processing power, networks, and dedicated corporate and user applications.

In cloud computing, the users use the web interfaces like the web browsers; however the software and data are stored at the remote servers. The term cloud computing refers to delivery of computing resources over the internet. It allows users to store their data over the internet instead of storing it into a hard drive. Cloud resources are usually not only shared by multiple users but are also dynamically re-allocated per demand.

The users or Service providers using clouds needs to pay for their resources and services rendered used in cloud computing environment. Cloud computing is not a new technology that suddenly appeared on the web but it is a new form of computing. Cloud computing is a kind of computing technology which facilitates in sharing



resources and services over the internet rather than having these and resources on local servers/nodes or personal devices. Cloud Computing, a cloud vendor is responsible for the hardware purchase and maintenance. They also provide a wide variety of software and platform as a service. We can take any required services on rent. The cloud computing services will be charged based on usage. Cloud computing offers platform independency, as the software is not required to be installed locally on the PC.

The latest technology trend in library science is use of cloud computing for various purposes and for achieving economy in library functions. Since cloud computing is a new and core area the professionals should be aware of it and also the application of cloud computing in library science. A definition for cloud computing can be given as an emerging computer paradigm where data and services reside in massively scalable data centres in the cloud and can be accessed from any connected devices over the internet. Cloud computing is a way of providing various services on virtual machines allocated on top of a large physical machine pool which resides in the cloud. The cloud environment provides an easily accessible online portal that makes handy for the user to manage the compute, storage, network, and application resources.

### **Features of Cloud Computing -**

Cloud computing is becoming popular day by day. Continuous business expansion and growth requires huge computational power and large-scale data storage systems. Cloud computing can help organizations expand and securely move data from physical locations to the 'cloud' that can be accessed anywhere.

#### **1. Resources Pooling -**

Resource pooling is one of the essential features of cloud computing. Resource pooling means that a cloud service provider can share resources among multiple clients, each providing a different set of services according to their needs. It is a multi-client strategy that can be applied to data storage, processing and bandwidth-delivered services. The administration process of allocating resources in real-time does not conflict with the client's experience.

#### **2. On-Demand Self-Service -**

It is one of the important and essential features of cloud computing. This enables the client to continuously monitor server uptime, capabilities and allocated network storage. This is a fundamental feature of cloud computing, and a customer can also control the computing capabilities according to their needs.

#### **3. Easy Maintenance -**

This is one of the best cloud features. Servers are easily maintained, and downtime is minimal or sometimes zero. Cloud computing powered resources often undergo several updates to optimize their capabilities and potential. Updates are more viable with devices and perform faster than previous versions.

#### **4. Scalability And Rapid Elasticity -**

A key feature and advantage of cloud computing is its rapid scalability. This cloud feature enables cost-effective handling of workloads that require a large number of servers but only for a short period. Many customers have workloads that can be run very cost-effectively due to the rapid scalability of cloud computing.

#### **5. Economical -**

This cloud feature helps in reducing the IT expenditure of the organizations. In cloud computing, clients need to pay the administration for the space used by them. There is no cover-up or additional charges that need to be paid. Administration is economical, and more often than not, some space is allocated for free.

#### **6. Measured And Reporting Service -**

Reporting Services is one of the many cloud features that make it the best choice for organizations. The measurement and reporting service is helpful for both cloud providers and their customers. This enables both the provider and the customer to monitor and report which services have been used and for what purposes. It helps in monitoring billing and ensuring optimum utilization of resources.

#### **7. Security -**

Data security is one of the best features of cloud computing. Cloud services make a copy of the stored data to prevent any kind of data loss. If one server loses data by any chance, the copied version is restored from the other

server. This feature comes in handy when multiple users are working on a particular file in real-time, and one file suddenly gets corrupted.

### **Roots of Cloud Computing -**

We trace the roots of cloud computing by focusing at the advancement of technologies in hardware (multi-core chips, virtualization), Internet technologies (Web 2.0, web services, service-oriented architecture), distributed computing (grids or clusters) and system management (data center automation, autonomous computing).

The emergence of cloud computing is linked to these technologies. We take a closer look at the technologies which is the basis of cloud computing that give a canvas of the cloud ecosystem. Cloud computing Internet technologies have so many roots.

There are four roots of cloud computing which are given below:

- 1.Internet Technologies
- 2.Distributed Computing
- 3.Hardware
- 4.System management

### **Deployment Models -**

The cloud deployment model identifies the specific type of cloud environment based on ownership, scale, and access, as well as the cloud's nature and purpose. The location of the servers you're utilizing and who controls them are defined by a cloud deployment model. It specifies how your cloud infrastructure will look, what you can change, and whether you will be given services or will have to create everything yourself. Relationships between the infrastructure and your users are also defined by cloud deployment types.

- 1.Public cloud
- 2.Private cloud
- 3.Hybrid cloud
- 4.Community cloud

### **Public Cloud -**

Public cloud is open to all to store and access information via the Internet using the pay-per-usage method. In public cloud, computing resources are managed and operated by the Cloud Service Provider (CSP). Public cloud may be less secure because of its openness. Public clouds are managed by third parties which provides cloud services over the internet to the public, these services are available as pay-as-you-go billing models. They offer solutions for minimizing IT infrastructure costs and become a good option for handling peak loads on the local infrastructure. Public clouds are the go-to option for small enterprises, which can start their businesses without large upfront investments by completely relying on public infrastructure for their IT needs.

Example:

Amazon elastic compute cloud (EC2), IBM SmartCloud Enterprise, Microsoft, Google App Engine, Windows Azure Services Platform.

### **Private Cloud -**

These clouds are dedicated to a particular organization. That particular organization can use the cloud for storing the company's data, hosting business application, etc. The data stored on private cloud can't be shared with other organizations. The cloud is managed either by the organization itself or by the third party.

Private cloud services are delivered from a business's data center to internal users. This model offers the versatility and convenience of the cloud, while preserving the management, control and security common to local data centers. Internal users may or may not be billed for services through IT chargeback. Common private cloud technologies and vendors include VMware and OpenStack.

**Hybrid Cloud -**

Hybrid cloud solutions are a blend of public and private clouds. Hybrid Cloud is a combination of the public cloud and the private cloud. we can say:

$$\text{Hybrid Cloud} = \text{Public Cloud} + \text{Private Cloud}$$

Hybrid cloud is partially secure because the services which are running on the public cloud can be accessed by anyone, while the services which are running on a private cloud can be accessed only by the organization's users. A hybrid cloud is a heterogeneous distributed system formed by combining facilities of the public cloud and private cloud. For this reason, they are also called heterogeneous clouds.

**Community cloud-**

Community clouds are distributed systems created by integrating the services of different clouds to address the specific needs of an industry, a community, or a business sector. But sharing responsibilities among the organizations is difficult. In the community cloud, the infrastructure is shared between organizations that have shared concerns or tasks. The cloud may be managed by an organization or a third party. Community cloud allows systems and services to be accessible by a group of several organizations to share the information between the organization and a specific community. It is owned, managed, and operated by one or more organizations in the community, a third party, or a combination of them.

Example: Health Care community cloud

**Services Models-**

SaaS, PaaS, and IaaS are the three main cloud computing service model categories. You can access all three via an Internet browser or online apps available on different devices. The cloud service model enables the team to collaborate online instead of offline creation and then share online.

**1. Infrastructure as a Service (IaaS)-**

An infrastructure cloud includes the physical components that run applications and store data. The very first and basic layer of cloud computing is Infrastructure as a service (IaaS). Infrastructure as a Service means that you rent IT infrastructure from a cloud provider, such as Microsoft Azure or Amazon Web Services. This happens on a pay-as-you-go term, meaning you only pay for what you use. It is a cloud computing offering where a vendor provides users access to resources such as storage, data servers, and networking. This means organisations don't need to handle that in-house.

**2. Platform as a Service (PaaS)-**

The second layer of the cloud is the platform – the PaaS (Platform as a service). This layer is a development and deployment environment in the cloud and provides the resources to actually build applications. Just like IaaS, PaaS includes infrastructure, but it also includes development tools, database management systems, middleware, business intelligence, and more. It is designed to support the entire web application lifecycle—from building and testing to deployment, management and updating.

In combination with Infrastructure as a Service, PaaS, therefore, provides the ability to develop, test, run, and host applications. This type of cloud computing is similar to IaaS but is more advanced. With PaaS, apart from simply providing infrastructure, providers also offer a computing platform.

**3. Software as a Service (SaaS) -**

The third cloud layer is the actual Software – the SaaS (Software as a service). This is the layer that provides a complete software solution. Organisations rent the use of an app, and the users connect to it via the internet, usually with a web browser. In a cloud setting, SaaS is therefore the layer where the user consumes the offering from the service provider. It must be web-based and accessible from everywhere and preferably on any device. The service provider manages the hardware and software. One type of SaaS is web-based email services such as Outlook, Gmail, and Hotmail. Here, the email software is located on the service provider's network—together with your messages.



### Traditional Method of Library Management -

Traditional libraries were providing services based on the print media and the developments were based on the manual power. The traditional practices were mainly influenced by cataloguing, classification and indexing and reference services etc. Some of the important components of traditional method of library management are as follows –



Fig. : Traditional Library Management System.

### Cloud Computing In Library Management -

The use of cloud computing services and facilities has begun in libraries, leading to a new concept called cloud library. The use of cloud computing in libraries has transformed the delivery of resources and services. It provides shared access and wider usability. Libraries are shifting their services with the attachment of cloud and networking with the facilities to access these services anywhere and anytime. In the libraries, the following possible areas were identified where cloud computing services and applications may be applied.

#### Building Digital Library/Repositories-

An efficient way to manage resources, information and library related services is to maintain a digital library. The user may be facilitated access via network. Many open source software are providing a platform to digital form, investing on hardware and undertaking MA backup.

#### Searching Library Data -

Cloud computing technology also facilitates libraries for searching and sharing its data for years together. For example, OCLC World Cat service is one of the popular services for searching library data using cloud computing technology. OCLC is offering various library activities pertaining to circulation, cataloguing, acquisition and other library related services on cloud platform through the web share management system.

#### Building Community Power -

Cloud computing technology offers great opportunities for libraries to build networks among the libraries and information science professionals as well as other interested people including information seekers by using social networking tools; the most famous social networking services are Twitter and Facebook which play a key role in building community power. This cooperative effort of libraries will create time saving, efficiencies and wider recognition, cooperative intelligence for better decision-making and provides the platform for innovation and sharing the intellectual conversations, ideas and knowledge.

#### Library Website Hosting -

Cloud computing technology also facilitates many organizations including libraries that preferred to host their websites on third party service providers rather than hosting and maintaining their own servers. For example, Google Sites serves as an example of a cloud service for hosting websites outside of the library's servers and allowing for multiple editors to access the site from varied locations.

**Cloud based library services -**

<b>Cloud Services</b>	<b>Leading Service Providers</b>
E-Mailing Services	Yahoo Gmail Others
Social Networking	Facebook WhatsApp Twitter
Video Services	YouTube Vimeo
File storages &Sharing	Google Drive Dropbox SHAREit
Information & Data Collection services	Survey Monkey Google forms
Event Calendar	Google Calendar Doodle
Online presentation	Slideshare
Online file editing	Service Googledoc
Online Image store	Picasa

**Challenges in the Cloud-**

**Security and Privacy-**

Security and Privacy of information is the biggest challenge to cloud computing. Security and privacy issues can be overcome by employing encryption, security hardware and security applications.

**Portability-**

This is another challenge to cloud computing that applications should easily be migrated from one cloud provider to another. There must not be vendor lock-in. However, it is not yet made possible because each of the cloud provider uses different standard languages for their platforms.

**Interoperability-**

It means the application on one platform should be able to incorporate services from the other platforms. It is made possible via web services, but developing such web services is very complex.

**Computing Performance-**

Data intensive applications on cloud requires high network bandwidth, which results in high cost. Low bandwidth does not meet the desired computing performance of cloud application.

**Reliability and Availability-**

It is necessary for cloud systems to be reliable and robust because most of the businesses are now becoming dependent on services provided by third-party.

**Data Loss -**

Data loss is the most common cloud security risks of cloud computing. It is also known as data leakage. Data loss is the process in which data is being deleted, corrupted, and unreadable by a user, software, or application. In a cloud computing environment, data loss occurs when our sensitive data is somebody else's hands, one or more data elements can not be utilized by the data owner, hard disk is not working properly, and software is not updated.

**Hacked Interfaces and Insecure APIs -**

As we all know, cloud computing is completely depends on Internet, so it is compulsory to protect interfaces and APIs that are used by external users. APIs are the easiest way to communicate with most of the

cloud services. In cloud computing, few services are available in the public domain. These services can be accessed by third parties, so there may be a chance that these services easily harmed and hacked by hackers.

**Data Breach -**

Data Breach is the process in which the confidential data is viewed, accessed, or stolen by the third party without any authorization, so organization's data is hacked by the hackers.

**Conclusion -**

Cloud computing technology provides libraries an opportunity to improve their services and relevance in today's information society. It can bring several benefits for libraries and give them a different future. It helps libraries to deliver its resources, services and expertise at the point of need, within user workflows and in a manner that users want and understand. It should free libraries from managing technology; so more focus is on collection building, improved services and innovation. The cloud computing model will encourage libraries and their users to participate in a network and community of libraries by enabling them to reuse information and socialize around information. This technology can also build a dominant, unified presence for libraries on the Web and give users a local, group and global reach.

All library resources and service distributed on the Internet can be integrated as a whole, which forms a new type of adaptive control service system supporting interlibrary collaboration and service access, as well sharing resources from different libraries. But in practice, the cloud computing is facing the large number of technical problems and engineering problems.

Therefore, it is necessary to encrypt data and make that the data obtained illegally cannot be deciphered. Cloud computing technology is still relatively young in terms of maturity and adoption. The expectation is that it will undergo several changes in the future, in terms of resources, issues, risks, and ultimately best practices and standards. However, there are some sought of great advantages it can potentially provide value for institutions of higher education.

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**Role of Technology in Outreach Activities****Shaikh Sara Nazneen**

Research Student

Department of Education, BAMU, Aurangabad

Our current way of life has undergone significant alteration with the invention of modern technology. Before technology, man relied on basic, crude tools for everything and lacked many modern conveniences. The inherent necessity of technology in our daily life is something that no one can deny. We are all so reliant on technology that we struggle to function without it. Because it is utilized in every aspect of life, technology is significant. Consider your everyday activities and the number of technological devices you use in a single day, and you'll quickly see how crucial technology is to your use of your phone, TV, automobile, computer, and other electrical devices. In actuality, it is rising daily.

Reaching out to a population that hasn't previously had access to a service, wherever they may be, is known as outreach. A simple definition of an outreach strategy is the manner in which you present your services and message. A significant demand for cutting-edge digital items was further generated by digital outreach. Since then, a feedback loop has developed. Smartphones, apps, ads, and social media have all transformed how the general public is reached and made outreach simpler. This outreach has increased demand for more modern, cutting-edge digital goods.

Information and communication technology (ICT) has made significant contributions to social and economic advancements, including increased access to better quality of life and higher employment and productivity. ICT includes electronic tools and methods for managing knowledge and information, such as information-handling tools for creating, storing, processing, disseminating, and exchanging information. ICT advantages can be attained directly, by bettering healthcare delivery and illness prevention, or indirectly, by bettering social infrastructure, economic growth, or other more general population health determinants. If properly planned and implemented, ICT can have a variety of beneficial effects on public health, including better access for communities living in rural or remote areas, support for medical professionals, real-time disease surveillance, data sharing, and data capture, storage, interpretation, and management.

The pandemic problem makes the need for research scientists to be involved in education and public outreach much more obvious than it has been in recent years. In addition to the personal satisfaction they derive from engaging in outreach activities, scientists stress the value of engaging with the general public and being more involved in the community, particularly in schools.

Younger adults are increasingly using the Internet, which has greatly increased the popularity of social networking services and sites (SNSs). According to Enders and Wineland (2012), "without having a social media presence in 2012 is like not having a telephone in 1992." Students today are probably going to interact with organisations that make use of the newest technological trends. As a result, libraries are now using various social media platforms for various objectives in an effort to engage the younger population. Libraries have embraced social media platforms including Facebook, blogs, wikis, and Twitter. Despite SNSs Orkut is commonly utilised in the Asia Pacific area and South America, but Bebo is more well-known in Australia and Europe. While sites like Facebook and MySpace are well-known in the West, such as the U.S. Weibo, the Chinese equivalent of Twitter, and Renren, the Chinese equivalent of Facebook, are primarily used in China, in contrast. It has been asserted that libraries' usage of social media has improved their attempts to encourage outreach and inclusiveness. Despite the fact that a number of related issues have cropped up, including challenges in determining the precise impact of social media on advertising library services and in determining which social media technologies are best for users, Enders and Wineland pointed out that, "a social media policy to guide postings and set limits on use can address several of these concerns."

According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), ICT "provides teacher education and training, enhances professional skills, provides better conditions for lifelong learning, and provides universal education for those on the outside." The United Nations Millennium Development Goals emphasize ICT as a means of reaching out to the underserved, listening to them and learning from their experiences. Online education is essential for students whose physical presence in the classroom is limited due to work or family circumstances, geographic restrictions, health issues, or other constraints. While homes seem to prefer face-to-face interactions in classrooms, the number of on-campus online colleges and online courses offered by colleges has increased over the past decade. must understand the institution's unique ICT needs.

### Frequently used resources for Digital Outreach ?

- **Social Media Channels** – Twitter and LinkedIn: While sharing the latest news with the community in a fashionable way is Twitter's strength, LinkedIn is often used to share company ethos, employer branding, Twitter news details, job postings, and more. LinkedIn is rapidly emerging as a professional digital outreach media platform as it continues to add new tools, such as LinkedIn Elevate, to increase awareness and increase the impact of your content.
- **Social Media Channels** – Facebook: Facebook is seen as a more personal social networking platform. Many companies can benefit from this network. For example, a startup that caters to the needs of working mothers (such as babysitting) can greatly benefit from social networks like Facebook. Registration for activities such as cooking classes can be easily managed through platforms such as Facebook. However, it is important to note that Facebook is also an important resource for crowdfunding activities, gaining the attention and trust of the masses, so it is not limited to such activities.
- **Blogs and LinkedIn articles** : Articles are one of the most nuanced forms of public relations, and also the most direct. for example. You can write a LinkedIn article to advertise your new job and explain the role of each position within it. This article can now be shared any number of times. In the more nuanced version, companies aren't communicating directly about what they're doing, but about broader issues (related to them, of course). It brings traffic and awareness.
- **Events and Hackathons** : One of the best ways to effectively reach large audiences is through events. Events can be tailored to specific audiences. For example, a startup challenge is best formulated as a hackathon. It's fun, and the real solutions can come out of it eventually. Any future collaboration that results from the connection is a bonus.
- Webinars are one of the most popular outreach activities for disseminating technology, science, and future ideas to the masses. Webinars eliminate scheduling conflicts by making lectures and presentations easy to access and listen to later. This made the information flow very easy and accessible. Webinars are great, but they're not the easiest place to network. To make real connections, he can host small intimate events with small groups of 5 to 8 people. These help foster real connections because there is plenty of time to talk .
- **SEM:** search engine marketing. By optimizing the keywords searched on search engines, SEM brings certain options to the top of search results. This will increase page views and increase awareness and knowledge of the product in question.
- PR resources never run out. Websites, emails, applications, and advertisements all serve as outreach resources. It is the strategy chosen for public relations that determines the resources used.

### Conclusion:

Educators are always striving to personalize student learning. Technology can help you reach new heights with access to real-time student data, longitudinal information, content, apps, and more. Technology is helping educators create integrated learning environments, leverage digital tools for formative and summative assessment, and bring new models of learning and teaching to the classroom. In the process of personalizing learning,

technology is empowering students by giving them ownership of how they learn, making education relevant to their digital lives, and preparing them for the future. Access to technology and resources beyond the walls of the classroom inspire students to become problem solvers, critical thinkers, collaborators, and creators. Where technology is successfully integrated into the classroom, students develop a lifelong love of learning.

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**Cloud Computing applications in Academic libraries****Miss. Sakshi Sachin More (B.C.A-II)**

Miss. Rasika Rajaram Gawade (B.C.A-II)

Kamala College, Kolhapur

**Abstract**

*Pertaining to the 5th law of library science, library is a growing organism. Today we are living in the age of information and with modern technology. A well equipped library is the heart of any higher education and also helpful for the growth of national economy by providing information on time. Internet is one of the greatest technologies of this millennium; it revolves around advancements in ICT applications in all the area of our routine work. Library is place where information is gathered, stored and retrieved by the patrons. Now-a-days information is available only on online and in digital format and the need of information is high. So the librarian should use the modern technology to store the digital information in a wide number which can be retrieving by various users. Such technologies are Web 2.0, server virtualization, cloud computing etc... And this technology can be used to store more information at libraries as content creation, storage, e-learning, archives etc... Data storage is the basic task of any library; hence this paper gives the clear picture of impact of cloud computing at libraries.*

*In this paper, an attempt has been made to give an overview of how service, platform and infrastructure forms of cloud computing have been used to serve library needs.*

*This paper discusses about characteristics, types, advantages and disadvantages, role of cloud librarian, use of technology, initiatives of cloud computing. An attempt has also been made to overview the areas in libraries where this technology can be deployed to provide better library services and the productivity of library staff can be augmented.*

**Keywords:** *Cloud computing, web 2.0, cloud librarian, cloud architecture, requirements for cloud computing at library, cloud platform for libraries, cloud and its applications.*

**Introduction**

Till recently, and now too many organisations and individuals use computers to work alone, inside a business or home by investing on hardware, software and maintenance. It is the need of the day to adopt the latest technology in an organization. With the help of technology, it can ensure quick and appropriate access of every information when needed. Cloud computing is use of internet for computing needs. There are so many forms of using this technology. For example, use of software applications, storing data. Etc Accessing computing power or platform to build applications is also the example of such services. From e-mail, to word processing or photo sharing or video sharing there are so many services one can choose from. These services can be accessed from any type of internet connection and are secure.

These services are also backed up. The best live example of this is Gmail, which is increasingly used by organisations and individuals to run their e-mail services. Google Apps being free for educational institutions is widely used for running different applications, especially the email services, which was earlier run using their own computer servers. This has saved cost for the organisations as they pay per use for applications and services and time for the computer staff, which they can invest on running other services.

Google takes care of the upgrading, backup and maintenance of servers. Libraries are using computers for running services such as Integrated Library Management Software (ILMS), website or portal, digital library or institutional repository, etc. These are either maintained by parent organisation's computer staff or library staff. It involves investment on hardware, software, and staff to maintain these services and undertake backup and upgrade as and when new version of the software gets released. "Now many university libraries are virtualizing servers and desktops, collaborating with other campus organizations and saving money and staff time" (Kelley, 2012).

Cloud based services provide a means for libraries to free resources on information technologies and focus on libraries' core competencies- manage, organize and disseminate information. "Cloud based services

are also bringing cutting-edge services to libraries that have less information technology expertise,” according to Zhu (2012). Library professionals in most cases not being trained in maintaining servers find it difficult to undertake some of these activities without the support of IT staff from within or outside the organisation. Now cloud computing has become a new buzzword in the field of libraries, which is blessing in disguise to run different ICT services without much of a problem as third-party services will manage servers and undertake upgrades and take backup of data. Even though there are some concerns in using cloud services such as privacy, security, etc., some of the libraries have already embraced this new technology to run some of their services. Many libraries now adapting 3M cloud libraries applications

## Research Description

### 1) Cloud Computing:-

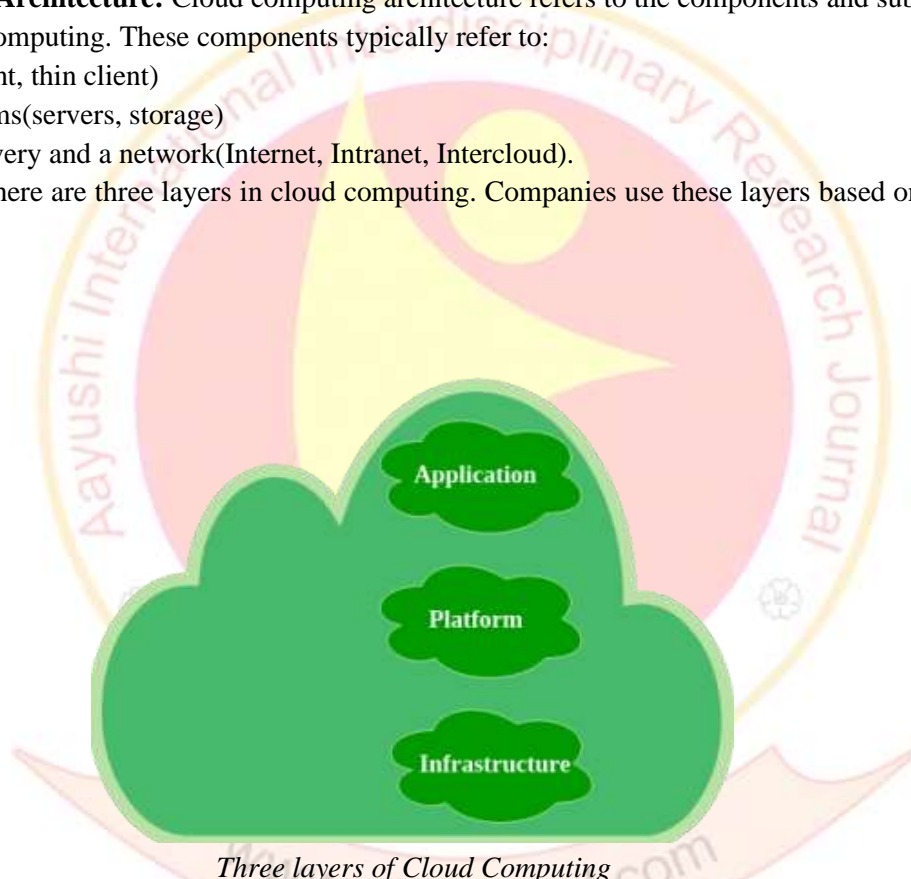
In Simplest terms, cloud computing means storing and accessing the data and programs on remote servers that are hosted on the internet instead of the computer’s hard drive or local server. Cloud computing is also referred to as Internet-based computing.

**Cloud Computing Architecture:** Cloud computing architecture refers to the components and sub components required for cloud computing. These components typically refer to:

1. Front end(fat client, thin client)
2. Back-end platforms(servers, storage)
3. Cloud-based delivery and a network(Internet, Intranet, Intercloud).

**Hosting a cloud:** There are three layers in cloud computing. Companies use these layers based on the service they provide.

- Infrastructure
- Platform
- Application



*Three layers of Cloud Computing*

At the bottom is the foundation, the Infrastructure where the people start and begin to build. This is the layer where the cloud hosting lives. **Now, let’s have a look at hosting:** Let’s say you have a company and a website and the website has a lot of communications that are exchanged between members. You start with a few members talking with each other and then gradually the number of members increases. As the time passes, as the number of members increases, there would be more traffic on the network and your server will get slow down. This would cause a problem. A few years ago, the websites are put on the server somewhere, in this way you have to run around or buy and set the number of servers. It costs a lot of money and takes a lot of time. You pay for these servers when you are using them and as well as when you are not using them. This is called hosting. This problem is overcome by cloud hosting. With Cloud Computing, you have access to computing

power when you needed. Now, your website is put in the cloud server as you put it on a dedicated server. People start visiting your website and if you suddenly need more computing power, you would scale up according to the need.

**2) Cloud Computing: Characteristics:-**

**3) Types of Cloud Computing:-**



**4) Cloud Computing: Applications in Libraries:-**

There are some organizations and business houses who functions as cloud computing vendors for library softwares, search engines and digital libraries etc and offer the use of cloud computing platform for these purposes. Some of these are:

**OCLC’s Webscale:-**

OCLC is perfectly using cloud computing for libraries and set an example for others. Years together OCLC has been functioning as a cloud computing vendor because they provide cataloguing tools over the internet and allow member institutions to draw on their centralised data store<sup>13</sup>. OCLC has implemented the plan of library management systems i.e. worldshare management services (WMS). This service has services for many areas like acquisitions, analytics, resource sharing, cataloguing and license management components. It offers the entire library collection management in a cloudbased application. The main purposes of webscale are that libraries can share their resources, data, and innovation with ease. To serve these purposes, it has some certain features that work together to provide its users better library services. In other words, this will generate cost benefits for libraries and efficiencies not possible when utilizing disparate, specialised systems<sup>13</sup>. The service promises to include privacy, security, scalability and technical support.

**Ex-Libris Cloud:-**

Ex-Libris is a leading library software vendor from USA. It provides cloud based solutions to automate the library operations. It developed most products for locally implemented solutions and adapted them to a hosted environment later. Its website claims that over 5300 in more than 80 countries are deploying Ex-

Libris solutions for automation of their library resources. It allows libraries to enhance their efficiency and lower the cost of operations and extend their value through launching new services. It has changed the way to provide traditional management of library resources through its library based system, Alma. It besides ensuring considerable savings in total cost, involved in the implementation of software and the use of a centralized cloud service enables libraries to easily influence the collaborative efforts of the library community to provide effective services for their users<sup>14</sup>. To provide worldwide cloud-based services; it has opened data centers at various locations. The company promises to adhere to data security, updates, and standards in



implementing cloud services to safeguard the interests of customers.

#### Duraspace's DuraCloud:-

Duraspace provides open source repository solutions by undertaking turnkey projects for organizations and libraries to enable them to share scholarly literature using DSpace and Fedora Commons. It is particularly devoted to improve and sustain Fedora and DSpace. These open source repository solutions are very famous for IR solutions. Its new service DuraCloud provides digital preservation support services in the cloud, which is cost effective and simple for libraries. DuraCloud helps libraries to move content to the cloud and store it with different service providers to eliminate the risk of data loss. The cloud solutions offered include online backup, preservation and archives, media access, online sharing, and cloud broker<sup>16</sup>.

#### OSS Labs:-

OSS labs from India is using Amazon's elastic cloud computing platform owing to the various capabilities of Amazon such as high durability of data, ISO standards based strong information security and flexibility. It is expected that the OSS labs will be able to provide robust open based solutions to demanding customers<sup>17</sup>. OSS Labs offer hosting and maintenance services for Koha ILS and DSpace IR. OSS Labs use Amazon's cloud services. Library operations have become very cost effective and the library staff need not to worry about maintenance of software etc.

#### 5) Enhancement Of Library Services By The Use Of Cloud Computing:-

**E-books Lending Service:** Cloud platform is now becoming popular to lend the E-Books.

**Union /Shared Catalogue/OPAC:** Network libraries can use same platform and give access to their collection on one platform. Through cloud computing creation of union catalogue becomes very easy.



Figure 1: The Model for Cloud University Library

**Document Download Service:** One can download documents easily if permit access in the network.

**Digital preservation/Scanning Service:** Digitization and scanning work can be done centralized and so one can avoid duplication of such time consuming work. Libraries can preserve the collection in digital form in the form of archives.

**Article Delivery Service:** Cloud computing can be used for article delivery service to the patrons by the libraries. Publishers are already using this technology for providing access to libraries.

**Current Awareness Service:** To provide current awareness service to all patrons has become easy with cloud computing.

**Document Sharing:** Document sharing has become easy with cloud computing. **Bulletin board service:** We can provide new services on bulletin board with this technology.

**Information Common:** Information common like bibliographical data, content pages, cover pages, question papers, syllabus, and other reading material we can share on one platform. It helps in improving economy of library and avoids duplication of library purchase.

**Collection Development:** Cloud computing is used for collection development. Duplications can be easily avoided and alternate resources can be located and made accessible to patrons.

**File sharing:** To share various files in electronic form become easy with the cloud computing.

**Information Discovery:** Cloud provides a platform to store all information that one can access anytime from anywhere; so information discovery and searching become easy and it is very useful for researchers.

**E-Learning:** In the E-Learning environment too, cloud computing is boon. Study material can be kept on the cloud for reference purpose and online examinations also can be conducted. Discussions, revisions can be done at a time from different places.

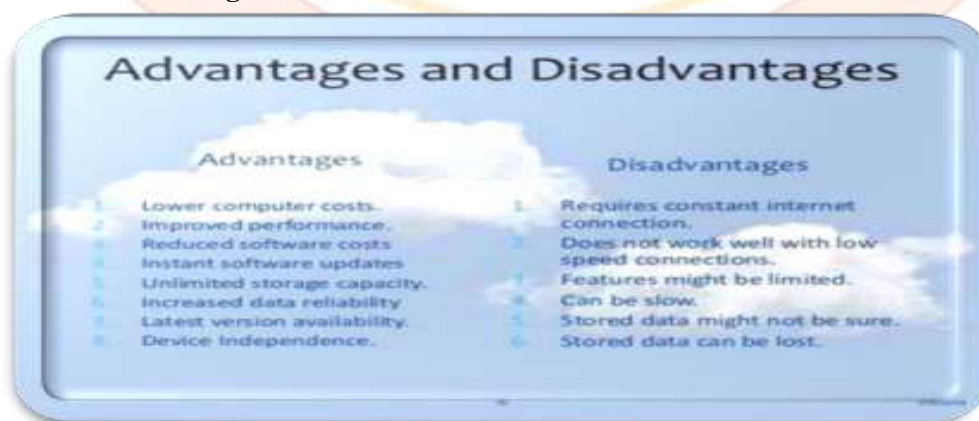
**Information Literacy/Orientation:** Libraries can conduct information literacy and orientation courses on the cloud. They can keep the tutorials, videos, presentations and files on the cloud for user's orientation.

**Social Interactions with the users:** Can be possible because of cloud computing.

### 6) Role of Cloud Librarian:-

- To track member information and transactions
- To provide Access Pin to students and define validity. (Pin can be auto generated; Validity can be set in the software)
- To communicate with the member libraries contributing their resources to cloud for resource sharing
- To communicate with the Ebooks, Journals publishers & distributors, consortia, database providers
- To discuss with faculty members and subject experts, librarians for preparing different packages for different faculties and classes.
- To update technological skills
- To give technological support to member libraries
- To conduct training and awareness programs for readers
- To provide interlibrary loan facility
- To track usage record of cloud resources
- To develop digital collection
- To keep record of physical resources too for providing referral service
- To deal with Cloud resource and players and select the best bargain.
- To maintain own virtual profile by creating his or her blog or social network profile to interact with the user. The same platform can be used for providing reference services and educating the users on cloud resources or how to use the Cloud infrastructure.
- To use his or her strategic planning and decision making ability at different stages of developing a Cloudlibrary.

### 7) Advantages and Disadvantages:-



**\*Questions\***

**Research Paper Questionnaire!**

- Cloud Computing Applications in Academic Libraries

1) Do you know about Cloud Computing ?

Yes

No

2) Which type of Library is more helpful nowadays ?

Digital (Modern) Libraries

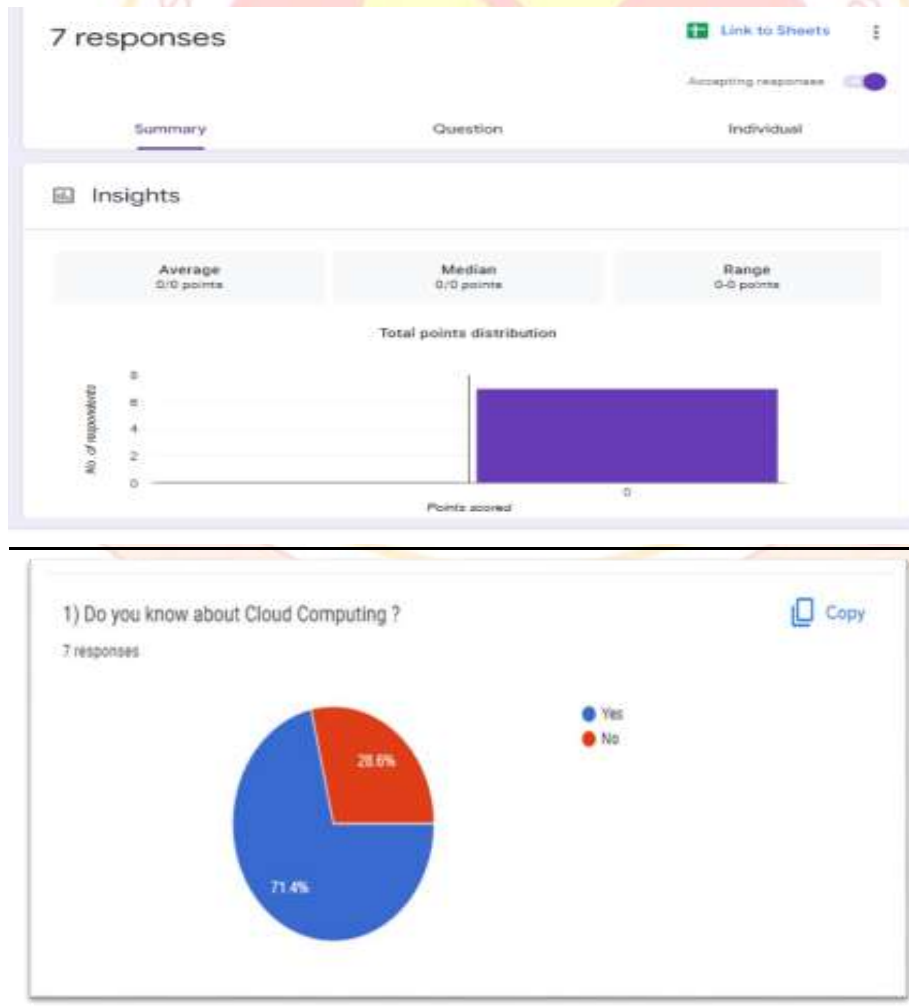
Traditional Libraries

3) What do you think 'Is Cloud Computing helpful in Academic Libraries' ?

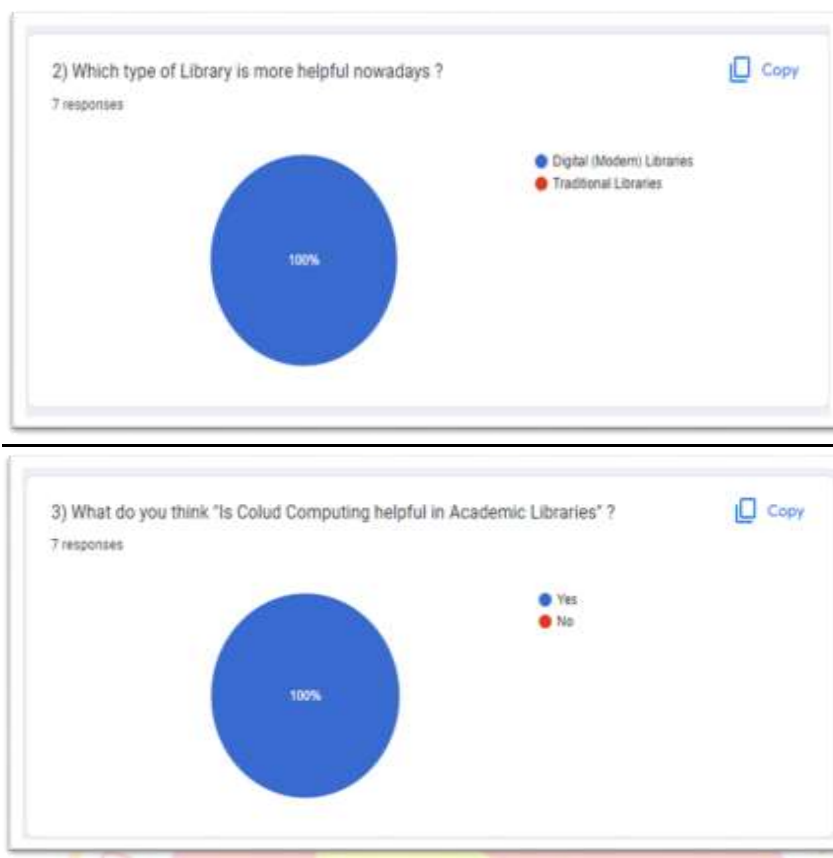
Yes

No

**Responses**







### Conclusion

Cloud computing is a new phenomenon in the computer systems technology. It emerged due to the developments in internet and associated technologies. This phenomenon is in developing stage and will be very helpful for the organizations, if the services are being used with care. However, this technology is very helpful for organizations like libraries in automating and managing their services. This technology has certain advantages. With the help of this technology, library staff will be free from managing the servers. It is commonly seen that it is difficult for library professionals to manage the technologies. The reasons may be their skill levels; there may be lack of support from IT section or absence of IT facilities in the organizations. In these circumstances, the library staff hinders in undertaking automation of library activities or developing digital library services, etc. This technology can be of immense importance in helping libraries to undertake modern ICT activities. The library professionals need not to worry technical side of ICT activities. They only have to add content of resources. Libraries in the west countries have already been using the cloud computing technology for their resources. Slowly the awareness about this technology is spreading in other parts of the world and with the use of ICT and internet; library professionals are sharing their library resources with others on the platform. Thus this technology will be of immense use to libraries, if handled with utmost care and awareness about its disadvantages.

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## Use of e-resources among LIS students of Yashwantrao Chavan Maharashtra Open University, Mumbai Region

**Mrs. Kadambari H Manjrekar**

Librarian,

VPM's B. N. Bandodkar College of Science, Autonomous, Thane

kkkardekar@vpmthane.org

**Mrs Deepali Dewre**, Librarian,

Guardian Degree College of Arts, Commerce and Science, Dombivli

### Abstract:

*This paper discuss about awareness of use of e-reference sources by Library and Information Science (LIS) students of Yashwantrao Chavan Maharashtra Open University Students in Mumbai region. Questionnaire method was used for the data collection. The purpose of the study is to explore the level of awareness, purpose of accessing e-resources, difficulties while accessing e-resources and highly used e-resources by LIS students.*

Keywords : e-resources, Shodhaganga, NOPR

### Introduction:

Information resources play an important role in providing library services. Information and Communication Technology (ICT) bring a radical change in the information world. Use of ICT in libraries fetched transformation in library functioning. Information sources and services provided by the libraries are two prime factors of any library. With the advent of ICT, both this factor functions more efficiently. The technology has led to the spread of electronically available information resources, which include CD – ROM databases, electronic mails, Online Public Access Catalogues (OPAC) and internet browsing (Olatokunbo & Okiki).

Print and e-resources are important tools in scholarly communication process. Easy availability, accessibility, cost-effectiveness and time-saving are the significant features that attract user fraternity towards e-resources. E-resources are the electronic representation of information that is available in various forms. Electronic resources deliver the collection of information as full text Databases, E-journals, Image Collection, Multimedia in the form of CDs, Tape, Internet, Web Technology etc. E-resources include e-journals, e-discussions, e-news, data archives, e-mail online chatting, etc (Singh, 2019). The awareness and use of electronic information resources in the libraries is a need of time.

### Objectives:

1. To explore level of awareness of e-resources among LIS students.
2. To distinguish the usage of highly used e- resources by LIS students.
3. To recognise the purpose of accessing the resources.
4. To identify the difficulties while accessing e-resources.

### Review of Literature:

Sivakami and Rajendran (2019) describes the awareness, access and usage of E-resources available in the Arts and Science Colleges Faculty Members in Erode District and found majority of faculty using the e-resources for their notes preparation. Kolawole & Francis (2020) with descriptive research method examined the use of Electronic Resources and Print Resources among Lecturers in two private universities in South-South Nigeria. It is revealed that libraries should acquire, maintain adequate and balanced information resources, as both print and e-resources were found to be relevant sources of information for effective teaching, learning and research. Priyadharshini (2015) describes the awareness, access and use of electronic resources available in the Agricultural College and Research Institute, Madurai. Kaur and Kathuria (2016) in their research work proposed the

suggestions as regular training to the staff in terms of adequate skills, compulsion on students to attend the user education programme/training provided by the library, more emphasis on Consortia to increase the use of e-resources in the library, implementation of web 2.0 in providing library services , a mandatory paper on library resources for all the classes can be started and upgradation of infrastructural needs as per requirement.

**Aregbesola& Oguntayo (2014) in their research discussed about** level of awareness, frequency of access, motivations and constraints of electronic resources use among faculty members in Landmark University, Omu-Aran. They further recommended about repeated user training sessions for better usage as well as stimulate the interest of users.

Chanda (2016) explored the level of awareness of e-resources, their usage pattern, frequency of usage of e-resources, perception of college students on the use of electronic resources, the challenges faced by them while using electronic resources, and their level of satisfaction with using the e-resources.

**Scope:**

Yashwantrao Chavan Maharashtra Open University (YCMOU) is one of the best University in Maharashtra providing education through distance mode. It has many study centres all over Maharashtra. The present study was conducted in VPM’s B.N.Bandodkar College of Science, Thane and K.P.B. Hinduja College of Commerce, Charni Road, Mumbai region. The population selected was Master of Library and Information Science Students affiliated to YCMOU and students of both the colleges.

**Research Methodology**

The study implemented Survey method and data was collected through online Questionnaire. The questionnaire was distributed to 54 respondents through email and what’s app. out of 54, only 37 respondents replied to the questionnaire. After data verification, 36 responses were selected for final data analysis. Data analysis was carried in Ms-Excel application and represented in tabular and graphical format.

**Data Analysis and Interpretation :**

A) Gender wise distribution of responses received:

Name of Study Center	Respondents (Male)	Respondents (Female)
<b>Bandodkar College</b>	09	18
<b>Hinduja College</b>	01	08
	10 (27.77%)	26 (72.22%)

**Table 1 : Genderwise Distribution of respondents**

Table 1 shows that 27.77% respondents are male and 72.22% are female.

B) Type of gadgets used while accessing e-resources:

Type of gadget	No of Responses
Mobile	17 (47.22%)
Laptop	04 (11.11%)
Computer	02 (5.55%)
Mobile and laptop	10 (27.77%)
Mobile and computer	03 (8.33%)

**Table 2 : Types of gadgets**

The responses were collected to find out the most popular gadget used for accessing information and it is found that mobile is highly preferred gadget by 47.22% respondents followed by laptop (11.11%). Few respondents also used both the gadget as mobile and laptop (27.77%) & mobile and computer is used by 8.33 % respondents.



C) Type of e-resources used:

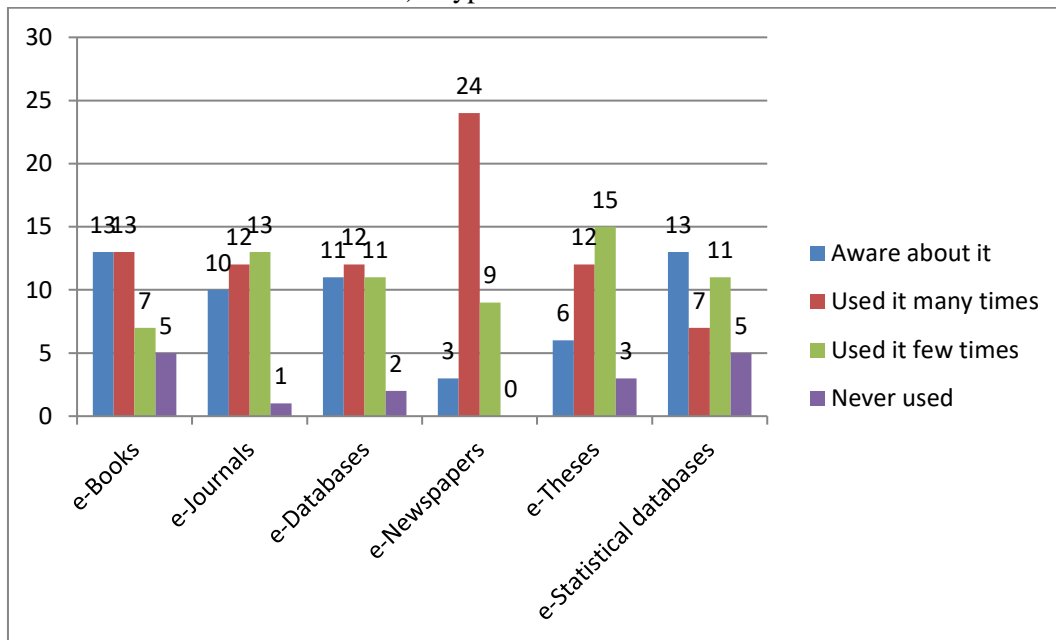


Figure 1 : Type of e-resources used

Figure 1 shows that e- Newspapers is highly used e-resource by 66.66% respondents followed by e-books 36.11%, e-Journals and e-Theses by 33.33% respondents. E-books and e-statistical databases were never used by 13.88 % respondents respectively. It is revealed that 13.88% respondents never used e-books and e-statistical databases & e-newspaper is the resource which was used by every respondent.

**D) Use of e-Resources:**

As a LIS student, it is essential to actually use few e-resources regularly. Thus the respondents were enquired to indicate for the highly used open access resources which they used. Shodhaganga was on the priority list. 55.55% respondents gave their preference to Shodhaganga followed by Google books (44.44%), NDLI 38.88% and Google Scholar (27.77%). 8.33% respondents never accessed N-List, DOAJ, NOPR, NDLI and Project Gutenberg respectively. It is also revealed that Shodhaganga resource is highly popular and used by every respondent.

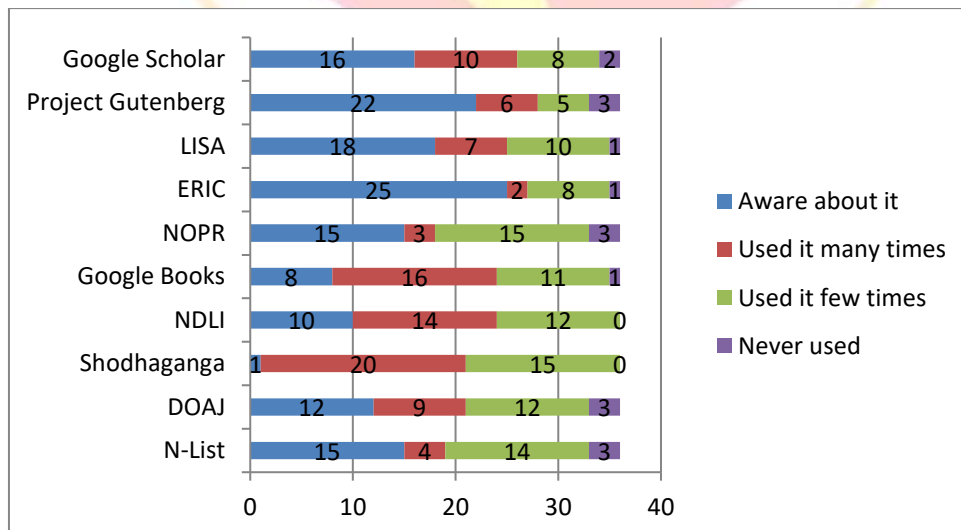


Figure 2 : Use of e-Resources

E) Purpose of accessing e-resources:

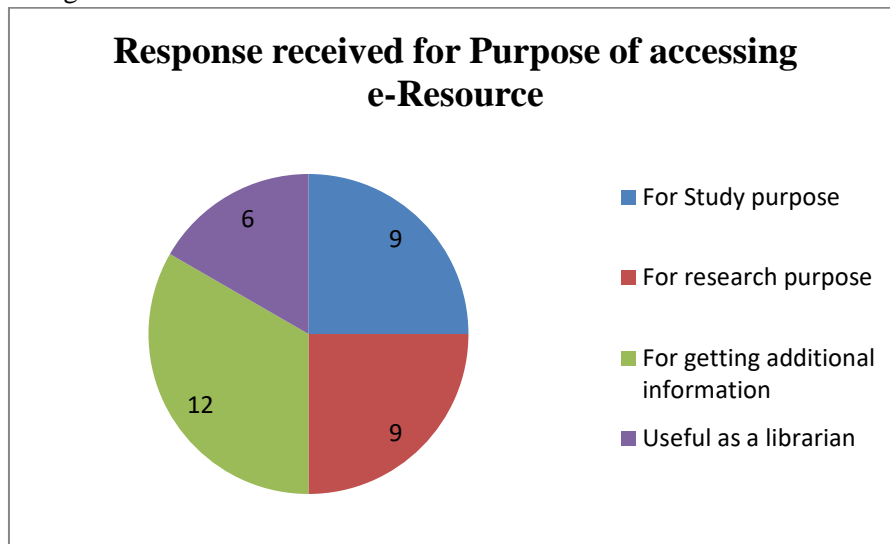
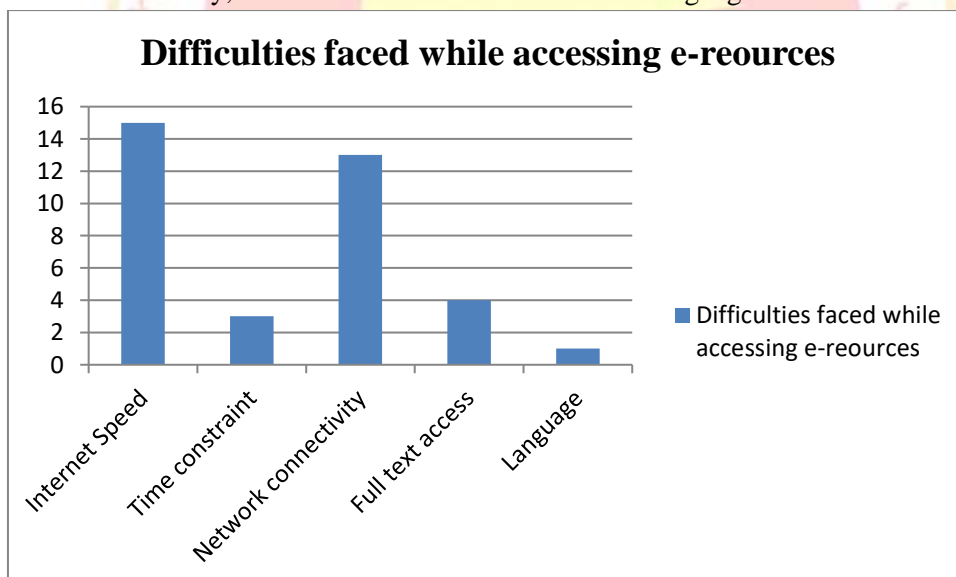


Figure 3 : Purpose of accessing e-resources

Figure 3 shows the main aim of accessing the e-resources is to get information reported by 33.33% respondents, followed by study and research purpose by 25% and only 16.66 % access e-resources from the librarian point of view.

F) Difficulties faced while using e-resources:

e-resources is the easiest medium to access information, which save the time of the user also. Still there are difficulties found in accessing the e-resources. Internet speed is the highly rated barrier by 41.66% respondents followed by network connectivity, time to download the material and language is the one of the difficulty.



Discussions :

The study revealed that mobile is the preferable gadget to access the information. However quite a good number of respondents use mobile and laptop both gadgets to access the e-resources.

The study also explore that E-newspaper is highly used resource followed by e-books, e-Journals, e-databases, e-Theses and Statistical databases.

It has been found that Shodhaganga is highly used resource followed by e-books and NDLI. It is clear from this study that Shodhaganga and NDLI is known to every respondent.

It is found that respondents used e-resources mainly for the purpose of acquiring more knowledge, followed by research and study purpose. Very few refer the e-resources as a useful tool in their future librarianship career. Internet connectivity found the major barrier in accessing the resources. Very few respondents mentioned about language barrier.

**Conclusion :**

E-resources are an important tool for the user community. This study come out with the fact that users are aware of e-resources but still they are not accessing it full fledged. More awareness about open access resources need to be created especially for LIS students, as today's students are tomorrow's Library professionals, so it is highly essential to aware LIS students about most of e-resources.

**Acknowledgement :**

The authors extended their thanks to Vidya Prasarak Mandal, Thane and the Principal, VPM's B. N. Bandodkar College of Science, Autonomous, Thane for their valuable support. Also thanks to all the respondents who have spent their valuable time for responding to the questionnaire.

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**RFID तंत्रज्ञान का बढ़ता प्रवेश****कविता विडुलराव सोळंके,**संशोधक विद्यार्थी, ग्रंथालय व माहितीशास्त्र विभाग,  
डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद  
ई-मेल : kavitasolanke7676@gmail.com**रेडियो-आवृत्ति पहचान :**

एक वस्तु का उपयोग है (आम तौर पर RFID टैग के रूप में संदर्भित) जिसे एक उत्पाद, पशु, या व्यक्ति में रेडियो तरंगों के इस्तेमाल से पहचान करने और ट्रैकिंग के उद्देश्य से लगाया या डाला जाता है। कुछ टैग को कई मीटर दूर से और पाठक की दृष्टि रेखा के पार से पढ़ा जा सकता है।

अधिकांश RFID टैग में कम से कम दो हिस्से होते हैं। पहला, एकीकृत परिपथ है जो सूचना का भंडारण और उसे संसाधित करने, रेडियो आवृत्ति (RF) संकेत को मोड्युलेट और डीमोड्युलेट करने और अन्य विशेष कार्य करने के लिए जिम्मेदार है। दूसरा, संकेतों को प्राप्त करने और प्रसारित करने के लिए एक एंटीना है।

**प्रस्तावना :**

आम तौर पर तीन प्रकार के RFID टैग होते हैं: सक्रिय RFID टैग, जिसमें एक बैटरी होती है और ये संकेतों को स्वतंत्र रूप से संचारित कर सकते हैं, निष्क्रिय RFID टैग, जिसमें बैटरी नहीं होती और संकेत संचरण प्रेरित करने के लिए एक बाहरी स्रोत की जरूरत होती है और बैटरी समर्थित निष्क्रिय (BAP) जिसे जागने के लिए बाहरी स्रोत की आवश्यकता है लेकिन इसमें महत्वपूर्ण उच्च फॉरवर्ड लिंक क्षमता है जो अत्याधिक पठन सीमा प्रदान करता है।

RFID के कई अनुप्रयोग हैं, उदाहरण के लिए, यह उद्यम की आपूर्ति श्रृंखला प्रबंधन में प्रयोग किया जाता है ताकि वस्तुसूची पर नज़र रखने में और प्रबंधन की कुशलता में सुधार किया जा सके।

इतिहास और प्रौद्योगिकी पृष्ठभूमि

**सूक्ष्मकरण****वर्तमान उपयोग**

मोबाइल फोन से भुगतान, परिवहन भुगतान, कार-स्वामित्व का किफायती विकल्प : कार सहभाजन, सीज़न पार्किंग टिकट, टोल सड़कें, सार्वजनिक पारवहन (बस, रेल, मेट्रो), परिसंपत्ति प्रबंधन और खुदा बिक्री, उत्पाद निगरानी, IT परिसंपत्ति निगरानी, परिवहन और संभार-तन्त्र, जानवरों की पहचान, RFID ट्रैकिंग और मांसपैकरों के लिए अनुरेखण, सूची प्रणाली, RFID जनादेश, वॉल-मार्ट अधिदेश, रक्षा विभाग अधिदेश, प्रमोशन ट्रैकिंग, पुस्तकालय, मानव की पहचान, पासपोर्ट, स्कूल और विश्वविद्यालय, संग्रहालय, सामाजिक खुदरा बिक्री, दौड़ समय, लैप स्कोरिंग, स्की रिसॉर्ट, मानव प्रत्यारोपण, विविध, बारकोड का प्रतिस्थापन, टेलीमेटरी, मरीजों और अस्पताल के स्टाफ की पहचान, विनिमय और मानकीकरण, EPCG GEN2, व्यावसायीकरण, समस्याएँ और चिंता, वैश्विक मानकीकरण, सुरक्षा एवं चिंताएँ, शोषण, पासपोर्ट, परिक्षण, विवाद, गोपनीयता, मानव प्रत्यारोपण, सरकारी नियंत्रण.

**इतिहास और प्रौद्योगिकी पृष्ठभूमि :**

1945 में लिओन थेरेमिन ने सोवियत संघ के लिए एक जासूसी उपकरण का आविष्कार किया जो श्राव्य जानकारी के साथ घटना रेडियो तरंगों को पुनः संचारित करता था। ध्वनि तरंगों एक डायफ्राम को हिलाती थी जो रेजोनेटर के आका को थोड़ा बदल देती थी, जो प्रतिबिंबित रेडियो आवृत्ति को मोड्युलेट कर देती थी। यद्यपि यह उपकरण एक श्रव्य उपकरण था, ना कि एक पहचान टैग, इसे RFID प्रौद्योगिकी का एक पूर्ववर्ती माना जाता है, क्योंकि यह भी वैसे ही निष्क्रिय था, जो एक बाह्य स्रोत से विद्युतचुम्बकीय तरंगों द्वारा शक्तिशाली और सक्रिय हो जाता था।

इसी प्रकार की समान प्रौद्योगिकी, जैसे युनाइटेड किंगडम में 1915 में आविष्कार की गई IFF ट्रांसपोंडर, का द्वितीय विश्व युद्ध में मित्र राष्ट्रों द्वारा विमानों की दोस्त या दुश्मन के रूप में पहचान करने के लिए नियमित रूप से इस्तेमाल किया गया। अभी भी ट्रांसपोंडर का, अत्याधिक शक्तिशाली विमान द्वारा आज भी प्रयोग किया जाता है। RFID की पड़ताल करता एक अन्य कार्य, 1948 का हैरी स्टॉकमन का महत्वपूर्ण पेपर है, जिसका शीर्षक था “कम्युनिकेशन बाई मीन्स ऑफ रिफ्लेक्टेटेड पॉवर”

(IRE की कार्यवाही, PP 1196-1204, अक्टूबर 1948)। समस्याओं को हल करने और उपयोगी अनुप्रयोगों के क्षेत्र का पता लगाने से पहले काफी अनुसंधान और विकास का किया जाना है।

मारियो कार्डुल्लो का साँचा : US PATENT 1973 में आधुनिक RFID का पहला सच्चा पूर्वज था; स्मृति वाला एक निष्क्रिय रेडियो ट्रांसपोंडर। प्रारंभिक उपकरण निष्क्रिय था, जो पूछताछ संकेत के द्वारा संचालित होता था और 1971 में न्यूयॉर्क पोर्ट अथॉरिटी और अन्य संभावित प्रयोक्ताओं के लिए इसका प्रदर्शन किया गया और यह एक टोल उपकरण के रूप में इस्तेमाल के लिए 16 बिट स्मृति के साथ एक ट्रांसपोंडर से बना था। बुनियादी कार्डुल्लो पेटेंट संचारण मीडिया के रूप में RF, ध्वनि और प्रकाश के इस्तेमाल को आवृत्त कररता है। 1969 में, निवेशकों के सामने प्रस्तुत मूल व्यापार योजना ने परिवहन (ऑटोमोटिव वाहन पहचान, स्वचालित टोल प्रणाली, इलेक्ट्रॉनिक लाइसेंस प्लेट, इलेक्ट्रॉनिक मालसूची, वाहन मार्ग, वाहन प्रदर्शन निगरानी), बैंकिंग (इलेक्ट्रॉनिक चेक बुक, इलेक्ट्रॉनिक क्रेडिट कार्ड), सुरक्षा (कर्मियों की पहचान, स्वचालित द्वार, निगरानी) और चिकित्सा (पहचान, रोगी इतिहास) में इसका इस्तेमाल दिखाया (कृपया उद्धरण जोड़ें)।

रिफ्लेक्टिव पॉवर (मोड्युलेटेड बैकस्केटर) RFID टैग का एक बहुत प्रारंभिक प्रदर्शन, निष्क्रिय और अर्द्ध-निष्क्रिय, दोनों का, स्टीवन डेप, अल्फ्रेड कोएले और रॉबर्ट फ्रेमन द्वारा 1973 में लॉस एलामोस नेशनल लेबोरेटरी में किया गया।<sup>12</sup> यह पोर्टेबल प्रणाली 915 मेगाहर्ट्ज पर संचालित होती थी और 12-BIT टैग का प्रयोग करती थी। इस तकनीक का उपयोग आज के अधिकांश UHFID और माइक्रोवेव RFID टैग द्वारा किया जाता है।

संक्षिप्त नाम RFID जे जुड़ा प्रयोग, अमेरिकी रक्षा विभाग द्वारा विभाग द्वारा अपने दस लाख से अधिक कंटेनरों पर सावी<sup>13</sup> सक्रिय टैग का उपयोग है जो महाद्वीपीय अमेरिका (CONUS) के बाहर जाता है। सबसे बड़ा निष्क्रिय RFID प्रयोग, डिफेन्स लॉजिस्टिक्स एजेंसी (DLA) का है जो ओडिन द्वारा 72 सुविधाओं पर लागू है।<sup>4</sup> जिससे एयरबस के लिए वैश्विक प्रचार किया।<sup>5</sup> जो विश्व भर में 13 परियोजनाओं से निर्मित था।

#### सूक्ष्मकरण : RFID

RFID वह प्रौद्योगिकी है जिसमें उन्हें अन्स सामानों में छिपाना या डालना आसान हो जाता है। उदाहरण के लिए, ब्रिस्टल विश्वविद्यालय के शोधकर्ताओं ने 2009 में RFID की ओर इस प्रवृत्ति के प्रौद्योगिकी के विकास के साथ जारी रहने की संभावना है। हालांकि, दूरी से पढ़ने की क्षमता इन्वर्सस्क्वायर सिद्धांत द्वारा सीमित है।

सबसे छोटी RFID चिप का रिकॉर्ड हिताची के नाम है जजो 0.05MM X 0.05 MM है। MU चिप टैग, नए RFID टैग से 64 गुना छोटे हैं।<sup>17</sup> विनिर्माण सिलिकॉन-ऑन-इन्सुलेटर (SOI) प्रक्रिया के उपयोग द्वारा सक्षम होता है। “धूलकण” के आकार के ये चिप्स, 128 बिट रीड ओन्ली मेमोरी (ROM) का उपयोग करके 38 अंकों की संख्या को संग्रहित कर सकते हैं।<sup>18</sup> एक बड़ी चुनौती एंटेना को जोड़ना है, इस प्रकार पठन सीमा को केवल कुछ मिलीमीटर तक सीमित कर दिया।

रेडियो आवृत्ति (0.125-0.1342, 0.140-0.1485, 13.56 और 840-960 मेगाहर्ट्ज) के प्रयुक्त संभावित विकल्पों को ऑप्टिकल RFID (या OPID) में 333 THZ (900 NM), 380 THZ (788NM), 750 THZ (400 NM) पर देखा जा सकता है।<sup>19</sup> RFID के अजीब एंटेना को फोटोवोल्टिक घटकों और IC पर IR-LED के साथ प्रतिस्थापित किया जा सकता है।

#### वर्तमान उपयोग :

कीमत के घटने से RFID प्रौद्योगिकी तेजी से प्रचलित हो रही है। जनवरी 2003 में जिलेट ने घोषणा की कि उसने एलियन टेक्नोलॉजी को 500 मिलियन टैग का आदेश दिया है। जिलेट के V.P। डिक कांटवेल, जो अब CISCO के कर्मचारी हैं, का कहना है कि कंपनी ने हर टैग के लिए “दस सेंट के अन्दर” भुगतान किया है। जापानी HIBIKI पहल, इस कीमत को कम करके 5 येन (4 यूरोसेंट) पर लाना चाहता है। और जनवरी 2009 में एन्वेगो ने 5.9 सेंट के टैग की घोषणा की। (कृपया उद्धरण जोड़ें)

#### मोबाइल फोन से भुगतान :

क्रेडिट कार्ड कंपनियां अब किसी भी मोबाइल फोन से गैर-संपर्क भुगतान कार्ड जोड़ने के लिए भुगतान समाधान तलाश रही हैं। एक वाहक समाधान जो इस उद्योग की जरूरत को पूरा करे अब उपलब्ध है। 3MM से कम मोटा, यह उप-कार्ड 2 वर्षों तक अपने पर्यावरण को झेल सकेगा और एक बार डाले जाने के बाद तत्त्वों से रक्षित और वाहक में सुरक्षित रहेगा।<sup>10</sup>

2009 की गर्मियों के बाद से, दो क्रेडिट कार्ड कंपनियां विशेष MAAICROSD कार्ड के विकास के लिए डलाय, टेक्सास आधारित डिवाइसफिडेलिटी के साथ काम कर रही हैं। जब इसे एक मोबाइल फोन में डाला जाएगा तो यह MICRO SD कार्ड, एक निष्क्रिय टैग और एक RFID रीडर, दोनों हो सकता है।<sup>11</sup> MICRO SD डालने के बाद, एक उपयोगकर्ता का फोन बैंक खाते से जुड़ जाएगा और उसका उपयोग मोबाइल भुगतान में किया जाएगा।

विवोटेक के संयोजन में डेयरी क्वीन ने भी अपने नए वफादारी और पुरस्कार कार्यक्रम के हिस्से के रूप में मोबाइल फोन पर RFIDS का प्रयोग शुरू कर दिया है। अपने फोन पर लगाने के लिए संरक्षक, एक RFID टैग प्राप्त कर सकते हैं। सक्रियण के बाद, फोन में प्रोन्नति और कूपन प्राप्त होंगे, जिसे विवोटेक के विशेष NFC उपकरणों के द्वारा पढ़ा जा सकता है।

इसी तरह, 7-ELEVEN, एक नए संपर्क-मुक्त भुगतान प्रणाली को बढ़ावा देने के लिए MASTER CARD के साथ काम कर रहा है। परीक्षण में शामिल होने वालों को एक मानार्थ नोकिया 3220 सेलफोन दिया जाता है – सक्रियकरण के बाद, इसे एक RFID सक्षम मास्टकार्ड क्रेडिट कार्ड के रूप में, दुनिया भर की 7-ELEVEN की किसी भी श्रृंखला में इस्तेमाल किया जा सकता है।<sup>12</sup>

NOKIA के 2008 के उपकरण, 6312, में RFID क्षमताएं भी हैं। सक्षम हैंडसेट का उपयोग करते हुए क्रेडिट कार्ड की जानकारी को संग्रहीत किया जा सकता है और बैंक खातों तक सीधे पहुंचा जा सकता है। इस फोन को, अगर मोबाइल भुगतान के लिए एक वेक्टर के रूप में इस्तेमाल किया जा तो इसमें इस मायने में अतिरिक्त सुरक्षा होती है कि इसमें उपयोगकर्ताओं को भुगतान के प्राधिकृत होने से पहले एक पासकोड या पिन दर्ज करने की आवश्यकता होगी।<sup>13</sup>

#### **परिवहन भुगतान :**

सरकारें, यातायात प्रबंधन के लिए RFID अनुप्रयोगों का उपयोग करती हैं, जबकि मोटार वाहन कंपनियां, उत्पाद प्रबंधन के लिए विभिन्न RFID ट्रैकिंग समाधान का उपयोग करती हैं। इन समाधानों में से कई, भविष्य में एक साथ काम कर सकते हैं, हालांकि गोपनीयता नियम कई पहल को उस गति में आगे बढ़ने से रोकते हैं जिसकी तकनीक अनुमति देता है।

#### **कार-स्वामित्व का किफायती विकल्प : कार सहभाजन**

ZIPCAR की कार सहभाजन सेवा, कार में ताला लगाने और उसे खोलने और सदस्य की पहचान करने के लिए RFID कार्ड का उपयोग करती है।

#### **सीजन पार्किंग टिकट :**

एक सफल पायलट के बाद, आवास एवं विकास बोर्ड (HDB) सिंगापुर ने 2006 में कागज सीजन पार्किंग टिकट (SPT) को प्रतिस्थापित करते हुए RFID को लागू करने के लिए दो निविदाओं को जारी किया। सफल निविदाकारों ने मार्च 2007 में के बाद से SPT को RFID टैग वितरित किया।<sup>14</sup> वियतनाम में, फुटेक के पास इस देश में कई बिल्डिंग के लिए स्वचालित जांच टिकट प्रणाली लागू है।

#### **टोल सड़कें :**

- RFID का इस्तेमाल मोटरवेज, पाकिस्तान, में E-टॉलिंग के लिए किया जा रहा है, जो NANDRA द्वारा कार्यान्वित है।
- तुर्की में, RFID का उपयोग एक भुगतान पद्धती के रूप में मोटरवेज और ब्रिज में (नवम्बर 2008) से किया जाता है; (कृपया उद्धरण जोड़ें) इस्तांबुल में इलेक्ट्रॉनिक बस टिकट में भी इसका प्रयोग किया जाता है।
- RFID का मलेशिया एक्सप्रेस भुगतान प्रणाली में प्रयोग किया जाता है। प्रणाली का नाम है टच। गो। जैसा कि इस प्रणाली का नाम इंगित करता है, इस कार्ड को जब उपयोगकर्ता इसे छूता है तो केवल एक RFID कार्ड के रूप में कार्य करने के लिए डिज़ाइन किया गया है।
- नार्वे में, सभी सार्वजनिक टोल सड़कें, ऑटोपास नाम से ज्ञात एक RFID भुगतान प्रणाली से लैस हैं।
- सिंगापुर में सार्वजनिक परिवहन की बसों और ट्रेनों में निष्क्रिय RFID को लागू किया गया है जिसे EZ-LINK कार्ड के रूप में जाना जाता है। भीड़ भरे शहर के आंतरिक क्षेत्रों में यातायात को चर टोल द्वारा नियंत्रित किया जाता है जिसे स्टोर्ड वैल्यू कार्ड (कैशकार्ड के रूप में ज्ञात) के उपयोग को एक सक्रिय टैगिंग प्रणाली के साथ उपयोग द्वारा लागू किया जाता है।
- टोरंटो, ऑटारियो, कनाडा में और आसपास के क्षेत्रों में इलेक्ट्रॉनिक रोड मूल्य निर्धारण प्रणाली को ४०७ राजमार्ग पर टोल भुगतान जमा करने के लिए किया जाता है।
- RFID टैग का इस्तेमाल जिन टोल बूथ पर इलेक्ट्रॉनिक टोल संग्रहण के लिए किया जाता है उनमें शामिल हैं जॉर्जिया का क्रूज कार्ड, कैलिफोर्निया का फास्टट्रैक, कोलोराडो का E-४७०, ईलिनोइस का I-पास, ओक्लाहोमा का पाईकपास, विस्तार करते पूर्वी राज्यों का E-ZPASS प्रणाली (मैसाचुसेट्स के फास्ट लेन, डेलावेयर, न्यू हैम्पशायर टर्नपिक,



मेरीलैंड, न्यू जर्सी टर्नपिक पेंसिल्वेनिया टर्नपिक, वेस्ट वर्जीनिया टर्नपिक, न्यूयॉर्क की थ्रूवे प्रणाली, वर्जीनिया, मेन टर्नपिक और रोडे द्वीप के न्यूपोर्ट ब्रिज सहित), सेन्ट्रल फ्लोरिडा भी इस तकनीक का इस्तेमाल अपने E-PASS प्रणाली के माध्यम से करते हैं।

- ई-पास और सनपास पारस्परिक रूप से संगत हैं। फ्लोरिडा का सनपास, टेक्सास में विभिन्न प्रणाली जिसमें शामिल हैं D/FW का NTTA टोलटैग, ऑस्टिन मेट्रो TXTAG और ह्यूस्टन HCTRA EZ टैग (जो प्रारंभिक २००७ के रूप में किसी भी टेक्सास टोल रोड पर मान्य हैं), केन्सास का K-टैग, "क्रॉस-इजराइल राजमार्ग" (राजमार्ग ६), फिलीपींस का साउथ लुजोन एक्सप्रेसवे E-पास, ब्रिस्बेन के क्वींसलैंड मोटरवेज का गोवाया टैग (पहले E-टोल के नाम से ज्ञात), ऑस्ट्रेलिया में सिस्टम, ऑटोपिस्टा देल सोल (सन्स राजमार्ग), ऑटोपिस्टा सेन्ट्रल (केन्द्रीय राजमार्ग), ऑटोपिस्टा लोस लिबर्टडोरेस, कोस्टानेरा नोर्टे, वेस्पुसियो नोर्टे एक्सप्रेस और वेस्पुसियो सुर शहरी राजमार्ग और हर आने वाला शहरी राजमार्ग (एक "मुक्त प्रवाह" साधन में) चिली में निजी निवेशकों को छूट प्राप्त, हांगकांग के सभी टोल सुरंग (ऑटोटोल) और पुर्तगाल के सभी राजमार्ग (विया वेर्डे, टोल के पूरे नेटवर्क का विस्तार करने वाली दुनिया की पहली प्रणाली), फ्रांस (लिबर-T प्रणाली), इटली (टेलीपास), स्पेन (VIA-T), ब्राज़ील (सेम परार VIA FÁCIL)। टैग, जो आम तौर पर सक्रिय प्रकार के होते हैं, वाहनों के बूथ से गुजरते समय दूर से पढ़े जाते हैं और टैग जानकारी का प्रयोग एक पूर्व भुगतान खाते से टोल राशि को नामे लिखने के लिए किया जाता है। यह प्रणाली टोल प्लाजा के माध्यम से यातायात को गति देने में मदद करती है, चूंकि यह RFID वाहन टैग के लिए तारीख, समय और बिल के आंकड़े दर्ज करता है। ग्रेटर टोरंटो एरिया में प्लाज़ा और कतार मुक्त ४०७ एक्सप्रेस टोल रूट, सभी बिलिंग के लिए एक ट्रांसपॉंडर (एक सक्रिय टैग) के प्रयोग की अनुमति देता है। इससे लाइसेंस प्लेट द्वारा एक वाहन की पहचान करने की आवश्यकता समाप्त हो जाती है।

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## ज्ञानस्रोत के नए भाषिक संदर्भ (सोशल मीडिया के परिप्रेक्ष्य में.....)

प्रा.डॉ.छाया शंकर माली।

सहायक प्राध्यापक,  
हिंदी विभाग  
कमला कॉलेज, कोल्हापुर ।

सुश्री. सुष्मिता संजय निगड़े (बी.ए.३)

सुश्री. शाहीन रियाज खान (बी.ए.३)

### शोध सारांश :

सोशल मीडिया और हिंदी भाषा का अनन्य साधारण महत्व है। दोनों एक दूसरे के पूरक हैं। भाषा का प्रयोग विज्ञान रखना हर एक जिम्मेदारी है। फेसबुक ट्विटर इंस्टाग्राम, व्हाट्सएप, टेलीग्राम इन के माध्यम से भाषा के क्षेत्र में बुलाकर परिवर्तन आ रहे हैं। भाषा का प्रवाह कठिन ता से सरलता की ओर जा रहा है। पारिभाषिक शब्दावली में परिवर्तन हो गया है। ज्ञान स्रोत की भाषाएं संदर्भ बदल रहे हैं। आज ज्ञानस्रोत का स्वरूप परिवर्तित हो रहा है। ग्रंथालय हमारे पॉकेट में आ गया है। सोशल मीडिया का यह एक ऐसा चमत्कार है कि घर बैठे किसी भी किताब को पढ़ सकते हैं। आधुनिक युवा पीढ़ी इसका प्रचुर मात्रा में लाभ उठाते हुए दिखाई देती है।

**बीज शब्द :** ज्ञानस्रोत, भाषिक संदर्भ, सोशल मीडिया, हिंदी भाषा, टेलीग्राम, फेसबुक, इंस्टाग्राम, व्हाट्सएप, पारिभाषिक शब्दावली।

### प्रस्तावना :

सोशल मीडिया यह आज की जानकारी का विषय है। दुनिया में कोई ऐसा नहीं होगा जिसने सोशल मीडिया का ज्ञान ना हो। सोशल मीडिया आज के युग में हमारे जीवन का एक अविभाज्य घटक है। जिसके बिना आज के लोग अपना जीवन अधूरा समझते हैं। सोशल मीडिया एक ऐसा प्लेटफॉर्म है जहां, पर लोग अपनी भावनाएं या अपने साथ होने वाली घटनाओं विचारों को लोगों के साथ साझा करते हैं। सोशल मीडिया भी नेटवर्क प्लेटफॉर्म के जैसे ही होता है। जिस प्रकार नेटवर्क एक दूसरे को जोड़ने का कार्य करता है। ठीक उसी प्रकार सोशल मीडिया भी एक दूसरे को जोड़ता है।

सोशल मीडिया का अर्थ है- ऐसा मीडिया जो बाकी सारी मीडिया प्रिंट इलेक्ट्रॉनिक और समांतर मीडिया से अलग है। 1997 में इंडेऊ वेनरीच द्वारा "सिक्सडिग्री" नामक दुनिया का सबसे पहला सोशल मीडिया प्लेटफॉर्म लांच हुआ था। सोशल मीडिया इंटरनेट के माध्यम से एक वर्चुअल वर्ल्ड बनाता है जिसे उपयोग करने वाला व्यक्ति सोशल मीडिया के किसी प्लेटफॉर्म फेसबुक, ट्विटर, इंस्टाग्राम आदि का उपयोग कर पहुंच सकता है। सोशल मीडिया के संस्थापक मार्क ज़ुकेरबर्ग एडुआर्डो सवेरिन मास्कोविट्स क्रिस ह्यूजेज हैं। सोशल मीडिया का सीमित क्षेत्र एक विश्वव्यापी है। इस विश्वव्यापी सोशल मीडिया का इस्तेमाल आज हर क्षेत्र में किया जा रहा है और अपने क्षेत्र को सोशल मीडिया द्वारा विश्व स्तर पर लोगों के सामने रखा जा रहा है। सोशल मीडिया का उपयोग शिक्षा साहित्य संशोधन, जनसंपर्क आदि जैसे अन्य क्षेत्रों में उपयुक्त है।

### सोशल मीडिया का स्वरूप:

सोशल मीडिया का स्वरूप अन्य माध्यमों से बहुत अलग ही एक ऐसा माध्यम है जिसके द्वारा आप देश दुनिया किसी भी कोने के व्यक्तियों से ऑनलाइन तकनीक के माध्यम से सहज रूप से जुड़ सकते हैं। इसके माध्यम से अधिक ऑडियो ऐसे कई संदेश संप्रेषित कर सकते हैं इससे हम मैसेंजर की माध्यम से व्यक्तियों से चैटिंग भी कर सकते हैं। आज की दुनिया में सोशल मीडिया का महत्व और उसका इस्तेमाल बढ़ गया है। इसके माध्यम वीडियो ऑडियो कॉल के माध्यम से दुनियाभर के व्यक्तियों से जुड़ सकते हैं। इसके द्वारा न्यूज मनोरंजन मार्केटिंग सूचना दी का प्रमोशन कर सकते हैं। व्यक्ति को सीधे तौर पर जुड़ने और

जोड़ने का यह अच्छा माध्यम है फेसबुक ट्विटर इंस्टाग्राम रिसर्च गेट आदि सोशल मीडिया नेटवर्किंग साइट प्रसिद्ध है और इसके द्वारा व्यक्तियों को सोशल मीडिया से जुड़ने का काम होता है रहे है।

### सोशल मीडिया का महत्व:

सोशल मीडिया समाज के सामाजिक विकास में अपना योगदान देता है। कई व्यवसाय को बढ़ाने में भी मदद करता है। मार्केटिंग जैसे साधन प्रदान कर लाखों सशक्त ग्राहकों तक पहुंचता है जानकारी और समाचार आसानी से प्राप्त कर सकते हैं। सोशल मीडिया का दैनिक जीवन में बहुत लाभ है। सोशल मीडिया का सबसे ज्यादा उपयोग युवा वर्ग के माध्यम से होता है। इसके बावजूद सोशल मीडिया का इस्तेमाल करना आसान है और कोई भी कर सकता है। सोशल मीडिया पर लोग अपना कौशल्य दिखाकर पैसे कमा रहे हैं। सोशल मीडिया के माध्यम से हम हमारे पास की जानकारी एक दूसरे से आदान-प्रदान कर सकते हैं। भारत में सोशल मीडिया लोगों के जीवन का एक हिस्सा बन गया है। इसके अलग-अलग सोशल नेटवर्किंग साइट पर आज ऐसा कोई भी व्यक्ति नहीं है जो सोशल मीडिया के इस्तेमाल के बगैर नहीं रह पाता देश की राजनीति और राजनेताओं के अलग-अलग बातों का तथा देश की स्थिति को हम किसी के माध्यम से जाना जाता है। सोशल मीडिया और देश के व्यापार का विस्तार भी बढ़ा रहा है। सोशल मीडिया के कारण यात्रियों को अन्य देश के व्यापार के बारे में जानकारी सहज ही प्राप्त होती है। सोशल मीडिया के कारण समाज का हर एक वर्ग अपनी सोच में परिवर्तन कर रहा है। एक दूसरों की समस्याओं का तथा एक दूसरे को देखने का नजरिया बदल रहा है। सही अर्थ में कहा जाए तो सोशल मीडिया अपने देश को विश्व स्तर पर एक शक्तिशाली देश बनाने की कोशिश कर रहा है। सोशल मीडिया ने पूरी दुनिया को एक साथ जोड़ दिया है। जो कि एक अच्छे समाज के लिए काफी महत्वपूर्ण है। इसके माध्यम से हम समान विचारधारा लोगों से मिल सकते हैं। इस प्रकार से सोशल मीडिया का हमारे जीवन, समाज, देश आदि क्षेत्रों में इसका महत्व अनन्य साधारण है।

हिंदी आज एक ऐसी भाषा है जो दुनिया में बड़े स्तर पर बोली और समझी जाती है। हिंदी का विकास एवं विस्तार आज दिन-ब-दिन बढ़ता जा रहा है। आज केवल भारत में ही नहीं भारत के बाहर भी कई देशों में हिंदी का प्रचार प्रसार देखा जा सकता है। हिंदी के इस विकास में मीडिया ने महत्वपूर्ण भूमिका निभाई है। दुनिया भर में आज भारतीय फिल्म एवं टेलीविजन कार्यक्रम देखे जाते हैं। सोशल मीडिया, इंटरनेट और मोबाइल के कारण आज युवा पीढ़ी इस भाषा का सबसे अधिक प्रयोग कर रही है। हिंदी आज देश भर में आम बोलचाल की भाषा बन गई है। हिंदी भाषा कश्मीर से लेकर कन्याकुमारी तक देश को जोड़ने वाली भाषा है। हिंदी के विस्तार में मीडिया की अहम भूमिका है।

सोशल मीडिया के सकारात्मक और नकारात्मक दो पहलू हैं। इस संसार में हर चीज के प्रति दो नजरिए होते हैं। सकारात्मक-नकारात्मक, अच्छी-बुरी यह हम पर निर्भर है कि हम किसी चीज को किस नजरिए से देखते हैं, अगर हम सोशल मीडिया के केवल नकारात्मक हिस्से को ही देखेंगे तो हमारी प्रगति आज के समाज में रुक सकती है क्योंकि आज समाज को देखा जाए तो पूर्णता इन्ही माध्यमों पर निर्भर दिखाई देता है। अगर हम केवल बुराइयों पर ही ध्यान देंगे तो समाज के साथ कदम से कदम मिलाकर अपने आप को दुनिया के सामने रखने में नाकामयाब हो सकते हैं।

ट्विटर जैसे मंचों की शब्द सीमा ने अपनी बात को चूस्त और कम से कम शब्दों में कहने के अभ्यास को संभव बनाया है। सोशल मीडिया ने सार्वजनिक अभिव्यक्ति और एक बड़े समुदाय पर निडर और बिना रोक-टोक तथा नियंत्रण से अपनी बात, अपनी सोच और अपने अनुभव को पहुंचाना संभव बनाकर करोड़ों लोगों को एक नई ताकत, छोटी बड़ी बहसों में भागीदारी का नया स्वाद और शासकों को ज्यादा पारदर्शी संवादमुखी और जवाबदेह बनाया है। जनता के मन और नब्ज को जानने का नया माध्यम दिया है।

फेसबुक, इंस्टाग्राम, ट्विटर जैसे प्लेटफार्म के माध्यम से हिंदी भाषा प्रभावी रूप से लोगों के सामने नजर आती है। सरकार भी अलग-अलग प्लेटफार्म के माध्यम से हिंदी को और भी बढ़ावा देती नजर आती हैं। हिंदी भाषा का आज जो बढ़ता दर्जा है उसके कारण भारत के साथ व्यापारिक संबंधों को बढ़ावा देने के लिए अब कई देश हिंदी का अध्ययन करके भारत के साथ अपने संबंधों को बढ़ाना चाहते हैं। भारत के साथ संपर्क रखने के लिए हिंदी की अनिवार्यता विदेशी सरकारें भी महसूस कर रही हैं। इसीलिए अमेरिका, चीन, यूरोप तथा अन्य प्रमुख देशों में हिंदी के अध्ययन की व्यवस्था की जाने लगी है। विदेशों में भी बड़ी



संख्या में छात्र-छात्राएं हैं। केंद्रीय हिंदी संस्थान विभिन्न विषयों और अन्य शिक्षण संस्था हिंदी पढ़ने के लिए आते हैं। इसके अलावा विभिन्न विश्वविद्यालयों में हिंदी विषय लेकर शिक्षा अर्जित करने वाले बच्चों की संख्या बढ़ती जा रही है।

उद्योग और व्यापार के क्षेत्र में जहां भारतीय भाषाओं के प्रयोग की पूर्ण उपेक्षा की जाती है। अब हिंदी सम्मानजनक स्थान प्राप्त जा रही है। रेडियो, टीवी तथा पत्र-पत्रिकाओं में हिंदी में विज्ञापन देने की होड़ लगी रहती है। इन बातों को देखते हुए कहा जा सकता है कि हिंदी को देशव्यापी स्वीकार्यता मिल चुकी है। और वह समय दूर नहीं है जब हिंदी पूर्ण रूप से भारत की एकमात्र संपर्क भाषा बन जाएगी। हिंदी के प्रचार प्रसार के लिए हिंदी भाषा वासियों से ज्यादा अहिंदी भाषा भाषियों का योगदान अधिक दिखाई देता है। राष्ट्रपिता महात्मा गांधी जी ने हिंदी के प्रचार प्रसार के लिए अपनी मातृभाषा गुजराती छोड़ हिंदी को प्रधानता दी।

राष्ट्रीय और अंतरराष्ट्रीय स्तर पर हिंदी को सर्व स्वीकार्य बनाने में रेडियो की उल्लेखनीय भूमिका रही है। आकाशवाणी ने समाचार, विचार, शिक्षा, सामाजिक सरोकारों संगीत और मनोरंजन आदि सभी स्तरों पर अपने प्रसारण के माध्यम से हिंदी को देश के कोने कोने तक पहुंचाने में महत्वपूर्ण भूमिका निभाई है।

सोशल मीडिया शिक्षा के लिए एक अच्छा उपकरण है। ऑनलाइन जानकारी संग्रहित होती है जिसकी मदद से उपयोगकर्ताओं को सूचना प्राप्त होती है, इसे समाचार माध्यम के रूप में भी इस्तेमाल किया जा सकता है। यह ऑनलाइन रोजगार के अवसर प्रदान करते हैं। आज फेसबुक, ट्विटर, लिंकडइन जैसे प्लेटफॉर्म का व्यापक रूप से उपयोग किया जाता है। शिक्षक और छात्रों के बीच यह काफी लोकप्रिय हो गए हैं। एक छात्र के लिए सोशल मीडिया बहुत महत्वपूर्ण योगदान निभाता है क्योंकि यह उनके लिए जानकारी को साझा करने तथा प्राप्त करने और शिक्षकों से जुड़ने में सहायता करता है। सोशल मीडिया प्लेटफॉर्म के माध्यम से एक दूसरे से जुड़ सकते हैं। इस प्लेटफॉर्म कहां उपयोग करके जानकारी साझा कर सकते हैं।

आजकल कई प्रोफेसरों अपने व्याख्यान के लिए स्काईप ट्विटर और अन्य स्थानों पर लाइव वीडियो चैट आयोजित कर रहे हैं। यह छात्रों के साथ-साथ शिक्षक को भी घर बैठे किसी चीज को सीखने को साझा करने में सहायता करता है। सोशल मीडिया की मदद से सुविधा जनक बनाया जा सकता है। सोशल मीडिया छात्रों को ऑनलाइन उपलब्ध कराई गई शिक्षण सामग्री के माध्यम से उनके ज्ञान को बनाने में मदद करता है। सोशल मीडिया के माध्यम से वीडियो और चित्र देख सकते हैं समीक्षाओंकी जांच कर सकते हैं और लाइव प्रक्रियाओं को देखते हुए तत्काल अपने संदेह को दूर कर सकते हैं, न केवल छात्र बल्कि शिक्षक भी इन उपकरणों और शिक्षण सहायता की उपयोग करके अपने व्याख्यान को और रोचक अधिक बना सकते हैं। छात्र प्रसिद्ध शिक्षकों, प्रोफेसरों पर विचारकों द्वारा ब्लॉग आर्टिकल और लेखन पढ़कर अपना ज्ञान इस बढ़ा सकते हैं। इस तरह अच्छी सामग्री व्यापक दर्शकों तक पहुंच सकती है।

सिद्धांत तर्क देते हैं और गतिविधि करने के पीछे की वजह क्या है उसको भी हमारे सामने लाते हैं। शिक्षा के उद्देश्य काफी व्यापक है और यह भाषा शिक्षण के उद्देश्यों पर भी लागू होते हैं। इस संदर्भ में लाइब्रेरी की मौजूदगी भाषा शिक्षण के उद्देश्यों को पूरा करने में सहायक और अंततः शिक्षा के उद्देश्य को पूरा करने में सहायक सिद्ध होती है। विद्यार्थी छात्र जीवन में लाइब्रेरी का महत्व अनन्य साधारण है। ज्ञानस्रोत को ज्ञान भंडार कहा जाए तो गलत नहीं है, क्योंकि ग्रंथालय के उपयोग से सारी शैक्षिक और बाहरी समस्याओं का समाधान मिल सकता है।

पाठ्यक्रम से छात्र की बुद्धि का सर्वांगीण विकास नहीं किया जा सकता। यदि छात्र अपना सर्वांगीण विकास करना है तो उसे एकमात्र साधन का उपयोग होता है और वह है ग्रंथालय। यदि छात्र कोई किताब पढ़ता है और उसे अपने खुद के जीवन से जोड़कर देखने का प्रयास करता है तो उसे अध्ययन करने में और स्वयं की विचार क्षमता को बढ़ाने में मदद होती है। किताबों से निकटता रखने वाले छात्र समाज को वैचारिक दृष्टि से एवं तर्कसंगत बुद्धि से देखते हैं। एक छात्र के विकास में ज्ञान स्रोत की भूमिका अहम है। यहां उपलब्ध संदर्भ ग्रंथों से छात्रों को अध्ययन में मदद होती है और वह अच्छे ढंग से पढ़ाई कर सकते हैं। आज की बदलती पीढ़ी और बढ़ते सोशल मीडिया के प्रयोग से छात्रों में ग्रंथालय के प्रति रुचि कम होती नजर आ रही है। इसी कारण बच्चों की ज्ञान क्षमता निम्न होती दिखाई देती है। बच्चे फोन और सोशल मीडिया के प्रति आसक्त नजर आते हैं और किताबों से, लाइब्रेरी से ज्ञान, के सच्चे स्रोत से, दूर नजर आ रहे हैं। ऐसे में यदि बच्चों को किताबों और विद्यालय से जोड़ना है तो उसके लिए डिजिटल लाइब्रेरी की संकल्पना सर्वोत्तम है। डिजिटल लाइब्रेरी के माध्यम से आज की परिभाषा को परिवर्तित करने

की कोशिश की जा रही है। डिजिटल लाइब्रेरी के माध्यम से हमें जो सामग्री आवश्यक है वह हमें कहीं भी कभी भी उपलब्ध हो सकती है। डिजिटल लायब्ररी के माध्यम से हम अपनी इच्छा और रुचि के माध्यम को ध्यान में रखकर किताबें चुनते हैं। इसमें पुरानी से पुरानी सारी पठन सामग्री हमें उपलब्ध हो जाती है।

डिजिटल लाइब्रेरी के आज के युग में बहुत महत्व है। लाइब्रेरी में हर विषय से संबंधित हर किताब समय पर उपलब्ध होंगे यह संभव नहीं है ऐसे में डिजिटल लाइब्रेरी एक बहुत अच्छा पर्याय साबित होता है। डिजिटल लाइब्रेरी के कारण आज अध्ययन का क्षेत्र बदलता नजर आ रहा है। कई वेबसाइट के माध्यम से आज हम डिजिटल ज्ञान श्रोत का स्वाद ले रहे हैं।

निष्कर्ष के रूप में हम कह सकते हैं, कि ज्ञान श्रोत के नए भाषिक संदर्भ बदल रहे हैं। उसका पूरा लाभ आज की आधुनिक युवा पीढ़ी उठा रही है। सकारात्मक सोच का निर्माण हो रहा है। पठन संस्कृति से दूर जा रही पीढ़ी आज फिर से एक नई उम्मीद, नई उमंग को साथ लेकर पठन का आस्वाद लेती दिखाई दे रही है। बदलते भाषिक संदर्भ के कारण ही आज आधुनिक युवा पीढ़ी सजग, सतर्क और लाभान्वित हो रही है। आने वाले भविष्य में शैक्षिक ग्रंथालय की दृष्टि से यह कदम बहुत ही लाभदायक सिद्ध हो सकता है।

### संदर्भ ग्रंथ सूची

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## जनसंचार माध्यम और हिंदी भाषा

डॉ. प्रविण विलास चौगले

सहायक प्राध्यापक

कमला कॉलेज, कोल्हापुर।

ई-मेल :- [chougale.pravin246@gmail.com](mailto:chougale.pravin246@gmail.com)

## प्रस्तावना :-

आज आधुनिक युग का मनुष्य अपनी वास्तविकता एवं अपने व्यक्तित्व को आकार देने के लिए समाज से विभिन्न तरीकों से जुड़ता है। समाज में उत्पन्न हुई बातों को विचार करके अपने जीवन को एक नई दिशा देने के लिए वह हर क्षण किसी ना किसी माध्यम से अपने ज्ञान को बढ़ावा देने की कोशिश करता है। आदिम युग से ही मनुष्य अपने अनुकरणीय स्वभाव के आधार पर जहां जहां से ज्ञान की प्राप्ति हो सकती है वहां-वहां से ज्ञान प्राप्त करने का प्रयास करता है। इसी प्राप्त ज्ञान के आधार पर आज का मनुष्य आधुनिक युग वादी मनुष्य समझा जाता है। कठिनता से सरलता की ओर बढ़ते रहने का प्रयास वह दिन-रात करता है। आज के मनुष्य में प्रत्येक वस्तु के प्रति सरलता वाला गुणधर्म की अपेक्षा के कारण ही ज्ञान बढ़ाने वाले विभिन्न अवधारणाओं का विकास हुआ दिखाई देता है। आज 21वीं सदी में सोशल मीडिया यह जानकारी प्राप्त करने तथा संपर्क के माध्यम से अपनी भावनाओं को व्यक्त करके अपने मत को स्थापित करने का कार्य किया जाता है। दरअसल कुछ साल पहले सोशल मीडिया की अवधारणा को स्पष्टता से परिभाषित नहीं किया जा सकता था। उस समय मोबाइल इंटरनेट आदि का प्रयोग इतनी मात्रा में तथा सहज रूप में नहीं था लेकिन पिछले दो दशकों में सोशल मीडिया में दिन-ब-दिन क्रांतिकारी परिवर्तन हुए दिखाई देते हैं। सोशल मीडिया के आधार पर समाज को उसकी समस्याओं को, उसकी आवश्यकताओं को तथा व्यक्ति के मन को उसकी भावनाओं को प्रतिबिंबित करने का कार्य होता है। आज सोशल मीडिया मनुष्य के जीवन का अविभाज्य घटक बन चुका है। ज्ञान प्राप्ति के लिए तथा संदेश पहुंचाने के लिए व्हाट्सएप, फेसबुक, ट्विटर, ब्लॉग, इंटरनेट, रेडियो, टेलीविजन आदि के माध्यम से मनुष्य के जीवन का सहारा बना हुआ दिखाई देता है।

## 1. जनसंचार माध्यम का स्वरूप :-

जनसंचार माध्यम में 'संचार' शब्द की उत्पत्ति संस्कृत के 'चर' धातु से हुई है, जिसका अर्थ है - चलना। आज का आधुनिक वादी मनुष्य अपने विचारों को तथा अपनी भावनाओं को समाज के धरातल पर व्यक्त करने का प्रयास निरंतर रूप में करता आया है। इसी कारण मनुष्य एक सामाजिक प्राणी होने की अवधारणा स्पष्ट होती है। अपनी बातों को समाज के सम्मुख विस्तृत रूप में तथा स्पष्टता के साथ रख सकें इसलिए वह सोशल मीडिया का सहारा लेता है। साधारण रूप में इंटरनेट के प्रयोग से निर्मित उस समूह को सोशल मीडिया कहा जाता है, जिसके जरिए आम आदमी अपने विचारों को समाज के सामने रख सकता है। इसका प्रयोग करने वाला हर व्यक्ति वहां एक प्रोफाइल के रूप में मौजूद रहता है। इन प्रोफाइलों के जरिए लोग अपनी बातों को लिखित सामग्री तस्वीरों ऑडियो और वीडियो सामग्री के रूप में इन मंचों पर प्रस्तुत करते हैं। साधारण रूप में सोशल मीडिया की पारंपरिक मीडिया और आधुनिक मीडिया ऐसे दो हिस्से बनते हैं। पारंपरिक मीडिया के अंतर्गत समाचार पत्र, पत्रिकाएं, रेडियो, टेलीविजन आदि का प्रयोग होता है। तो आधुनिक मीडिया के अंतर्गत इंटरनेट के आधार पर चलने वाले फेसबुक, व्हाट्सएप, ईमेल, ब्लॉग आदि का समावेश होता है। पारंपरिक मीडिया और आधुनिक मीडिया में अंतर स्पष्ट रूप से यह देखा जा सकता है कि पारंपरिक मीडिया समाज के कुछ लोगों के हाथ में था। समाज का थोड़ा सा वर्ग ही अपने विचारों को वहां व्यक्त कर पाता था लेकिन आधुनिक मीडिया के अंतर्गत हर व्यक्ति अपनी भावनाओं को 24 घंटों में से कभी भी किसी भी क्षण लिख सकता है। अपनी बातों को खुलेआम समाज के सम्मुख रख सकता है।



**2. जनसंचार के माध्यम :-**

सोशल मीडिया आधुनिक युग की एक अनिवार्य आवश्यकता बन चुका है। इसके बिना मानव जीवन अधूरा है। मनुष्य की मूलभूत अत्यावश्यकताओं में अगर जनसंचार माध्यमों को जोड़ दिया जाए तो वह अतिशयोक्ति न होगी क्योंकि इंसान के जीवन का वह एक सशक्त तथा आवश्यक माध्यम बन चुका है। आज जनसंचार माध्यमों का विकास काफी तेज रूप में हो रहा है। इस के संदर्भ में डॉ. रमा नवले लिखती हैं कि “जनसंचार माध्यमों का समाज में बड़ा महत्व रहा है। दुगडुगी बजाकर सूचना देने से इस यात्रा की शुरुआत हो जाती है। दूत, कबूतर, हरकारा, डाकिया, समाचार पत्र, पत्र-पत्रिकाएं, आकाशवाणी, दूरदर्शन जैसी कई सीढ़ियां चढ़ते-चढ़ते अब यात्रा कंप्यूटर और इंटरनेट तक पहुंच गई है।”<sup>1</sup> जनसंचार माध्यमों में टक, श्राव्य, टक-श्राव्य इन तीन प्रमुख वर्गों को देखा जाता है। आजकल टक-श्राव्य माध्यम के अंतर्गत जनसंचार माध्यमों का विकास विशेष रूप से होता हुआ नजर आ रहा है और इसके सहयोग में इंटरनेट की भूमिका भी अहम रही है। “दृश्य या लिखित जनसंचार माध्यम जिसमें समाचार पत्र, पत्रिकाएं, पोस्टर, पैम्पलेट, होर्डिंग आदि की गणना की जाती है। श्रव्य जनसंचार में रेडियो, ट्रांजिस्टर, ऑडियो कैसेट तथा टक-श्राव्य में टेलीविजन, मोबाइल फोन, सिनेमा, वीडियो कैसेट आदि का समावेश होता है।”<sup>2</sup> आज की दुनिया तकनीकी दुनिया मानी जाती है जिस कारण इसमें विशेष रूप से समाचार पत्र, रेडियो, दूरदर्शन, संगणक, फिल्म, विज्ञापन, इंटरनेट, भ्रमणध्वनी आदि का प्रयोग अधिक मात्रा में हो रहा है।

**3. जनसंचार माध्यम और हिंदी भाषा :-**

इस वैश्वीकरण के युग में सोशल मीडिया एक ऐसा जाल बन चुका है, जिसमें विविध जानकारी तथा नया क्षितिज निर्माण हो रहा है। भाषाओं के विकास में भी इस सोशल मीडिया का महत्व अनन्य साधारण है। वर्तमान समय में इलेक्ट्रॉनिक मीडिया ने समाज को बहुत कम समय में अपनी ओर आकर्षित कर लिया है। समाज में जानकारियों का आदान-प्रदान के लिए समय सीमा का बंधन अब हट चुका है। दुर्गेश नंदिनी के शब्दों में कहे तो, “संचार बहुस्तरीय गतिविधि है। जनसंचार कि इन सारी दिशाओं में संप्रेषण की सफलता देने का सारी संयोजना भाषा करती है। भाषा के बिना जनसंचार का लक्ष्य पूरा नहीं हो सकता चाहे माध्यम कुछ भी हो। इसलिए जनसंचार के सभी संसाधनों के लिए हर युग में किसी न किसी भाषा का उपयोग अनिवार्य रूप से होता आया है। भाषा में जनसंचार के कार्य को सुगम बनाया है, आकर्षण प्रदान किया है और विस्तार भी दिया है।”<sup>3</sup> हिंदी भाषा के विकास को केंद्र में रखकर भारत सरकार की ओर से विविध कार्यक्रमों का आयोजन किया जा रहा है। इन कार्यक्रमों को सामान्य जनता तक पहुंचाने के लिए जनसंचार माध्यमों ने बहुत महत्वपूर्ण भूमिका निभाई है।

**3.1. समाचार पत्र :-**

सूचनाओं का प्रसारण करना तथा उन सूचनाओं को समाचार के रूप में प्रस्तुत करना पत्रकारिता का मुख्य उद्देश्य माना जाता है। उन सूचनाओं का संबंध जब मानव जीवन से जुड़ा है तब वही सूचनाएं समाचार का रूप ग्रहण करती हैं। साहित्य की तरह समाचार पत्र भी समाज का प्रतिबिंब होता है हालांकि मुख्य रूप से इसमें एक अंतर यह है कि साहित्य बीते हुए कल का दस्तावेज होता है, तो पत्रकारिता में वर्तमान विषय को लेकर बातचीत चलती है। राष्ट्रभक्ति, आपसी संपर्क, सामाजिक समस्याओं को उजागर करना, समाज को जागृत करना, अपनी बातों को समाज के सम्मुख रखना, सही गलत की पहचान कराना यह पत्रकारिता की विशेष बातें मानी जाती हैं। सी. जी. मुलर पत्रकारिता की परिभाषा देते हुए कहते हैं कि, “पत्रकारिता एक व्यवसाय है जिसका सीधा संबंध सामाजिक ज्ञान से है इस व्यवसाय के अंतर्गत तथ्यों की प्राप्ति ध्यानपूर्वक उसका मूल्यांकन तथा समय प्रस्तुति अनिवार्य है।”<sup>4</sup> हिंदी भाषा और पत्रकारिता का संबंध काफी समय पूर्व से माना जाता है। हिंदी में प्रकाशित होने वाला पहला साप्ताहिक पत्र ‘उदंत मार्तंड’ है जिसे पंडित जुगलकिशोर शुक्ल ने मई 1826 को कोलकाता से प्रकाशित किया था। इसके उपरांत हिंदी प्रदीप, भारत मित्र, सारसुधा निधि जैसीसे अनेक पत्र-पत्रिकाएं हिंदी में प्रकाशित होने लगीं। लोगों में हिंदी भाषा के माध्यम से राष्ट्रीयता तथा संपर्कता निर्माण करने का कार्य समाचार पत्रों के माध्यम से हुआ है। हिंदी भाषा के विकास में तथा उसके प्रचलन में समाचार पत्रों का योगदान महत्वपूर्ण माना जाता है।

### 3.2. रेडियो:-

आज का युग आधुनिक युग के शुरुआती दौर से ही जनसंचार माध्यमों में अलग-अलग तकनीकी प्रक्रिया प्रक्रियाओं का प्रयोग किया है। श्राव्य माध्यम के अंतर्गत रेडियो में ही पहला इलेक्ट्रॉनिक तकनीकी का प्रयोग हुआ था। इसमें ध्वनि तरंगों के आधार पर संप्रेषण करना संभव हुआ। इसी के माध्यम से समाचार, गीत संगीत आदि को समाज की आम जनता तक पहुंचाया गया। भारत की संपर्क भाषा या राष्ट्रभाषा के रूप में हिंदी को माना जाता है। हिंदी का प्रचलन समाज में एकता के आधार पर किया जाता है जिस कारण रेडियो पर प्रसारित होने वाले कार्यक्रम तथा उनकी संभाषण प्रणाली तथा भाषा के शुद्धतम रूप से हिंदी को एक अलग पहचान मिली। रेडियो की भाषा में एक विशेषता आवश्यक होती है, जो श्रोताओं के मन में बिंबों की रचना तुरंत कर सकें और हिंदी ही वह भाषा थी, जिससे यह संभव हुआ था। विविध साक्षात्कार तथा परिचर्चाओं के माध्यम से हिंदी को विदेश तक पहुंचाने का कार्य रेडियो के माध्यम से हुआ दिखाई देता है।

### 3.3 दूरदर्शन:-

दूरदर्शन यह आज के युग का सबसे सशक्त दृक-श्राव्य माध्यम है। इसमें प्रसारित होने वाले विविध चैनल, संगीत, समाचार, धारावाहिक आदि के माध्यम से हिंदी को घर-घर तक पहुंचाने का महत्वपूर्ण कार्य दूरदर्शन के माध्यम से हुआ है। हिंदी भाषा के प्रचार एवं प्रसार की दृष्टि से दूरदर्शन की भूमिका महत्वपूर्ण है। मनोरंजन, शिक्षा, जनजागृति तथा हिंदी भाषा को हर हृदय तक पहुंचाने का कार्य दूरदर्शन के माध्यम से हुआ है। विभिन्न साहित्यिक कृतियों को भी दूरदर्शन पर प्रसारित किया गया। इसलिए हम कह सकते हैं कि, “हिंदी की साहित्यिक कृतियों में उपन्यास, नाटक, कविता, कहानी आदि पर दूरदर्शन ने काफी सराहनीय प्रयास किए हैं। दूरदर्शन पर कवि सम्मेलनों ने हिंदी के प्रचार-प्रसार में महत्वपूर्ण योगदान प्रदान किया। रामायण, महाभारत, कौन बनेगा करोड़पति द्वारा घरों घरों तक हिंदी का प्रचार किया गया।”<sup>5</sup> उपर्युक्त कार्यक्रमों के साथ ही फिल्मों तथा विज्ञापनों में भी हिंदी का प्रयोग अधिक मात्रा में होता है। लोगों में हिंदी के प्रति रुचि निर्माण करना तथा आनंद की प्राप्ति करवाना इस उद्देश्य पर फिल्म तथा विज्ञापन सिद्ध हुआ है। इसने हिंदी भाषा के आधार पर अभिव्यक्ति क्षमता को नए आयाम प्रदान किए हैं।

### 3.4 इंटरनेट:-

इंटरनेट यह आज के आधुनिक युग की सबसे सक्षम सूचना प्रणाली है। यह मानव जीवन को तथा उसके ज्ञान भंडार को एक नई पहचान देने वाली प्रणाली है। इसीके माध्यम से दुनिया आज मानव के मुट्ठी में समाई हुई दिखाई देती है। इंटरनेट के माध्यम से आज किसी भी विषय या संदर्भ की जानकारी एक ही क्षण में प्राप्त होती है। कंप्यूटर या इंटरनेट पर आज सिर्फ अंग्रेजी भाषा का ही प्रभाव नहीं रहा बल्कि हिंदी ने भी उतना ही अधिकार प्राप्त कर लिया है। आज हिंदी भाषा का साहित्य, पत्र-पत्रिकाएँ, समाचार पत्र आदि सभी के संदर्भ में इंटरनेट पर जानकारी प्राप्त की जा सकती है। आज हिंदी भाषा इंटरनेट के ईमेल, फेसबुक, व्हाट्सएप, ट्विटर आदि सभी प्रकारों में प्रयुक्त की जाने लगी है। हिंदी के विविध ऐप भी दिखाई देने लगे हैं। जिस कारण हिंदी का प्रचार एवं प्रसार होने में इंटरनेट काफी मददगार सिद्ध हुआ है। कहने का तात्पर्य यह है कि, “इंटरनेट पर हिंदी नए रूपरंग के साथ आगे बढ़ रही है। भारत में ही नहीं विदेशों में भी इंटरनेट पर हिंदी भाषा-भाषी समाज के लिए उज्ज्वल है। विदेशों में हिंदी में काम करने के लिए अनेक विंडोज, सॉफ्टवेयर विकसित किये गए हैं।”<sup>6</sup> इसीलिए हम आधिकारिक रूप से कह सकते हैं कि आनेवाली दुनिया तथा समय हिंदी के लिए और प्रगल्भता देने वाला सिद्ध होगा।

### निष्कर्ष

निष्कर्ष रूप में हम कह सकते हैं कि जनसंचार माध्यमों में नित्य रूप से विविध परिवर्तन देखे जा रहे हैं। आज हर क्षण कोई ना कोई नई तकनीक हमारे सम्मुख प्रस्तुत हो रही है। इससे संचार भाषा के रूप में हिंदी का भी विकास होता हुआ दिखाई दे रहा है। हिंदी भाषा का सौंदर्य और खुलता जा रहा है। समय के अनुसार आधुनिक जनसंचार माध्यमों में हिंदी का प्रभाव तथा उसके प्रति लोगों की रुचि बढ़ती ही दिखाई दे रही है। विश्व में हिंदी भाषा के प्रति लोगों की तादाद ‘दिन दूनी रात चौगुनी’ की

तरह बढ़ रही है। जनसंचार की प्रक्रिया को हिंदी भाषा अर्थपूर्ण बना रही है तथा हिंदी भाषा के प्रचार प्रसार में जनसंचार माध्यम अपना अमूल्य योगदान दे रहे हैं। इसलिए कहना योग्य होगा कि आज का युग हिंदी का है और हिंदी भाषा हमारा गौरव है।

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## भूमंडलीकरण के दौर में मोबाइल के कारण हुए वर्तमानकालीन बदल (‘मुन्नी मोबाइल’ उपन्यास के संदर्भ में)

सुश्री. श्रीदेवी बबन वाघमारे

कमला कॉलेज कोल्हापुर

ईमेल-[shrideviwaghmare1993@gmail.com](mailto:shrideviwaghmare1993@gmail.com)

वर्तमान युग में मोबाइल फोन हमारे जीवन का एक अहम हिस्सा बन चुका है। आज हर व्यक्ति के पास चाहे वह गरीब हो या अमीर मोबाइल फोन है। आज का युग स्मार्टफोन का युग है इस फोन की आदत बेपट व्यक्तियों से लेकर सुशिक्षित युवा वर्ग में भी नजर आती हैं। मोबाइल फोन के अविष्कार ने पूरी दुनिया को एक नया रूप दे दिया है और मनुष्य को एक दूसरे के साथ जोड़ने जोड़ने रखने का कार्य इस डिवाइस ने किया है। जिसके कारण यह सब का पसंदीदा उपकरण बन चुका है। दुनिया का पहला मोबाइल वर्ष 1973 में मोटोरोला कंपनी ने बनाया था और उसके निर्माता थे मार्टिन कूपर इस फोन से कूपर ने पहली कॉल न्यूयार्क से न्यूजर्सी की थी। इसका नाम डायना टेक 8000x था इसका वजन करीबन 2 किलोग्राम था इसकी बैटरी चार्ज होने में करीब 10 घंटे का समय लगता था एक बार इसे चार्ज करने से करीबन 30 मिनट तक बात की जा सकती थी। उस वक्त मोबाइल फोन की कीमत ₹300000 के करीब थी। टेलीफोन के बाद यह दूरसंचार के क्षेत्र में एक क्रांतिकारी कदम था। आज 21वीं सदी में मोबाइल फोन ने अपनी सीमाओं को और भी विस्तारित किया है मोबाइल एक कंप्यूटर के समान कार्य करते हुए नजर आता है। आज स्मार्टफोन का विकास बड़ी तेजी से हो रहा है। स्मार्टफोन की दुनिया ने सारे विश्व को एक सूत्र में बांध दिया है। मोबाइल के फायदे एवं नुकसान के ऊपर विभिन्न लोगों ने अपने मत प्रस्तुत किए हैं और हिंदी साहित्य में भी लेखन हो रहा है। मोबाइल के अतिरिक्त प्रयोग के कारण हमारी युवा पीढ़ी इसकी चपेट में आ रही है और इसी विषय पर भाषा करने वाला प्रदीप सौरभ द्वारा लिखा उपन्यास है – ‘मुन्नी मोबाइल’ जो वाणी प्रकाशन से 2009 में प्रकाशित हो गया है।

मुन्नी मोबाइल भौतिकवादी दुनिया का प्रतिनिधित्व करता है। इस भौतिक जगत नहीं समाज को किस तरह चपेट में लिया है इसका जीवंत उदाहरण इस उपन्यास के प्रमुख स्त्री पात्र -बिंदु यादव उर्फ मुन्नी मोबाइल। भूमंडलीकरण के कारण ‘वसुधैव कुटुंबकम’ की संकल्पना साकार हो रही है। उसी सपने को और भी गति देने का कार्य कर रहा है मोबाइल जो मनुष्य को दुनिया से जुड़े रख रहा है। प्रस्तुत उपन्यास में प्रदीप सौरभ ने गुजरात के सांप्रदायिक दंगों के साथ-साथ ने मुन्नी के जीवन में मोबाइल के कारण आए बदलाव का चित्रण किया है। मुन्नी मोबाइल उपन्यास में मुन्नी को प्रमुख पात्र के रूप में दर्शाया गया है। उपन्यास की सारी कथा उसके केंद्र में नहीं है फिर भी उसका स्थान महत्वपूर्ण है। प्रस्तुत उपन्यास चरित्र नहीं है, घटना प्रधान है।

उपन्यास के प्रमुख पात्र आनंद भारती जो एक पत्रकार है। वह अपनी पत्रकार की दृष्टि से गुजरात के दंगों से हमें परिचित कराते हैं। राजनीतिक चरित्रों को अपनी लेखनी से सच्चाई के साथ पूरे तथ्यों के साथ पाठकों तक पहुंचाते हैं। सच्चे पत्रकार के रूप में उनका चरित्र उभर आता है।

इस उपन्यास का दूसरा महत्वपूर्ण पात्र है – ‘बिंदु यादव उर्फ मुन्नी’ अधिकतर कथानक मुन्नी मोबाइल के जीवन से जुड़ा हुआ है। इस उपन्यास में मुन्नी के जीवन का चारित्रिक कर्म और भौतिक (मोबाइल, घर, गाड़ी, पैसे अच्छा नाम) आदि विकास सबसे अधिक हुआ है। अपने जीवन में वह अधिक सुख- सुविधा एवं पैसों का आयोजन करने की उसकी गति अधिक तीव्र दिखाई देती है।

मुन्नी का गांव साहिबाबाद है। उसका पति नंदलाल एक शराब बनाने वाली फैक्ट्री में काम करता है। साहिबाबाद दिल्ली के पास ही था मुन्नी अपना गांव छोड़कर जब साहिबाबाद आई तब 17 साल की थी एक बच्ची उसके साथ थी। उसका जीवन एक कमरे में बंद था हर साल एक बच्चे को जन्म देती थी उसके 6 बच्चे हुए। बच्चों को पालना और पति के लिए खाना बनाना ही उसकी जिंदगी थी, लेकिन क्रोशिया चलाना और स्वेटर बनाना उसे आता था। उसी काम से उसके घर से बाहर निकलने वाली

खिड़की को खोल दिया। पहली बार जब उसने स्वेटर बुनकर ₹50 कमाए तो उसके सपनों की दुनिया और भी बड़ी हो गई। उसे लगा कि अब टीवी से लेकर फ्रिज तक सब चीजें उसे मिल जाएगी। इसी बीच उसकी मुलाकात गांव के एक फर्जी डॉक्टरनी शशि खोखरा के साथ हो गई जो एक नर्सिंग होम चलाती थी। डॉक्टर ने मुन्नी को मॉल दिखाने, सिनेमा दिखाने के लिए लेकर जाने लगी। उसी समय डॉक्टरनी ने मुन्नी को इंजेक्शन लगाना सिखा दिया। डॉक्टरनी अवैध तरीके से गर्भपात कराती थी और ज्यादा पैसे लेती थी। गर्भपात में वह मुन्नी का सहयोग लेने लगी। धीरे-धीरे मुन्नी नर्स बन गए और उसकी कमाई ₹500 और कमीशन भी मिलने लगा। मुन्नी की तरक्की देख डॉक्टरनी जलने लगी और उसमें उनकी अनबन हो गई और वह उससे दूर हो गयी। मुन्नी का जीवन सिर्फ भौतिक चीजों को पाने के लिए हमेशा संघर्षरत दिखाई देता है। उसमें कुछ हद तक तो स्वाभिमान दिखाई देता है। लेकिन वह भौतिकता से प्रेरित है। मुन्नी के चरित्र के बारे में अर्पण कुमार कहते हैं कि – “पहले झुग्गी झोपड़ी में और फिर जमीन खरीद कर और मकान बनाकर छह-छह बच्चों को अपने मजदूर पति की छोटी कमाई में किसी तरह पालती – पोसती मुन्नी कभी स्वेटर बुनकर कुछ कमाई कर लेती है, तो कभी चोरी छिपे और नाजायज तरीके से गर्भपात कराने वाली झोलाछाप महिला डॉक्टर के यहां हाथ बांटती है, उसके लिए केस लाती है और बदले में कमीशन लेती है और व्यवहारिक और निरंतर नई प्रकृति के काम पकड़ लेने वाली मुन्नी अब्बल दर्जे की दुस्साहसी है”<sup>1</sup>

आनंद भारती का तबादला जो गुजरात से दिल्ली हो गया तब उनके घर में घर का काम करने आने लगी। दिवाली का त्यौहार जब आ गया तब आनंद भारती से उसने मोबाइल फोन की मांग कर देती है। लेकिन आनंद भारती उसे चुप करा देते हैं और उसे दिवाली के लिए मिठाई, कपड़े वगैरह दे देते हैं। लेकिन मुन्नी उससे नहीं लेती। महीना गुजर जाता है, लेकिन मुन्नी वह सामान को हाथ नहीं लगाती तो मुन्नी का मौन आनंद भारती को परेशान करने लगता है। उसकी बकबक से हमेशा घर गुलजार रहता था, लेकिन वह चुप हो गई थी। आनंद भारती उसके सामने हार जाते हैं और उसे एक मोबाइल खरीद कर दे देते हैं। मोबाइल देखकर उसके चेहरे में चमक आ गई मम्मी का मोबाइल आया और आनंद भारती के घर चिड़ियों जैसे कलरव शुरू हो गया। आनंद भारती का नंबर उसमें चिन्ह लगाकर सेव कर लिया क्योंकि उसे पढ़ना लिखना आता नहीं था। एक दिन वह खाना बना रही थी और फोन आ गया और मुन्नी बातें करने लगी तो रोटी जल गयी। आनंद भारती को गुस्सा आया और उन्होंने कहा कि “ए मुन्नी मोबाइल”<sup>2</sup> और उसी दिन से यह साहिबाबाद की बिंदु यादव मुन्नी मोबाइल बन गयी। मुन्नी को यह अजीबो-गरीब खिलौना मिल गया था तो उसने बहुत कुछ सीख लिया।

मुन्नी ने जब हीर सिंह की सामने वाली जमीन पर मकान बना दिया तो फिर से उससे खुन्नस पालने लगा। इसी के चलते एक दिन मुन्नी की बेटि को पीटा, मुन्नी ने जैसे दुर्गा और काली का अवतार धारण कर लिया पुलिस भी आ गयी पुलिस ने हीर सिंह को मारा तो मुन्नी उत्साहित होकर कहती है कि -“मेरा नाम मुन्नी मोबाइल है इस बात को कभी मत भूलना”<sup>3</sup> उसी दिन से साहिबाबाद में मुन्नी मोबाइल इस नाम से जाने जानी लगी। मुन्नी पत्रकारपुरम कॉलोनी में झाड़ू पोछा करने लगी। आनंद भारती के यहा काम करते हुए उसने बेहद अच्छा खाना बनाना सीख लिया। काम ढूँढने के वक्त वह ऐसे घरों में काम तलाश थी जहां काम कम हो और आमदनी ठीक हो। धीरे-धीरे मुन्ने नौकरानीयों का अघोषित मंडल स्थापन कर दिया। उसमें भी बढ़िया कमीशन लेने लगी उसकी आमदनी और भी बढ़ गयी। मुन्नी अब नया कुछ काम करना चाहती थी। इसलिए उसने एक बस खरीद ली और गाजियाबाद पहाड़गंज के रास्ते पर बस चलने लगी उसकी स्थिति की यात्रा को दर्शाते हुए अर्पण कुमार कहते हैं - “क्रमशः ऊपर की सीढ़ियां चढ़ती है और भटकती हर तरह के दाव-पेच में वह माहिर होने लगती है, और प्रभुता संपन्न स्थानीय ठेकेदारों, रंगदारों, पुलिस थानों से लड़ती – झगड़ती तरह-तरह की संघातिक स्थितियों को सहती, उनकी काट सोचती, कई बसों की मालकिन बन जाती है और चौधराईन की संज्ञा पाती है”<sup>4</sup>

बस के धंधे में पैसे तो बहुत मिलते थे, लेकिन रोज की समस्याएं भी होती थी। मुन्नी को ऐसा धंधा अपनाना था जो पैसे ज्यादा दे, लेकिन काम भी कम हो। ऐसी सोच ही उसे कॉलगर्ल रैकेट से जोड़ देती है और लड़कियां सप्लाई करने का एजेंट बना देती है। मुन्नी जानती थी कि यह गलत व्यवसाय है, लेकिन भौतिक प्यास उसे इस धंधे में उतारने के लिए तैयार कर देती है। मुन्नी की यह स्थिति देखकर आनंद भारती कहते हैं कि- “मोबाइल की मांग से लेकर, हस्ताक्षर करने तक का सफर, बच्चों की पढ़ाई से लेकर बेटि रेखा के लिए कंप्यूटर ले जाने की उसकी हसरत, फिर नौकरानीयों की सप्लाई से लेकर, कॉलगर्ल की

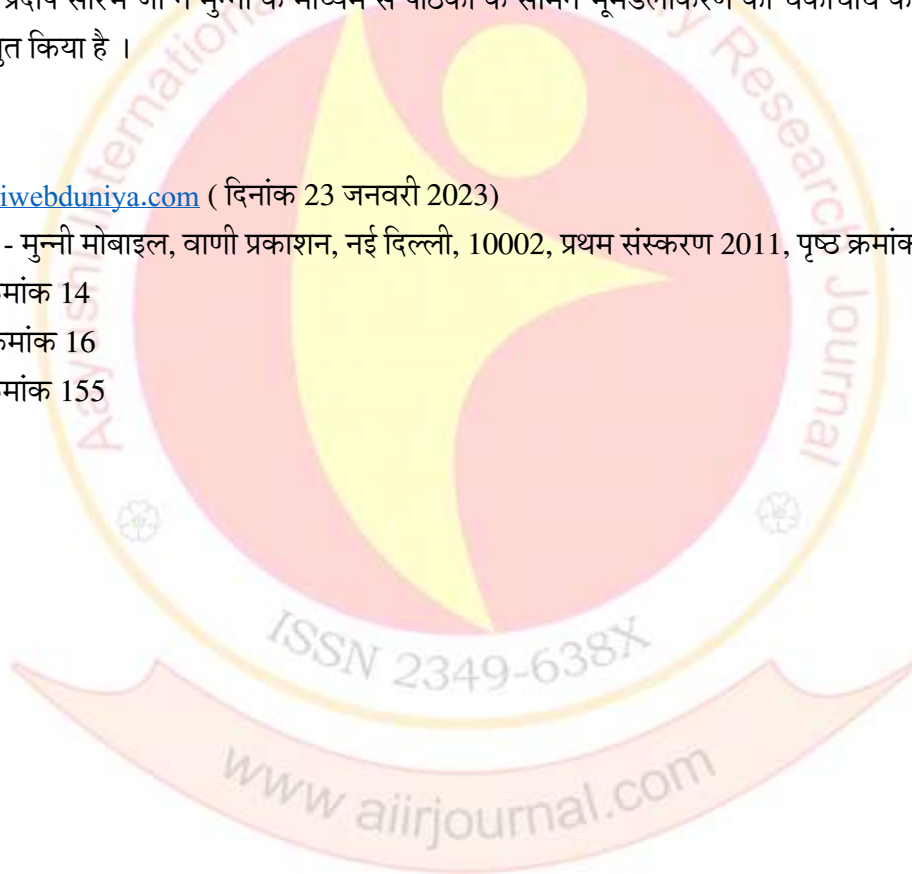
सप्लाई का काम..... मुन्नी के संघर्ष से लेकर सफल होने तक की इंद्रधनुष यात्रा बदरंग हो गई थी”<sup>5</sup> और इसी रैकेट में पैर जमाने के कारण सेक्स रैकेट से जुड़े अन्य लोग सोनू पंजाबन, अंकित धीर, रितिका ठाकुर, बाबा ठाकुर आदि द्वारा उसकी सुपारी लेकर उसका खून किया जाता है और पैसे कमाने का लालच ही उसकी जान ले लेता है।

मुन्नी की मृत्यु के पश्चात उसकी बेटी रेखा ने मुन्नी की लड़कियों को संभाल लिया मुन्नी अपनी बेटी को एक बड़ा अफसर बनाना चाहती थी लेकिन अब मुन्नी मोबाइल की जगह रेखा ने ले ली है। वह अब रैकेट की कस्टमर और लड़कियों का लेखा-जोखा अपने लैपटॉप में रखती है। पक्की कस्टमर को एसएमएस कर देती है। लड़कियों की तस्वीर को उसने अपने ब्लॉग पर डाल दिया है। रेखा आधुनिक उपकरणों का प्रयोग कर अपना धंधा चला रही है। कॉलगर्ल वर्ल्ड की नए अवतार के रूप में मुन्नी की बेटी रेखा चितकबरी बन गई है।

निष्कर्ष के रूप में हम कह सकते हैं कि आधुनिक दौर भूमंडलीकरण के जाल का है। बहुत ही आधुनिक उपकरणों ने लोगों को अपनी ओर आकर्षित कर लिया है। इसी का शिकार हो गयी बिंदु यादव उर्फ मुन्नी मोबाइल मुन्नी के जीवन में मोबाइल के आ जाने से उसकी भौतिक चीजों को पाने की स्थिति दोगुनी तेजी से बढ़ती जाती है। पैसा कमाना है उसका एकमात्र लक्ष्य बन जाता है। पैसे कमाने के लिए वह अपनी नैतिकता को भी खो देती है और अपनी मृत्यु को आमंत्रण देती हुई नजर आती है। प्रस्तुत उपन्यास में प्रदीप सौरभ जी ने मुन्नी के माध्यम से पाठकों के सामने भूमंडलीकरण की चकाचौंध की दुनिया का सच पाठकों के सामने प्रस्तुत किया है।

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## हिंदी भाषा के प्रचार और प्रसार में सोशल मीडिया का योगदान

श्री. अजय महेंद्र कांबळे

(एम. ए. सेट, नेट हिंदी )

सहायक प्राध्यापक

कमला कॉलेज, कोल्हापुर

ई-मेल – [ak6424515@gmail.com](mailto:ak6424515@gmail.com)

## सारांश -

आज 21 वीं सदी के युग में वैश्वीकरण के कारण जनसंचार और सोशल मीडिया का दायरा बहुत व्यापक होता हुआ दिखाई देता है। इंटरनेट के साथ-साथ सोशल मीडिया में और भी ऐसे कई ऐप है जो हिंदी भाषा के प्रचार और प्रसार में उनका योगदान दे रहे हैं। वर्तमान समय सोशल मीडिया का चल रहा है और हमें सोशल मीडिया का उपभोग लेना है तो हमें भाषा आना जरूरी है। इस समय सोशल मीडिया पर हिंदी एक ऐसी भाषा बन गई है जो जनमानस की भाषा है। संपर्क भाषा के रूप में किसी भाषा की ओर देखते हैं तो हमारे सामने हिंदी भाषा का ही नाम आता है। आज आज सोशल मीडिया की सहायता से हिंदी भाषा भारत के बाहर भी फैली हुई हमें नजर आती है, और इसे दुनिया के हर कोने तक पहुंचाने का काम सोशल मीडिया कर रहा है। (लवटे, २०१३)''<sup>१</sup>

**बीजशब्द-** हिंदी भाषा, सोशल मीडिया, इंटरनेट, टेलीविजन, कंप्यूटर।

भारत एक ऐसा विशालकाय देश है जिसमें सौ से अधिक भाषाएं बोली जाती है। लेकिन इन सभी भाषाओं में हिंदी एक ऐसी भाषा है जो पूरे भारत में बड़े स्तर पर बोली और प्रयुक्त की जानेवाली भाषा है। सिर्फ भारत में ही नहीं तो पूरे विश्व में हिंदी भाषा अधिकतम रूप में प्रयुक्त की जाने वाली भाषा बन रही है। इसे पूरे विश्व में पहुंचाने का कार्य आज सोशल मीडिया कर रहा है। हिंदी भाषा आज के वर्तमान समय में कश्मीर से कन्याकुमारी तक देश को जोड़ने वाली भाषा बन गई है। हमें भारत का भ्रमण करना है तो संपर्क भाषा के रूप में हिंदी का ही प्रयोग बड़े पैमाने पर होते हुए हमें दिखाई देता है।

इंटरनेट को हिंदी में 'अंतरजाल' कहते हैं। इंटरनेट की सहायता से हम आज विश्व के किसी भी कोने से जुड़ सकते हैं। इसीलिए इसे विश्वव्यापी नेटवर्क भी कहा जाता है। आज इंटरनेट पर 15 से ज्यादा सर्च इंजन उपलब्ध है। इनमें हिंदी वेबसाइट का प्रयोग करने वालों की तादाद बढ़ती ही चली जा रही है। इंटरनेट की सहायता से हर कोई आज ब्लॉग लिख रहे हैं। ब्लॉग आज एक अभिव्यक्ति स्वतंत्र का माध्यम बन चुका है, जिसमें हम अपनी मन की बात लिखकर दुनिया के सामने रख सकते हैं। हिंदी भाषा से ब्लॉग लिखने वालों की संख्या में हर समय वृद्धि होती हुई दिखाई दे रही है। इसी वजह से हिंदी का पाठक वर्ग भी बढ़ता हुआ नजर आ रहा है। इंटरनेट एक खुला और स्वतंत्र माध्यम है। सूचना प्रौद्योगिकी को जनमानस तक पहुंचाने के साधन के रूप में इंटरनेट को जाना जाता है। वर्तमान समय में इंटरनेट में समग्र दुनिया को आज एक छोटे से गांव में परिवर्तित कर दिया है। जिससे एक माउस पर क्लिक करके सारी दुनिया की जानकारी चुटकी बजाते ही प्राप्त कर सकते हैं। जो भी जानकारी चाहिए ओ सभी भाषा में वहां पर उपलब्ध कराई गई है। इंटरनेट के माध्यम से हिंदी भाषा को पढ़ने वाला पाठक वर्ग अब विदेश में भी तेजी से बढ़ता हुआ दिखाई दे रहा है।

आज विश्व के धरातल पर संपर्कता के माध्यम इतने बढ़ चुके हैं की इस संदर्भ में निवेदिता अग्रवाल जी कहती है कि "फेसबुक व्हाट्सएप और वीडियो शेयरिंग ऐप से विदेश के दोस्तों से भी बात होती है, जब हिंदी में मैं कोई पोस्ट लिखती हूँ तो वे ट्रांसलेटर की सहायता से उसका मतलब पता करते हैं, कई बार उसे पढ़कर उस पोस्ट पर हिंदी में टिप्पणी लिखते हैं।" (अग्रवाल, २०१८)<sup>२</sup> यह हमारे लिए गर्व की बात है कि विदेश में भी लोग हमारी भाषा के प्रति जागरूक है। इससे यह पता चलता है कि दुनिया भर में हिंदी भाषा के प्रचार और प्रसार में इंटरनेट का महत्वपूर्ण योगदान रहा है।

कोई भी भाषा अनुकरण से ही सीखी जाती है। आज का युग टेलीविजन का युग माना जा रहा है, क्योंकि टेलीविजन श्रव्य के साथ दृश्य भी दिखाता है। टेलीविजन चैनलों की बात करें तो सबसे ज्यादा चैनल हिंदी की ही नजर आते हैं। उनमें हिंदी समाचार भी सबसे अधिक दर्शकों द्वारा देखें या सुने जाते हैं। टीआरपी के मामले में भी हिंदी चैनल अंग्रेजी चैनलों से कहीं आगे है। आज हर किसी के घर में टीवी है और उसी के माध्यम से हिंदी भाषा को हर घर तक पहुंचाने का कार्य टेलीविजन कर रहा है। (तिवारी, २०१९)<sup>३</sup> आज टेलीविजन के रूप में बहुत से माध्यम हमारे सामने आए हैं, उनमें से प्रमुख रूप में रेडियो, मीडिया, फिल्म इंडस्ट्रीज आदि। इन सभी माध्यमों की वजह से हिंदी का प्रचार और प्रसार बहुत तेजी के साथ में बढ़ता हुआ नजर आ रहा है। राष्ट्रीय और अंतरराष्ट्रीय स्तर पर हिंदी को सर्वश्रेष्ठ बनाने में रेडियो की महत्वपूर्ण भूमिका रही है। आकाशवाणी में समाचार, शिक्षा, संगीत, मनोरंजन आदि सभी स्तरों पर हिंदी भाषा को देश के एक कोने से दूसरे कोने तक पहुंचाने में महत्वपूर्ण योगदान दिया है। इसमें फिल्मी गीतों का विशेष स्थान रहा है। हिंदी फिल्मी गीतों की लोकप्रियता भारत की सीमाओं को लांघकर दुनिया के उस पार जा पहुंची है। हिंदी फिल्मों ने तो हिंदी भाषा को सात समंदर पार पहुंचाया है। "भारतीय संस्कृति के संदर्भ में सिनेमा शायद सबसे अधिक लोकप्रिय और सबसे अधिक शक्तिशाली संचार माध्यम है।" (तिवारी, २०१९)<sup>४</sup> हिंदी सिनेमा ने तो दुनियाभर के दर्शकों के मन पर राज किया है। हिंदी फिल्में बाहर के देशों के थिएटर में भी चलाए जाते हैं। इससे हमें हिंदी फिल्मों की लोकप्रियता के बारे में मालूम होता है। हिंदी फिल्म देखने वालों की संख्या दिन-ब-दिन बढ़ती चली जा रही है। फिल्म देखने की दिलचस्पी में लोग भाषा को अपने आप आत्मसात कर लेते हैं। इससे यह पता चलता है कि फिल्म इंडस्ट्रीज का भी कितना बड़ा योगदान हिंदी भाषा के प्रचार और प्रसार में है।

वर्तमान समय में लगभग हर व्यक्ति के पास अपना निजी मोबाइल होता है। लोगों की भावनाओं को एक दूसरे तक पहुंचाने की हेतु बहुत से ऐप का निर्माण किया जा रहा है, और उन सभी ऐप में हिंदी भाषा उपलब्ध है। मोबाइल और कंप्यूटर के हिंदी टाइप करने हेतु यूनिकोड की सुविधा भी की गई है। जिसके अंतर्गत अंग्रेजी स्पेलिंग टाइप बनाकर हिंदी टाइपिंग आसानी से की जा सकती है। हिंदी टाइपिंग की कठिनता को 'मंगल फोंट' ने सरल बना दिया है। इसके साथ ही 'वॉइस टाइपिंग' का भी निर्माण हुआ है, उस के माध्यम से हिंदी टंकण न जानने वाला भी आसानी के साथ अपनी बातें सामान्य बोलचाल में हिंदी भाषा बोलकर दूसरों तक पहुंचा सकता है। सोशल मीडिया में आज बहुत ऐसे आप आ गए हैं, जिनके माध्यम से मनुष्य आपस में संपर्क स्थापित कर सकता है। आज की स्थिति पहले जैसे नहीं रही, पहले अगर कोई संदेश भेजना हो, तो पत्र के माध्यम से भेजा जाता था, पर उसमें बहुत समय लगता था। लेकिन वर्तमान समय में सोशल मीडिया के नए उपकरणों के माध्यम से कोई भी संदेश हम चुटकी बजाते ही भेज सकते हैं। उपकरणों में प्रमुख रूप से व्हाट्सएप, फेसबुक, इंस्टाग्राम, ट्विटर आदि उपकरणों का समावेश है। इन उपकरणों के माध्यम से हम एक दूसरे के साथ 'लिखित' और 'मौखिक' दोनों में भी जब चाहे तब संपर्क बना सकते हैं। इतना ही नहीं तो यूट्यूब जैसे ऐप पर हिंदी भाषा छाई हुई है। हिंदी शिक्षा के यूट्यूब चैनलों पर तो भारत के ही नहीं तो आसपास के देशों के भी बच्चे हिंदी भाषा से पढ़ रहे हैं। इन सभी सोशल मीडिया की वजह से वर्तमान में हिंदी भाषा को एक नया दर्जा प्राप्त होता हुआ दिखाई दे रहा है।

कंप्यूटर भी इसमें पीछे नहीं है। "हिंदी भाषा का पहला कंप्यूटर 1977 में आया।" (विकास पीडिया , २०२०)<sup>५</sup> हिंदी भाषा को कंप्यूटर से जोड़ने का सबसे पहला प्रयास 'राजभाषा विभाग गृह मंत्रालय' द्वारा किया गया। हिंदी में काम करने के लिए 'शाब्दिका' नामक सॉफ्टवेयर तैयार किया गया। और इसमें तकनीकी रूप में विकास करने का काम भारत सरकार की कंपनी 'सी-डैक पुणे' की ओर से किया गया। यह विकास मोटे तौर पर तब हुआ जब एक इनकोडिंग प्रणाली विकसित हुई जिससे 'यूनिकोड' नाम से जाना जाता है। यूनिकोड का शाब्दिक अर्थ है, जिसमें भाषा की कोड की जाने वाली छवियां एक जैसी हो, जिसमें एकरूपता हो। इससे हम अंग्रेजी टाइप बनाकर हिंदी में लिख सकते हैं। इससे हिंदी में लिखने वालों की संख्या में वृद्धि होती हुई हमें दिखाई देती है। हिंदी में लिखने वालों की तादाद बढ़ने के कारण उनका पाठक वर्ग भी तेजी के साथ बढ़ता चला गया और यह पाठक वर्ग बढ़ने में कंप्यूटर और यूनिकोड का योगदान महत्वपूर्ण है।

निष्कर्ष के रूप में हम यह कह सकते हैं कि आज हिंदी को दुनिया के हर एक कोने तक पहुंचाने में सोशल मीडिया का महत्वपूर्ण योगदान दिखाई देता है। सोशल मीडिया में जो बदलते रूप आ रहे हैं, उनमें से प्रमुख रूप में इंटरनेट, टेलीविजन,

मोबाइल, फिल्म इंटरनेट, फेसबुक, इंस्टाग्राम, ट्विटर, यूट्यूब, वाट्सअप आदि हिंदी भाषा को विश्वभर में पहुंचाने का कार्य करते हुए हमें दिखाई देता है।

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**कमला इन्स्टिट्यूशनल रिपॉझिटरी – एक अभ्यास****सौ. पूजा प्रसाद चव्हाण**

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कमला कॉलेज, कोल्हापूर, 416008

poojachavan9218@gmail.com

**सार –**

आपण सर्व या युगाला माहिती तंत्रज्ञानाचे युग म्हणून संबोधतो. या युगात माहितीच्या अफाट सागरातून मोत्याप्रमाणे माहिती वेचणे वाचकांसाठी गरजेचे आहे. हे वाचन साहित्य मिळवून देण्यास ग्रंथालय वाचकांना पुर्वी पासून मदत करत आली आहेत. मानवी समाजाने केलेल्या वैज्ञानिक व तांत्रिक प्रगतीमुळे ग्रंथालयांना आपल्या सेवा सुविधा पुरवणे सोपे बनत चालले आहे. आत्याधुनिक माहिती वाचकांना कमी वेळेत व कमी खर्चात उपलब्ध करून देणे ग्रंथालयांची जबाबदारी आहे.

**शोध संज्ञा** - डिजिटल लायब्ररी, माहिती तंत्रज्ञान, इन्स्टिट्यूशनल रिपॉझिटरी, D-Space, Linux, Windows, N-list, NAAC, Online, Offline.

**प्रस्तावना –**

सध्याची युग माहिती तंत्रज्ञानाचे युग असून माहिती तंत्रज्ञान जणू आपल्या अंगवळणी पडले आहे. आजकाल प्रचलित असलेले इंटरनेट, संगणक तंत्रज्ञान काळानुरूप व्यापक बनत चालले आहे. या डिजिटल युगासोबत पुढे जात असताना ग्रंथालयांना देखील आपल्या कामकाज करण्याच्या पद्धतीमध्ये बदल करावा लागतो. वाचकांच्या आवडीनुसार सेवा-सुविधा पुरविणे, काळानुरूप बदलाचा स्वीकार करणे, अत्याधुनिक सेवा - सुविधा पुरवणे गरजेचे असते. . सध्या आधुनिक तंत्रज्ञानाचा ग्रंथालयात चांगल्या प्रकारे उपयोग करता येतो. यामधील एक म्हणजे इन्स्टिट्यूशनल रिपॉझिटरी असून इन्स्टिट्यूशनल रिपॉझिटरी म्हणजे काय? इन्स्टिट्यूशनल रिपॉझिटरी चा वापर? कमला इन्स्टिट्यूशनल रिपॉझिटरी या सर्व बाबींचा आढावा आपण घेणार आहोत.

**इन्स्टिट्यूशनल रिपॉझिटरी –**

इन्स्टिट्यूशनल रिपॉझिटरी म्हणजे डिजिटल स्वरूपातील रेकॉर्ड किंवा संग्रहालय असे म्हणता येईल. संस्थेमार्फत किंवा महाविद्यालयामार्फत घेण्यात येणारे विविध कार्यक्रम, विविध उपक्रम, संशोधन, संस्था प्रकाशने यांचे जतन करणे तसेच संस्थेतील, महाविद्यालयातील बौद्धिक कामाचे डिजिटल स्वरूपात केलेले जतन म्हणजे इन्स्टिट्यूशनल रिपॉझिटरी. या सर्वांचे जतन व संवर्धन करणे काळाची गरज आहे. रेकॉर्ड जमविणे, मिळविणे, जतन करणे व व्यवस्थापन करणे तसेच वाचकांच्या मागणीनुसार वाचकांना पुन्हा उपलब्ध करून देणे हा प्रमुख उद्देश इन्स्टिट्यूशनल रिपॉझिटरीचा आहे. इन्स्टिट्यूशनल रिपॉझिटरी साठी च्या व्याख्या पुढीलप्रमाणे पाहता येतील .

1. An Institutional Repository is an archive for Collecting, Preserving and disseminating digital copies of the intellectual output of an institution, particularly a research institution. (Wikipedia)
2. Institutional Repository is a digital Collection resulting from capturing, preserving and disseminating the intellectual output of a single university community. ( Naik. P.G., Naik G.R.)

इन्स्टिट्यूशनल रिपॉझिटरी इन्स्टॉल करण्यासाठी D-Space अज्ञावली वापरली जाते. ही अज्ञावली Windows आणि Linux या दोन्ही अज्ञावली मध्ये इन्स्टॉल करता येते. या इन्स्टॉलेशन मध्ये काही इतरही अज्ञावली चा वापर करावा लागतो.

इन्स्टिट्यूशनल रिपॉझिटरी साठी अनेक हार्डवेअर सॉफ्टवेअर ची गरज असते. जसे नवीनतम तंत्रज्ञान असणारा संगणक, 2 जीबी रॅम किंवा त्यापेक्षा जास्त, हार्ड डिस्क 500 गिगाबाइट पासून 2 टेराबाइट पर्यंत असावी या सर्व हार्डवेअर वापर अनेक ठिकाणी इन्स्टिट्यूशनल रिपॉझिटरी बनवण्यासाठी केला जातो.

इन्स्टिट्यूशनल रिपॉझिटरीची काही उदाहरणे

- 1) निस्केअर ऑनलाईन नियतकालिक रिपॉझिटरी
- 2) नॅशनल डिजिटल लायब्ररी ऑफ इंडिया
- 3) शोधगंगा
- 4) आयआयटी थिसेस / प्रबंध
- 5) आयआयटी गांधीनगर
- 6) सावित्रीबाई फुले पुणे विद्यापीठ रिपॉझिटरी
- 7) भोगावती महाविद्यालय ग्रंथालय
- 8) कमला इन्स्टिट्यूशनल रिपॉझिटरी

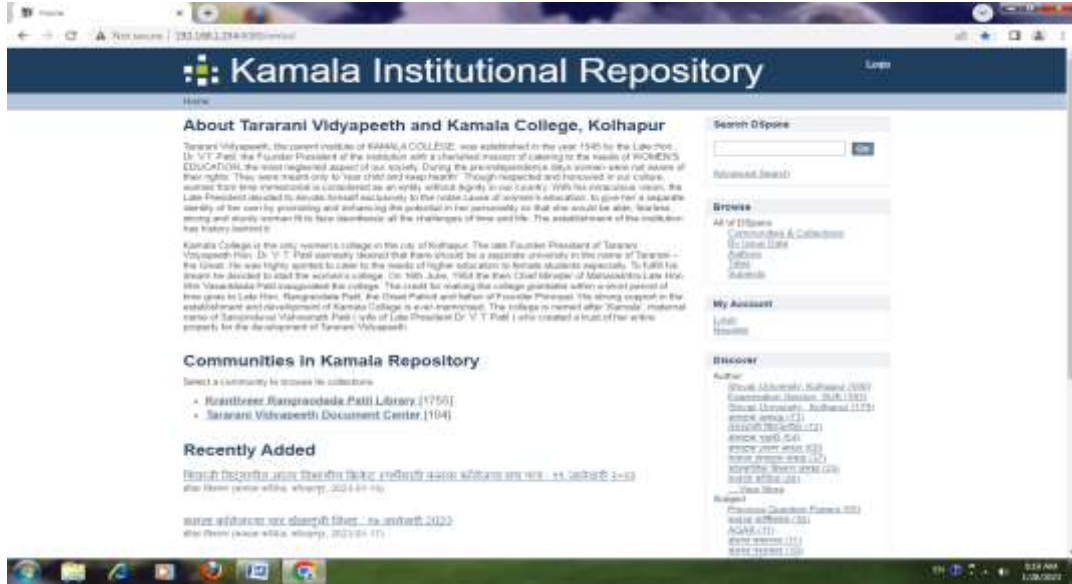
आपण कमला इन्स्टिट्यूशनल रिपॉझिटरी चा आढावा घेणार आहोत, त्या पुर्वी ताराराणी विद्यापीठ, कमला कॉलेज व महाविद्यालयाचे ग्रंथालय यांचा देखिल आढावा घेवू.

**ताराराणी विद्यापीठ** - स्वातंत्र्यपूर्व काळात 1945 साली स्थापन करण्यात आलेली ताराराणी विद्यापीठ ही स्त्री शिक्षणाचा वारसा जपणारी कोल्हापूर शहरातील व परिसरातील एकमेव अग्रगण्य संस्था असून संस्थेची स्थापना 1945 साली शिक्षणमहर्षी कै. मा. व्ही. टी. पाटील तथा काकाजी यांनी केली. स्त्रिया शिक्षणापासून वंचित राहू नयेत त्यांना शिक्षणाची संधी मिळावी त्या महाराणी ताराराणी प्रमाणे कर्तृत्ववान बनव्यात हे ध्येय समोर ठेवून या ताराराणी विद्यापीठाची स्थापना केली. काकाजींनी लावलेल्या इवल्याशा रोपट्याचे रूपांतर आज वटवृक्षांमध्ये झालेले असून, या शिक्षण संस्थेचा विस्तार इतका झाला आहे की, बालवाडी ते पदवीत्तर शिक्षण घेऊनच मुली बाहेर पडतील. याच ताराराणी विद्यापीठाची एक शाखा म्हणजे कमला कॉलेज आहे.

**कमला कॉलेज** - शिवाजी विद्यापीठ, कोल्हापूर संलग्न असलेले कमला कॉलेज. कोल्हापूर शहरातील एकमेव महिला महाविद्यालय असून महाविद्यालयाची स्थापना 1984 साली झाली. महाविद्यालयाचे संस्थापक प्राचार्य व ताराराणी विद्यापीठाचे कार्यकारी अध्यक्ष प्राचार्य डॉ. क्रांतीकुमार पाटील यांच्या खंबीर नेतृत्वाखाली आज महाविद्यालयाची प्रगती होत आहे. कमला महाविद्यालयाला नॅक 'ए' मानांकन प्राप्त असून यूजीसी कडून 2016 मध्ये 'कॉलेज विथ पोटेन्शियल फॉर एक्सलन्स' हा दर्जा प्राप्त झाला असून 2021-22 पासून कमला महाविद्यालय स्वायत्त बनले आहे. येथे पारंपारिक शिक्षणाबरोबरच व्यावसायिक शिक्षण व व्यवसायभिमुख प्रमाणपत्र कोर्सेस देखील चालवले जातात. कमला महाविद्यालयाचे स्वतंत्र ग्रंथालय, अभ्यासिका, लॅंग्वेज लॅब, योगा हॉल, होम सायन्स लॅब असे अनेक विभाग अत्याधुनिक सोयीनियुक्त कार्यरत आहेत.

**क्रांतिवीर रंगरावदादा पाटील ग्रंथालय** - महाविद्यालयाचा आत्मा म्हणजे ग्रंथालय. कमला कॉलेजचे क्रांतिवीर रंगरावदादा पाटील ग्रंथालय हे संगणकीकरण पूर्ण झालेले व अत्याधुनिक सेवा सुविधा वाचकांना पुरवणारे ग्रंथालय आहे. ग्रंथालयाची ग्रंथसंपदा 64,900 इतकी असून विद्यार्थी, प्राध्यापक, वाचकांसाठी क्रमिक पुस्तकांबरोबरच संदर्भ पुस्तके, अवांतरवाचन, संशोधन पत्रिका, नियतकालिके, सीडीज, कॅसेट्स उपलब्ध असून N-list मॅबरशीपद्वारे ऑनलाईन ई - जनरल्स व ई - बुक्स उपलब्ध करून देण्यात आले आहेत. ग्रंथालयामार्फत ग्रंथ-प्रदर्शन, ग्रंथ परिक्षण, ग्रंथालय भेट, प्रश्नमंजूषा, कार्यशाळा, सेमिनार, व्याख्यान, भित्तिपत्रक असे उपक्रम राबवले जातात. ज्यामुळे विद्यार्थ्यांमध्ये वाचनाची आवड निर्माण होण्यास व ती वृद्धिंगत होण्यास मदत होते. डिजिटल स्वरूपात विद्यार्थ्यांना e-Kamala e-Learning Resources व Kamala Institutional Repository असे प्लॅटफॉर्म उपलब्ध करून दिले आहेत. विद्यार्थ्यांच्या विकासामध्ये ग्रंथालयाचा अमुलाग्र वाटा असतो त्या अनेक समृद्ध ग्रंथालयांपैकी हे एक ग्रंथालय आहे.

कमला इन्स्टिट्यूशनल रिपॉझिटरी –



कमला इन्स्टिट्यूशनल रिपॉझिटरी ही D-Space अज्ञावली चा वापर करून तयार करण्यात आली आहे. इन्स्टिट्यूशनल रिपॉझिटरी ऑनलाइन किंवा ऑफलाइन दोन्ही स्वरूपात वापरता येते. कमला इन्स्टिट्यूशनल रिपॉझिटरी ही ऑनलाईन स्वरूपात वापरली जाते यासाठी एक वेगळा सर्व्हर वापरावा लागतो. विद्यार्थ्यांना व प्राध्यापकांना या ऑनलाइन रिपॉझिटरी मुळे वाचन साहित्य 24/7 कोठेही उपलब्ध होऊ शकते या इन्स्टिट्यूशनल रिपॉझिटरी चा फक्त महाविद्यालयातील विद्यार्थी, प्राध्यापकांनाच उपयोग होतो असे नाही. इतरही लोक याचा वापर करू शकतात. इन्स्टिट्यूशनल रिपॉझिटरी तयार करताना 2 मेनू Communities बनवण्यात आल्या आहेत.

1) **Krantiveer Rangraodada Patil Library**



क्रांतिवीर रंगरावदादा पाटील ग्रंथालय या Community मध्ये वाचकांना Sub-Community पुढील पाहता येतील.

- *College Photo Gallery* - <http://192.168.1.254:8080/xmlui/handle/1/3>
- *News Paper Clipping* - <http://192.168.1.254:8080/xmlui/handle/1/259>
- *Previous Question Papers* - <http://192.168.1.254:8080/xmlui/handle/1/45>



- *Syllabus* - <http://192.168.1.254:8080/xmlui/handle/1/471>
- *Compulsory Subject Books* - <http://192.168.1.254:8080/xmlui/handle/1/2012>
- *Faculty Research Publication* - <http://192.168.1.254:8080/xmlui/handle/1/1205>
- *Kamala Annual Magazine* - <http://192.168.1.254:8080/xmlui/handle/1/10>
- *Kamala College Publications* - <http://192.168.1.254:8080/xmlui/handle/1/348>
- *M.Phil / Ph.D Theses* - <http://192.168.1.254:8080/xmlui/handle/1/472>
- *Major / Minor Research Project* - <http://192.168.1.254:8080/xmlui/handle/1/388>
- *NAAC / AQR Report* - <http://192.168.1.254:8080/xmlui/handle/1/262>

या सर्व Sub Communities मधील महत्वाची व विद्यार्थ्यांना उपयुक्त असणारी Sub Community म्हणजे **Previous Question Papers** शिवाजी विद्यापीठांतर्गत घेण्यात येणाऱ्या परीक्षांच्या मागील वर्षांच्या प्रश्नपत्रिका विद्यार्थ्यांसाठी डिजिटल स्वरूपात जतन करण्यात आल्या आहेत. इन्स्टिट्यूशनल रिपॉझिटरी ऑनलाइन असल्यामुळे प्रश्नपत्रिका ज्या विद्यार्थ्यांना पहावयाच्या असतील ते केव्हाही त्या पाहू शकतात तसेच विद्यार्थ्यांना व प्राध्यापकांना प्रश्नपत्रिका सोयीस्करित्या प्राप्त व्हाव्यात यासाठी **QR Code** (Quick Response Code) तयार करण्यात आला असून तो प्रत्येक वर्गाच्या क्रमिक पुस्तकांवर लावण्यात आला असून ग्रंथालयामध्ये ठिकठिकाणी QR Code चे प्रिंट काढून लावण्यात आले आहे. डायरेक्ट प्रश्नपत्रिका पाहण्यासाठी <http://59.97.238.102:8080/xmlui/handle/1/45> ही URL वापरता येते. या सर्वांमुळे विद्यार्थ्यांचा प्रश्नपत्रिका शोधण्याचा वेळ व श्रम वाचतो.

## 2) **Tararani Vidyapeeth Documentary Center**



संस्थेअंतर्गत घेतल्या जाणाऱ्या कार्यक्रमाचे डॉक्युमेंट जतन करण्यात आले आहेत. तसेच संस्थेमार्फत प्रकाशित करण्यात आलेले अनेक पुस्तके यामध्ये पीडीएफ स्वरूपात पाहता येतील. या Community च्या Sub - Communities पुढील प्रमाणे

- *News Paper Clipping*
- *Photo Gallery*

ताराराणी विद्यापीठीमार्फत अनेक महत्त्वाचे कार्यक्रम राबवले जातात . या Photo Gallery मध्ये या कार्यक्रमांचे 1990 साला पासुन आज पर्यंतचे Photos upload करण्यात आले असुन त्यामुळे जुने झालेले फोटो दिर्घकाळ टिकवणे शक्य झाले आहे. या फोटो गॅलरी मध्ये संस्थेमध्ये घेण्यात येणा-या पुढील कार्यक्रमांचे फोटोज् जतन करुन ठेवण्यात येतात.

- व्ही. टी. पाटील तथा काकाजी जयंती व पुण्यतिथी
- सरोजिनीदेवी विश्वनाथ पाटील तथा काकीजीची यांची जयंती व पुण्यतिथी
- क्रांतिवीर रंगरावदादा पाटील जयंती व पुण्यतिथी
- क्रांतिवीर रंगरावदादा पाटील व्याख्यानमाला
- तुकाराम बीज
- भद्रकाली ताराराणी पुरस्कार

ताराराणी विद्यापीठाच्या शिरपेचातील मानाचा तुरा म्हणजे भद्रकाली ताराराणी पुरस्कार हा पुरस्कार महाराणी ताराराणी यांच्या स्मृती प्रित्यर्थ काकाजीनी आयोजित केला. हा पुरस्कार देण्यास ताराराणी विद्यापीठाने 1990 साली सुरवात केला तो आज पर्यंत सुरु आहे. एकूण 14 पुरस्कार संस्थेमार्फत देण्यात आले आहेत. यामध्ये कला, क्रीडा, समाजकारण, राजकारण या वेगवेगळ्या क्षेत्रात असामान्य कार्य करणा-या स्त्रीला हा पुरस्कार दिला जातो. यामध्ये राजमाता विजयाराजे शिंदे, सरोजिनी बाबर, उषा मेहता, किरण बेदी, तेजस्विनी पाटील, मंदाताई आमटे, राहीबाई पोपेरे आशा नामवंत स्त्रियांचा यात समावेश आहे. या सर्व कार्यक्रमांचे फोटोज इन्स्टिट्यूशनल रिपोर्टरी वरती उपलब्ध आहेत.

● *Tararani Vidyeeth Publication* —

संस्थेद्वारे प्रकाशित केलेले ग्रंथ यांचे Digital स्वरूपात जतन केले गेले असुन त्यातील महत्त्वाचे ग्रंथ पुढील प्रमाणे.

- हा गंध चंदनांचा
- भावसुगंध
- क्रांतीचे रंग
- महाराणी ताराबाई
- कमला सुवर्ण महोत्सवी अंक
- कमला त्रिशताब्दि अंक
- कमला अमृत महोत्सवी अंक

**कमला इन्स्टिट्यूशनल रिपोर्टरीचे महत्व** — कमला महाविद्यालयाची कमला इन्स्टिट्यूशनल रिपोर्टरी हि महाविद्यालया सोबतच संस्थेलादेखिल आपली बौद्धिक संपदा जतन करुन ठेवण्यास मदत करते. हवी ती माहिती हवी तेव्हा हवी तेथे पाहता येते. विद्यार्थी, प्राध्यापक व इतर वाचक वर्ग या सर्वांना इन्स्टिट्यूशनल रिपोर्टरीचा उपयोग होतो.

**निष्कर्ष** —

आपण इन्स्टिट्यूशनल रिपोर्टरी म्हणजे काय पाहून कमला इन्स्टिट्यूशन रिपोर्टरी चा आढावा घेतला. यामुळे आपल्याला हे समजले की मुद्रित साहित्य डिजिटल स्वरूपात जतन करुन ठेवणे शक्य झाले असून पूर्वी सर्व साहित्य मुद्रित स्वरूपात आपल्याला ग्रंथालयातून मिळवावे लागत असे सध्या माहिती तंत्रज्ञानाच्या युगामुळे सर्व काही आपण डिजिटल स्वरूपात मिळवू शकतो. एखाद्या इन्स्टिट्यूट किंवा महाविद्यालयाचे रेकॉर्ड महत्त्वाचे असतात ते जतन करुन पुन्हा शिस्तबद्ध पद्धतीने उपलब्ध करुन देणे शक्य झाले आहे. कमला इन्स्टिट्यूशनल रिपोर्टरी ऑनलाईन असल्यामुळे वाचकांना केव्हाही, कुठेही, कधीही माहिती ऑनलाईन पाहता येऊ शकले. इन्स्टिट्यूशनल रिपोर्टरीमुळे महाविद्यालयाचा व ग्रंथालयांचा पैसा, वेळ व जागा यांची बचत होते. या सर्व गोष्टी इन्स्टिट्यूशनल रिपोर्टरीमुळे शक्य झाल्या आहेत. इन्स्टिट्यूशनल रिपोर्टरी ही वर्तमानात तसेच भविष्यात देखील ग्रंथालयीन सेवा वृद्धिंगत होण्यास मदत करू शकते.

**संदर्भ —**

- 1) मुलाखत — उर्मिला कदम, ग्रंथपाल, कमला कॉलेज, कोल्हापूर.
- 2) Kamala Institutional Repository - <http://192.168.1.254:8080/xmlui/>
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- 4) Naik, P.G., Naik, G.R. (n.d.) Creating and Management Institutional Repository Using DSpace: A Case Study Approach.
- 5) Salunkhe N.S., Hase V.L., Hemade N.N. (2020): इन्स्टिट्यूशनल रिपॉझिटरी.





## आधुनिक ग्रंथालयाचे व्यवस्थापन आणि नवोपक्रम

## मार्गदर्शक

डॉ.एस.एस.पाठक,

सहाय्यक प्राध्यापक, शिक्षणशास्त्र विभाग,  
डॉ.बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ,  
औरंगाबाद.

## संशोधक

कु.कांबळे कल्पना बापूराव

शिक्षणशास्त्र विभाग,  
डॉ.बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ,  
औरंगाबाद.

## सारांश :

प्रस्तुत लेखामध्ये ग्रंथालय म्हणजे सर्वसाधारणपणे छापील तसेच हस्तलिखित माहिती साधने, एकत्रितपणे ठेवण्याची जागा. ग्रंथालयाचा मुख्य उद्देश ज्ञान व माहिती संग्रह असतो. यामध्ये ग्रंथालय हे ज्ञानाचे भांडार असून शिक्षण व्यवस्थेत याला अन्योन्य महत्व आहे. यासाठी चांगले ग्रंथालय निर्माण होण्यासाठी ग्रंथालय व्यवस्थापन असणे गरजेचे असते. यात वित्त व्यवस्थापन, ग्रंथ व्यवस्थापन, मनुष्यबळ व्यवस्थापन, सेवा व्यवस्थापन या बाबी महत्वाच्या दिसून येतात. यामध्ये वाचकांसाठी नवीन उपक्रम राबविले जावेत म्हणजेच वाचक सर्वेक्षण, ग्रंथालय सुरक्षितता, ग्रंथपेढी योजना, मार्गदर्शन सेवा, ग्रंथप्रदर्शनी, रोजगार माहिती सेवा, अभ्यासिकेची सेवा याचा समावेश करण्यात यावा. म्हणून ग्रंथालयात नवोपक्रम राबविणे हे अत्यंत महत्वाची बाब आहे.

## प्रस्तावना :

ग्रंथालय हा शिक्षण संस्थेचा आत्मा आहे. कुठल्याही शिक्षण संस्थेची प्रगती ही त्या संस्थेचे ग्रंथालय किती समृद्ध आहे यावर अवलंबून असते. त्यामुळे आधुनिक ग्रंथालयाचे व्यवस्थापन करित असतांना ग्रंथालयात असलेल्या सेवांना अधिक महत्व देणे आवश्यक आहे. ग्रंथालयाचे कामकाज व्यवस्थितपणे चालविण्यासाठी नियोजनबद्ध व्यवस्थापनाची अतिशय आवश्यकता आहे. व्यवस्थापन हा संस्थेचा आत्मा असल्यामुळे सुयोग्य व्यवस्थापन हा संस्थेच्या प्रगतीतील एक महत्वाचा घटक आहे. व्यवस्थापन जर योग्य प्रकारचे नसेल तर संस्था प्रगती करू शकत नाही. ग्रंथालय हे कुठल्याही प्रकारचे असो, सार्वजनिक क्षेत्र असो वा शैक्षणिक क्षेत्र असो, ग्रंथालयात योग्य मनुष्यबळ वापरून ग्रंथालयाचे व्यवस्थापन करणे अतिशय गरजेचे आहे. आजच्या डिजिटल ग्रंथालयाच्या युगात व्यवस्थापनाला अतिशय महत्व प्राप्त झाले आहे. ग्रंथालये ही सेवाभावी संस्था आहे. ना नफा ना तोटा ह्या सहकाराच्या तत्त्वानुसार सतत सेवा देत असतात. ग्रंथालयीन सेवांच्या काही भागाचे स्वरूप हे जरी यंत्रवत असले तरी ग्रंथालयातील बऱ्याच सेवा ह्या त्या ग्रंथालयातील मनुष्यबळावर अवलंबून आहेत. यामुळे ग्रंथालयीन व्यवस्थापन ह्या घटकास प्राधान्य दिलेले आहे.

ग्रंथालयाचे व्यवस्थापन करीत असतांना ग्रंथालयातर्फे राबविल्या जाणाऱ्या उपक्रमांनासुद्धा महत्व दिले पाहिजे. यामध्ये प्रामुख्याने वाचक सर्वेक्षण, ग्रंथालयाची सुरक्षितता, महाविद्यालयातील ग्रंथपेढी योजना, मार्गदर्शन सेवांचा विस्तार, आणि विद्यार्थ्यांसाठी ग्रंथप्रदर्शनी आयोजित करून ग्रंथालयीन उपक्रम सेवा विकसीत करणे गरजेचे आहे. एकविसावे शतक हे माहितीचे शतक असल्यामुळे ग्रंथालयाप्रती विद्यार्थ्यांना आवड निर्माण करणे हे व्यवस्थापनाचे कर्तव्य आहे.

## व्यवस्थापनाची व्याख्या :

व्यवस्थापन म्हणजे नियोजन प्रक्रिया आणि उपक्रमातील विविध हालचाली याचे नियंत्रण करण्याची प्रक्रिया होत.- ब्रॅंच  
MANAGEMENT IS THE PROCESS OF PLANNING AND REGULATING THE ACTIVITIES OF AN ENTERPRISE.

सर्वानी मिळून संस्थेची उपेक्षित उद्दिष्ट्ये साध्य करण्यासाठी सक्षमतेने काम करणे आवश्यक आहे असे वातावरण संस्थेने निर्माण करणे व ते टिकून राहिल याची काळजी घेणे या सर्व प्रक्रियेस व्यवस्थापन असे म्हणता येईल.

ग्रंथालयाचे कार्य आणि ग्रंथालयाचे उद्देश साध्य करण्यासाठी ग्रंथालय कर्मचाऱ्यांची केलेली व्यवस्था म्हणजे ग्रंथालयाचे व्यवस्थापन म्हणता येईल. आधुनिकतेच्या काळात ग्रंथालयाचे बदलते स्वरूप लक्षात घेवून आधुनिक व्यवस्थापन करणे गरजेचे झाले आहे.

**ग्रंथालयात राबविले जाणारे नवोपक्रम :**

समाजाच्या व देशाच्या प्रगतीमध्ये ग्रंथालयाने प्राचीन काळापासून हातभार लावलेला आहे. त्यामध्ये काळानुरूप बदल अपेक्षित आहे व बदल घडून येत आहे. या बदलाचा ग्रंथालयाने स्वीकार केलेला आहे. ग्रंथालयाची कार्यक्षमता ही आज व्यवस्थापनावरच अवलंबून असते. उत्तम व्यवस्थापन असेल तरच ग्रंथालयांना खालील उपक्रम राबविता येवू शकते.

1.वाचक सर्वेक्षण, 2. ग्रंथालय सुरक्षितता, 3. ग्रंथपेढी योजना, 4. मार्गदर्शन सेवा, 5. ग्रंथप्रदर्शनी, 6. माहिती साक्षरता, 7. रोजगार माहिती सेवा, 8. उत्कृष्ट उपभोक्ता पुरस्कार, 9. अभ्यासिकेची सुविधा, 10. बहिःशाल सेवा.

ग्रंथालयात येणाऱ्या वाचकांच्या आवडीनिवडी लक्षात घेवून ग्रंथाची निवड करावी लागते. यासाठी वाचक सर्वेक्षण उपक्रम राबवावा लागतो. या उपक्रमाद्वारे वाचकाची अभिरुची लक्षात येते व ग्रंथालयाच्या कार्यपध्दतीत सुधारणा करता येवू शकते.

अनेक ग्रंथालयामध्ये Close Access/Open Access या दोन प्रकारची कार्यपध्दती चालते. Close Accessपेक्षा Open Access ही पध्दत वाचकांना अतिशय फायदेशीर ठरते. कारण यामध्ये निरनिराळ्या प्रकारचे ग्रंथ वाचकास हाताळल्यास मिळत असते, यासाठी काही बाबीवर नियंत्रण आणण्यासाठी ग्रंथालय सुरक्षिततेची गरज निर्माण झालेली आहे. 1.ग्रंथालयातील दुर्मिळ ग्रंथाची संख्या, 2. ग्रंथ संग्रहात सतत वाढ होणे, 3. ग्रंथालयात जास्त पुस्तकाच्या किंमतीत वाढ होत असल्यामुळे ग्रंथ सुरक्षिततेची गरज निर्माण झालेली आहे. तसेच ग्रंथ चोरीला जावू नये म्हणून आधुनिक तंत्राचा वापर करणे गरजेचे झालेले आहे.

शैक्षणिक पात्रतेनुसार वर्तमानपत्रात रोजगाराची संबंधित जाहिराती प्रकाशित होत असतात. अशा जाहिराती विद्यार्थ्यांसाठी नोटीस बोर्डवर उपलब्ध करून दिल्या जाव्यात, परिक्षेची तयारी कशी करावी, मुलाखतीची तयारी कशी करावी या संदर्भात विद्यार्थ्यांना मार्गदर्शन सतत करणे आवश्यक आहे.

महाविद्यालयातील ग्रंथपेढी योजना सुरु करून त्याद्वारे विद्यार्थ्यांना ग्रंथाचा पुरवठा केला जावा व परीक्षा संपल्यानंतर दिलेली पुस्तके विद्यार्थ्यांकडून परत घेतली जावीत. विद्यार्थी महाविद्यालयात आल्यानंतर ग्रंथालयातील पुस्तकाचा वापर किती करतो, वर्तमानपत्रे, नियतकालिके यांचा वापर करतो. काय व यांच्या नोंदी घेवून ग्रंथालयातील त्याची वर्तणूक कशा पध्दतीची आहे या सर्व गोष्टींचा आधार घेवून ग्रंथालय समितीच्या मार्फत उत्कृष्ट वाचक पुरस्कार ग्रंथालयातर्फे दिला गेल्यास विद्यार्थ्यांच्या वाचन संस्कृतीत वाढ होण्यास मदत मिळू शकेल.

विद्यार्थ्यांना सतत ग्रंथालयातर्फे अभ्यासाविषयी मार्गदर्शन करणे गरजेचे आहे. ग्रामीण भागात वाचनाच्या सोयी उपलब्ध नसतात, अशावेळी गरजू विद्यार्थ्यांना ग्रंथालयामार्फत वाचनिय साहित्याचा पुरवठा करून वाचन सेवा उपलब्ध करून दिल्या जातात. महाविद्यालयीन ग्रंथालयाचे व्यवस्थापन करीत असतांना गरजू विद्यार्थ्यांसाठी अभ्यासिकेची सुविधा उपलब्ध करून दिली जावीत. अभ्यासिकेमध्ये संदर्भ ग्रंथ, दुर्मिळ पुस्तके व वाचनीय साहित्य विद्यार्थ्यांसाठी उपलब्ध असावेत. अभ्यासिकेकडे विद्यार्थी आकर्षित व्हावे यासाठी ग्रंथालयीन कर्मचाऱ्यांनी सतत प्रयत्नशील असले पाहिजे. वाचकांच्या अडचणी जाणून घेवून त्यांना आवश्यक असणारी ग्रंथ संपदा अभ्यासिकेमध्ये उपलब्ध करून दिली पाहिजे.

आधुनिक ग्रंथालयाच्या व्यवस्थापनात खालील बाबींचा प्रामुख्याने समावेश असला पाहिजे.

1.वाचकांचे सर्वेक्षण, 2.उत्कृष्ट वाचक बक्षिस योजना, 3. नवीन माहितीचे प्रसारण, 4. सूचना पेटी, 5. सांख्यिकी योजना, 6. ग्रंथालय सुरक्षितता, 7. ग्रंथालय नियमावली, 8. ग्रंथालयाचे विभाग, 9. पुस्तक निवड प्रक्रिया, 10. ग्रंथालयाचे अंदाजपत्रक

डॉ. रंगनाथन यांचा पंचसूत्री कार्यक्रमानुसार ग्रंथालयात येणाऱ्या वाचकांना सेवा देण्यासाठी ग्रंथालयात आधुनिकेतचा स्वीकार करणे आवश्यक आहे. आधुनिक ग्रंथालयाचे व्यवस्थापन हे वाचकांच्या गरजा / अपेक्षा पूर्ण करणारे असले पाहिजेत. ग्रंथालय व्यवस्थापनाची व्याप्ती वाढविण्यासाठी वाचकाभिमुख ग्रंथालय सेवा पुरविणे आवश्यक आहे. यासाठी ग्रंथालय व्यवस्थापनाच्या व्याप्तीत खालील बाबींचा समावेश असला पाहिजे.

1. वित्त व्यवस्थापन
2. ग्रंथ खरेदी व्यवस्थापन
3. मनुष्यबळाचे व्यवस्थापन
4. सेवा व्यवस्थापन

आधुनिक ग्रंथालयाचे व्यवस्थापन करीत असतांना वित्तीय व्यवस्थापनाला फार महत्त्व आहे. कारण वित्तीय व्यवस्थापन असेल तर ग्रंथालये ही योग्य प्रकारे वाचकांना सेवा पुरवू शकत नाहीत. ग्रंथालयात ग्रंथ खरेदी, मासिके खरेदी व वर्तमानपत्रे खरेदीसाठी वित्तीय व्यवस्थापनाची गरज भासते.

ग्रंथालयात पुरेसा कर्मचारी वर्ग नसेल तर आधुनिकतेच्या काळात योग्य प्रकारे सेवा देवू शकत नाही. युजीसीच्या पॅटर्नप्रमाणे ग्रंथालयात कर्मचारी वर्गाची नेमणूक करणे आवश्यक आहे. महाविद्यालयीन ग्रंथालयात ग्रंथालय समितीने ठरवून दिल्याप्रमाणे ग्रंथ खरेदीचे व्यवस्थापन करणे आवश्यक आहे. ग्रंथालयात कोणकोणत्या अभ्यासक्रमातील पुस्तकाची आवश्यकता आहे याची यादी महाविद्यालयाच्या विविध अभ्यासक्रमाच्या विभाग प्रमुखाकडून घेवून व त्याला ग्रंथनिवड समितीची मान्यता घेवून ग्रंथखरेदी केली पाहिजे. ग्रंथालयात ग्रंथाची परिपूर्णता झाल्यानंतर सेवा व्यवस्थापन फार महत्वाचे आहे. सेवा व्यवस्थापन देत असताना विद्यार्थी, प्राध्यापक व संशोधक यांना केंद्रभूत करणे आवश्यक आहे. माहिती सेवा, संदर्भ सेवा व ग्रंथालयात येणाऱ्या नवनविन ग्रंथाची माहिती वाचक व संशोधकांना उपलब्ध करून देणे हे ग्रंथालयात कर्मचाऱ्यांचे प्रमुख कर्तव्य असते. वाचकांच्या अपेक्षेप्रमाणे त्यांना योग्य प्रकारची सेवा देण्यासाठी सेवा व्यवस्थापन राबविणे जरूरीचे आहे.

ग्रंथालयात उपलब्ध असणाऱ्या सेवा व ग्रंथाबद्दलची माहिती साक्षरता अभियान सारखे उपक्रमशिल कार्यक्रम राबवून वाचकांना ग्रंथाबद्दलची आवड निर्माण करणे, विद्यार्थ्यांच्या व्यक्तीगत विकासासाठी, त्यांचा आर्थिक विकास घडवून आणण्यासाठी तसेच जीवनाचे ध्येय साध्य करण्यासाठी विविध प्रकारचे नवनविन उपक्रम ग्रंथालयात राबविणे आवश्यक झाले आहे. विद्यार्थ्यांना आधुनिक तंत्रज्ञानाबद्दलची माहिती, नवनविन प्रकाशित होणारी नियतकालिके यांची माहिती अवगत करून वाचनाची गोडी निर्माण करण्यासाठी ग्रंथालयात व्यवस्थापनाची गरज आहे. यासाठी खालील नवनविन अभिनव उपक्रम राबविणे आवश्यक आहे.

ग्रंथालयामार्फत सांस्कृतिक कार्यक्रमाच्या निमित्ताने ग्रंथ प्रदर्शन आयोजित करून ग्रंथालयात असणाऱ्या वाचनीय साहित्याची माहिती विद्यार्थ्यांना दिली पाहिजे. याचा परिणाम विद्यार्थ्यांमध्ये वाचनाची आवड निर्माण होण्यास मदत होईल. त्यामुळे वाचन साहित्याचा जास्तीत जास्त वापर विद्यार्थी करू शकतील. त्याचबरोबर ग्रंथालयातर्फे चर्चासत्र, स्वयंरोजगार मार्गदर्शन, व्याख्यानमाला इ. विस्तार कार्यक्रम राबविल्यास विद्यार्थ्यांमध्ये ग्रंथालयाविषयीची आवड निर्माण होईल व विद्यार्थी ग्रंथालयाचा जास्तीत जास्त वापर करतील व अवांतर संदर्भ ग्रंथाचा उपयोग वाढण्यास मदत मिळेल.

#### **समारोप :**

महाविद्यालय ग्रंथालय असो वा विद्यापीठ ग्रंथालय असो यामध्ये आधुनिक व्यवस्थापनाचा विचार करीत असतांना महाविद्यालयात उपलब्ध असलेल्या मनुष्यबळाचा विचार करणे क्रमप्राप्त आहे. ग्रंथालयात आधुनिक तंत्रज्ञानाचा वापर करून ग्रंथालयातील सेवा देत असताना पुरेसे मनुष्यबळ विचारात घ्यावे लागेल. ग्रंथालयात असलेल्या उपलब्ध सेवा, विद्यार्थ्यांची ग्रंथांची मागणी आणि ग्रंथांचा वापर, तसेच ग्रंथालयातील पुस्तकांचे जतन करण्याच्या संदर्भात व्यवस्थापनाची भूमिका फार महत्वाची आहे. ग्रंथालयात विविध स्वरूपाचे अभिनव उपक्रम राबवून ग्रंथसेवेचा विस्तार करण्यासाठी आधुनिक पध्दतीच्या व्यवस्थापनाचा स्वीकार ग्रंथालयाने केला तर वाचक संस्कृती टिकून राहण्यास मदत मिळू शकेल.

#### **संदर्भ :**

1. कायंदे पाटील डॉ.गंगाधर - व्यवस्थापनाची मुलतत्वे, चैतन्य पब्लिकेशन, नाशिक.
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## कोरोना महामारी च्या काळातील शिवाजी ग्रंथालयाचे विविध उपक्रम

डॉ .पांडुरंग पाटील

ग्रंथपाल

श्री शहाजी छत्रपती महाविद्यालय कोल्हापूर

ई-मेल-librariansshahaji@gmail.com

## सारांश :

दोन वर्षमानवजातीपुढे कधीही येवू नये अशा प्रकारचे संकट उभे राहिले.कोरोना महामारी च्या साथीमध्ये संपूर्ण जगातील विविध व्यवहार थांबले.भारतातील उद्योगधंदे ,शिक्षण संस्था व इतर अनेक घटकांवर लॉकडॉन मध्ये परिणाम झाला.या संकटामध्ये जेथे लोक एकत्र येण्यावर बंदी होती अशा वेळी सुद्धा ग्रंथालये मागे पडली नाहीत.विद्यार्थ्यांचा शिक्षनासाठी खंड पडू नये म्हणून ग्रंथालयाचे काम ही ऑनलाईन सुरू झाले तसेच उपलब्ध असणाऱ्या सोयी सुविधांचा वापर करून विद्यार्थ्यांमध्ये जास्तीत जास्त सेवा देण्यात आल्या. शहाजी महाविद्यालयाच्या शिवाजी ग्रंथालयाने ही या कोरोना महामारीच्या काळात विविध उपक्रम राबवले. वेगवेगळे 16 व्हाट्सअप ग्रुप तयार करण्यात आले .रोज पंधराशेहून अधिक विद्यार्थ्यांना विविध ई -साहित्य पुरविण्यात आले .तसेच गुगल मीट, हॉट्स, झूम अप याद्वारे विद्यार्थ्यांना मार्गदर्शन करण्यात आले .विविध व्याख्याने ऑनलाईन पद्धतीने ठेवण्यात आली. विद्यार्थ्यांना वेब ओपेक देण्यात आला. तसेच प्रश्नमंजुषा स्पर्धा घेण्यात आली. विद्यार्थ्यांना ईमेल ,व्हाट्सअप ,मोबाईल ,टेलिफोन या माध्यमातून त्यांचे समुपदेशन करण्यात आले व मार्गदर्शन करण्यात आले.

शोध शब्द -- ई -रिसोर्स, डाटाबेस, इलेक्ट्रॉनिक बुक्स, जर्नल्स. एन-लिस्ट ,झूम, गुगलमीट .

## प्रस्तावना:

covid-19 च्या महामारी मध्ये कोरोना व्हायरस ला रोखण्यासाठी विविध प्रतिबंधात्मक उपाय योजण्यात आले .यामध्ये भारत सरकारने, महाराष्ट्र शासनाने व विद्यापीठाने विविध जीआर काढून शाळा, महाविद्यालये बंद ठेवण्याचे आदेश दिले व ऑनलाईन शिक्षण घेण्यास सांगितले. चार भिंतीतील पारंपरिक शिक्षण बंद होऊन ऑनलाईन शिक्षणाचा पर्याय पुढे आला. विविध तंत्रज्ञानाच्या माध्यमातून हे शिक्षण विद्यार्थ्यांच्या पर्यंत पोहोचवण्यासाठी विविध पातळीवर प्रयत्न करण्यात आले . कोरोना कालावधीमध्ये शहाजी महाविद्यालयाच्या शिवाजी ग्रंथालयाने राबविलेल्या विविध उपक्रमांचा आढावा या लेखात घेण्यात आलेला आहे.

संशोधन विधान :कोरोना महामारी च्या काळातील शिवाजी ग्रंथालयाचे विविध उपक्रम .

संशोधनाची गरज व महत्त्व: सदर महाविद्यालयातील ग्रंथालयाने कोरोना कालावधीत कोण- कोणते उपक्रम राबवले याची माहिती इतर ग्रंथालयांना ,वाचकांना व ग्रंथपालांना व्हावी ,तसेच कोणकोणत्या नाविन्यपूर्ण ग्रंथालयीन देता येवू शकतात याची माहिती ग्रंथालयांना आणि ग्रंथालईन कर्मचाऱ्यांना मिळेल.

## संशोधनाची उद्दिष्टे :

1. कोरोना महामारी च्या कालावधीमध्ये शिवाजी ग्रंथालयाने दिलेल्या ग्रंथालयीन सेवांची माहिती घेणे.
2. या कालावधीतील विविध उपक्रमांचा आढावा घेणे.
3. कोरोना कालावधीतील सेवा व उपक्रम राबवताना येणाऱ्या अडचणींची माहिती घेणे व या अडचणीवर उपाय योजना सुचवणे.

मर्यादा : सदर संशोधन हे श्री शहाजी छत्रपती महाविद्यालय कोल्हापूर मधील

शिवाजी ग्रंथालयाने राबवलेल्या विविध सेवा आणि उपक्रमापुरते मर्यादित आहे .

सदर मर्यादा संशोधकाने ठरवून घेतलेली आहे.

**कार्यपद्धती :**

सदर संशोधकाने निरीक्षणाच्या आधारे व वाचकांच्या, सेवकांच्या प्रतिक्रिया जाणून घेतलेल्या आहेत. गुगल फार्मच्या माध्यमातून फीडबॅक घेण्यात आलेला आहे .वार्षिक नियतकालिकासाठी व नॅक साठी करण्यात आलेल्या अहवाल यांचाही आधार सदर संशोधकांने हे संशोधन कार्य करताना घेतलेला आहे . लाकडाऊन कालावधीमध्ये विविध सेवा देताना पूरक उपक्रम राबवताना येणाऱ्या अडचणींचा उहापोह सदर संशोधनात घेण्यात आलेला आहे .

**शिवाजी ग्रंथालय , एक दृष्टिक्षेप :**

श्री शहाजी छत्रपती महाविद्यालय कोल्हापूर च्या शिवाजी ग्रंथालयांमध्ये 82129 इतकी ग्रंथसंपदा आहे. 64 हून अधिक नियतकालिके व मासिके आहेत. रोज दहा वृत्तपत्रे ग्रंथालयात येतात .एकूण अडीच हजाराहून अधिक वरिष्ठ महाविद्यालयातील विद्यार्थी वाचक ,शंभराहून अधिक प्राध्यापक व प्रशासकीय वाचक व दीड हजाराहून अधिक कनिष्ठ विभागातील विद्यार्थी वाचक आहेत. या ग्रंथालयास 50 वर्षे पूर्ण झालेली आहेत. या ग्रंथालयाकडे विविध संदर्भ साहित्य, दुर्मिळ साहित्य, विविध फोटोग्राफ्स, विविध मान्यवरांचे अभिप्राय व वी.रा.शिंदे संशोधन केंद्रातील ग्रंथसंपदा उपलब्ध आहे .छत्रपती शिवाजी महाराज ,राजर्षी शाहू महाराज ,महात्मा फुले, सावित्रीबाई फुले ,डॉ. बाबासाहेब आंबेडकर, महर्षी विठ्ठल रामजी शिंदे यांची ग्रंथसंपदा स्वतंत्र दालनात ठेवण्यात आलेली आहे .छत्रपती शिवाजी महाराज यांच्या ग्रंथसंपदे बरोबर त्यांची आज्ञापत्रे ,कचरा व्यवस्थापन, वृक्ष

संवर्धन व पाणी व्यवस्थापन याबद्दलची आज्ञापत्रे प्रदर्शित करण्यात आलेले आहेत .डॉ. बाबासाहेब आंबेडकर यांनी शाहू महाराजांना लिहिलेले पत्र ही प्रदर्शित करण्यात आलेले आहे. ,येथील 90 प्राध्यापक लेखकांनी या ग्रंथालयाचा उपयोग करून विविध ग्रंथसंपदा तयार केलेली आहे. चारशेहून अधिक ग्रंथसंपदा ग्रंथालयाने स्वतंत्र फॅकल्टी पब्लिकेशन मध्ये प्रसिद्ध केलेली आहे. तीसहून अधिक पीएचडी व एमफील. चे शोध प्रबंध स्वतंत्रपणे ठेवण्यात आलेले आहेत .तसेच विविध नकाशे ग्रंथालयात आहेत. ग्रंथालयातील ग्रंथ संपत्तीचे एकूण मूल्य 65 लाखाहून अधिक आहे .

**कोरोनावायरस प्रतिबंधासाठी उपाय योजना:**

कोरोना महामारी च्या कालावधीमध्ये शहाजी महाविद्यालय कोल्हापूरच्या शिवाजी ग्रंथालयानेही विविध तंत्रज्ञानाचा वापर करून विविध ग्रंथालयीन सेवा विद्यार्थ्यांच्या पर्यंत पोहोचवण्याचा प्रयत्न केला ग्रंथालयाने कोरोनावायरस प्रतिबंधाच्या साठी विविध उपाययोजना केली .यामध्ये मास्कचा वापर ,सोशल डिस्टेंसिंग, सॅनिटायझर चा वापर व निर्जंतुकीकरण करण्यात आले. प्रत्यक्ष ग्रंथालयात वाचकांची कमी उपस्थिती व त्यांना ऑनलाइन टुक-श्राव्य माध्यमाच्या द्वारे विविध सेवा देण्यात आल्या .

कोरोना कालावधीतील विविध ग्रंथालयीन सेवा व्हाट्सअप ग्रुपद्वारे दीड हजाराहून अधिक विद्यार्थ्यांना देण्यात आली. रोज विविध स्वरूपातील ई- साहित्य पुरविण्यात आले. यामध्ये ई-बुक्स , ई-जर्नल्स ,डाटाबेस देण्यात आले. नोकरी विषयक जाहिराती सातत्याने विद्यार्थ्यांच्या पर्यंत या व्हाट्सअप ग्रुप द्वारे पाठवण्यात आल्या आहेत. यावेळी आलेल्या जाहिराती मधील संदर्भांच्या अनुषंगाने विद्यार्थ्यांना मार्गदर्शन करण्यात आले.

शिवाजी ग्रंथालयामार्फत लॉकडाऊन कालावधीमध्ये दिलेल्या ग्रंथालयीन सेवा खालीलप्रमाणे

व्याख्यानमाला :शिवाजी ग्रंथालयाच्या वतीने छत्रपती राजर्षी शाहू महाराज व्याख्यानमाला कोरोना कालावधीमध्ये घेण्यात आली. या ऑनलाईन व्याख्यान मालेमध्ये ज्येष्ठ इतिहास तज्ञ प्राचार्य जे.के.पवार यांचे व इतरांची व्याख्याने देण्यात ठेवण्यात आली. अडीचशेहून अधिक विद्यार्थ्यांनी व प्राध्यापक वाचकांनी या व्याख्यानाचा लाभ घेतला .

प्रश्नमंजुषा स्पर्धा :

राजर्षी शाहू महाराज यांच्या यांच्यावरील ऑनलाईन प्रश्नमंजुषा स्पर्धा घेण्यात आली .महाराष्ट्रातील 547 विद्यार्थी वाचकांनी या प्रश्नमंजुषा स्पर्धेमध्ये सहभाग घेऊन ही प्रश्नमंजुषा सोडवली .पहिल्या पाच विद्यार्थी वाचकांचे क्रमांक काढण्यात आले व त्यांना बक्षिसे देण्यात आली.

**ऑनलाईन मार्गदर्शन**

झूम अॅप व गूगल मिटच्या द्वारे विद्यार्थ्यांना विविध विषयावर लेक्चर्स देण्यात आली. यामध्ये स्पर्धा परीक्षा विषयक मार्गदर्शन व चालू वर्तमान घटना घडामोडी यांचा समावेश आहे .ग्रंथपाल व प्राध्यापकांनी या अॅपचा वापर करून विद्यार्थ्यांच्या पर्यंत अधिकाधिक ज्ञान सामग्री पोहोचविण्याचा प्रयत्न केलेला आहे.

**यूट्यूब :**

यूट्यूब च्या माध्यमातून विद्यार्थ्यांच्या पर्यंत अधिकाधिक विषयावरील माहिती पोचवण्यात आली. विविध पुस्तकांची माहिती देण्यात आली. तसेच घेण्यात आलेली व्याख्याने युट्यूब वर विद्यार्थ्यांना उपलब्ध करून देण्यात आले. महाविद्यालयामध्ये झालेल्या विविध कार्यक्रमांचे ,सेमिनारचे युट्यूब द्वारे प्रसारण करण्यात आले .

**वेबसाईट:-**

महाविद्यालयाच्या वेबसाईटवर ग्रंथालयाची सविस्तर माहिती देण्यात आलेली आहे. ग्रंथालयीन सेवा, उपक्रम, ग्रंथसंपदा व इतर माहिती वेबसाईटवर अपलोड करण्यात आलेली आहे. तसेच ऑनलाईन ई-बुक्स ,जर्नल्स उपलब्ध करून दिली.

**एन लिस्ट चा उपयोग:**

यूजीसी इंनफिलबनेट च्या एन लिस्ट ह्या डेटाबेस द्वारे तीन हजाराहून अधिक ई- जर्नल , एक लाखाहून अधिक ई-बुक्स चा उपयोग विद्यार्थ्यांनी ,वाचकांनी केला. विविध सेवांचा उपयोग वाचकांनी चांगल्या प्रकारे या कालावधीमध्ये करून घेतला. शिवाजी विद्यापीठाच्या इनफीड प्रोजेक्टचाही उपयोग विद्यार्थ्यांना या कालावधीत झाला.

**ओपॅक**

जानेवारी 2021 पासून विद्यासागर लायब्ररी सॉफ्टवेअर द्वारे ऑनलाईन ओपॅक सेवा देण्यात आली. तसेच विद्यार्थी प्राध्यापक यांचे ऑनलाईन अटेंडन्स घेण्यात आले .

कोरोना कालावधीमध्ये ग्रंथपाल यांनी विविध रिफ्रेशर ,शॉर्ट टर्म कोर्स या कालावधीमध्ये ऑनलाईन पद्धतीने केले. महात्मा गांधी मिशनच्या माध्यमातून झालेला रिफ्रेशर कोर्स, पुणे विद्यापीठाच्या माध्यमातून झालेला रिफ्रेशर कोर्स ,ग्रंथपाल यांनी यशस्वीपणे पूर्ण केला. याशिवाय अन्य तीन शॉर्ट टर्म कोर्सेस पूर्ण केले.

**लेखक आपल्या भेटीला :**

लेखक आपल्या भेटीला ,ऑनलाईन पद्धतीने लेखकांनी विद्यार्थ्यांना मार्गदर्शन केले. झूम अॅप द्वारे विद्यार्थ्यांच्या समोर या लेखकांचे विचार सादर करता आले. या लेखकांना विद्यार्थ्यांनी विविध प्रश्न विचारून त्यांची ग्रंथसंपदा जाणून घेतली.यामध्ये प्राध्यापक जी .वाय.जाधव प्राध्यापक जे.के.पवार यांचा व इतरांचा समावेश आहे.

नियतकालिके मासिके वृत्तपत्रे यांच्यात आलेली माहिती विद्यार्थ्यांना विविध सोशल मीडियाच्या माध्यमातून पोहोचवण्यात आली. नॅक मध्ये ग्रंथालयाचे महत्व या विषयावर शिवाजी विद्यापीठाच्या ज्ञान स्रोत केंद्राच्या प्रमुख संचालक डॉ. नमिता खोत मॅडम ,पी.एस .कलोळी यांचे व्याख्यान ऑनलाईन पद्धतीने ठेवण्यात आले .ग्रंथपालानी या उपक्रमास भरभरून प्रतिसाद दिला.

विद्यासागर लायब्ररी मॅनेजमेंट सॉफ्टवेअर मध्ये 82 हजार पुस्तकांच्या नोंदी पूर्ण करण्यात आलेल्या आहेत. तसेच सर्व ग्रंथांना बारकोडींग करण्यात आलेले आहे बारकोड बुक स्कॅनर द्वारे याचे ऑनलाईन देवाण-घेवाण केली जाते. विभागीय ग्रंथालयांना विविध ग्रंथसंपदा देऊन त्यांच्या उन्नतीसाठी ग्रंथालय प्रयत्न करीत असते .

**कुलगुरू यांचे ग्रंथालयास भेट व ग्रंथ पूजन:**

शिवाजी विद्यापीठाचे कुलगुरू डॉ . डी. टी. शिरके सर व इतर मान्यवरांनी शिवाजी ग्रंथालयास भेट देऊन पन्नास वर्ष पूर्ण झाल्याबद्दल काही ग्रंथांचे पूजन केले विविध मुक्त ई-बुक्स ई- जर्नल्स विद्यार्थ्यांना वेळोवेळी पाठवण्यात आले शिवाजी ग्रंथालयाच्या वतीने विविध उपक्रमाने सेवांसाठी महाविद्यालयाचे प्राचार्य डॉ आर के.शानेदिवाण नॅक समन्वयक डॉ.एन. एस. जाधव इतर सहकारी प्राध्यापक ग्रंथालयीन सेवाकांचे सहकार्य लाभले.



**ऑनलाइन स्वरूपाच्या सेवा देत असताना येणाऱ्या समस्या वर उपाय योजना**

ग्रंथालयातील कर्मचारी व वाचकांना तंत्रज्ञानाचे ज्ञान देण्यासाठी कार्यशाळेचे आयोजन आणि ट्रेनिंग दिले गेले पाहिजे. महाविद्यालयाकडून ग्रंथालयामध्ये हाय स्पीडचे इंटरनेट कनेक्शन उपलब्ध करून दिले पाहिजे .वीजपुरवठा खंडित होऊ नये यासाठी बॅकअपची सोय जसे यूपीएस, जनरेटरची तरतूद ग्रंथालयामध्ये असावी व्हिडिओ तयार करण्यासाठी आवश्यक असणारी साधन सामग्री असणे गरजेचे आहे .

**संदर्भ**

1. श्री शहाजी छत्रपती महाविद्यालय कोल्हापूर ,वाटचाल पन्नास वर्षाची.युगांतर २०२१.संपादक प्राचार्य डॉ .आर.के.शानेदिवाण



**ग्रंथालय आणि वाचन विश्वातील नवी सजगता****डॉ.सुजय बाबूराव पाटील**

प्राध्यापक व प्रमुख मराठी विभाग

कमला कॉलेज, कोल्हापूर

ई मेल: [sujaybpatil@rediffmail.com](mailto:sujaybpatil@rediffmail.com)

समाजाच्या मानसिक उन्नतीमध्ये ग्रंथालयांचे महत्त्व अनन्य साधारण असे आहे. त्यामुळे प्राचीन काळापासून ग्रंथालयांना जगात नेहमीच सन्मानाचे स्थान दिलेले दिसून येते. प्रत्येक देशाची संस्कृती एक पिढीकडून दुसऱ्या पिढीकडे हस्तांतरित करण्याचे महत्त्वाचे काम ग्रंथालये करीत आलेले दिसतात. त्यामुळेच आपल्याकडे मुद्रणकले पूर्वीचे ग्रंथ नकलून ठेवण्याची परंपरा दिसून येते. ग्वाल्हेरच्या ग्रंथालयात देशविदेशातील मौलिक ग्रंथ नकलून त्यांना चांदीच्या वेष्टनामध्ये ठेवल्याचे पुरावे आपल्याला सापडतात.

ग्रंथालये सामाजिक एकात्मतेचा, नेतृत्वाचा व गुलामगिरीच्या विरोधास लढण्याचा मंत्र देतात. ही गोष्ट नेमकेपणाने ओळखून इंग्रजांनी हिंदुस्तानातील महत्त्वाच्या शहरातील अनेक ग्रंथालयातील मौलिक ग्रंथ नष्ट केल्याची उदाहरणे देखील जागोजागी आपणास आढळतात.

उपरोक्त सर्व गोष्टींचा विचार केला तर ग्रंथालयाचे देशाच्या विकासातील, समाज विकासातील महत्त्व किती अनन्य साधारण आहे याची आपणास साक्ष पटते.

शालेय ग्रंथालये, महाविद्यालयीन ग्रंथालये, विद्यापीठीय ग्रंथालये सार्वजनिक ग्रंथालये इत्यादि ग्रंथालयांचे हे प्रकार सर्व पातळीवर ज्ञान, विज्ञान, संस्कृती आणि संस्कार यांचा प्रचार आणि प्रसार करताना दिसतात. त्यामुळेच भारताचे माजी राष्ट्रपती, भारतरत्न डॉ. ए.पी.जे. अब्दुल कलाम यांचे 'एक चांगलं पुस्तक अनेक पिढ्यांसाठी अमूल्य ज्ञानसाठा व संपत्ती असत' हे उदगार सार्थ वाटतात. अशी चांगली पुस्तके जतन करण्याचे काम ही ग्रंथालये करीत असतात.

स्वातंत्र्योत्तर कालखंडामध्ये शिक्षणाचे सार्वत्रिकरण झाले. ज्ञानगंगा घोरोघरी पोहचविण्यासाठी शाळा, कॉलेज, विद्यापीठे यांची स्थापना झाली. स्वाभाविक ग्रंथालयांची निर्मिती झाली त्याचबरोबर शिक्षण संकुला बाहेर देखील वाचनालयांची संख्या वाढू लागली. शासनाने देखील अशा वाचनालयांना अनुदान देण्याची, आदर्श ग्रंथालयांना पुरस्कार देण्याची प्रथा सुरु केली. परिणामी गावोगावी वाचनालये व वाचन चळवळ जोम धरू लागली.

वाचनालयात जाणे, पुस्तक घेणे, ठराविक मुदतीत वाचून परत देणे असे संस्कार वाचक वर्गावर होऊ लागले. वाचकांना आकर्षित करण्यासाठी सार्वजनिक वाचनालयांनी आकर्षक उपक्रम राबविण्यास सुरुवात केली.

उदा.

- १) वर्षाची फी एकदम भरली की दोन महिन्यांच्या फी मध्ये सूट
- २) आदर्श वाचक पुरस्कार
- ३) दिवाळी अंक योजना
- ४) व्याख्यानमाला
- ५) लेखक भेट
- ६) काव्यमैफिल स्पर्धा
- ७) स्थानिक साहित्य संमेलन भरविण्यामध्ये सहभाग पुढाकार
- ८) ग्रंथपुरस्कार योजना

कोल्हापूरतील शतकोत्तर महोत्सवातील 'करवीर नगर वाचन मंदिर कोल्हापूर' या जगप्रसिद्ध ग्रंथालयाने अनेक उपक्रमाबरोबर सलग ७५ वर्षे चालविलेली वि.स. खांडेकर व्याख्यानमाला लोकप्रसिद्धाचा विषय ठरलेली आहे तर इचलकरंजीच्या आपटे वाचन मंदिराची व्याख्यानमाला व इतर उपक्रम ग्रंथ-ग्रंथालय आणि वाचक चळवळीला पूरक ठरताना दिसत आहेत. ही वानगी दाखल उदाहरणे आहेत. देशाच्या कानाकोपऱ्यामधील वाचनालये अशा अनेक उपक्रमामधून आपल्या ग्रंथालयाचे वेगळेपण जपण्यासाठी विविध प्रयोग करताना दिसत आहेत.

पुस्तकांचे गाव 'भिलार' सारखी ग्रंथ-ग्रंथालय वाचक चळवळीला उपकारक ठरताना दिसत आहेत.

बदलत्या काळानुसार ग्रंथालये चळवळ आणि वाचन चळवळींनी देखील आपले स्वरूप बदललेले दिसून येत आहे. त्यामुळेच ई-बुक/ई-रीडिंगसारख्या नवसंकल्पना सत्यात उतरल्या आहेत. संगणक वापरात तज्ज्ञ झालेली नवपिढी या ग्रंथ व ग्रंथालयाच्या नव्या स्वरूपाचा सहजतेने स्वीकारताना दिसत आहे.

कमी वेळेत, कमी जागेत, अधिक पुस्तके, मजकूर वाचण्याची सोय झाली. ग्रंथालयात जाणे-येण्याचा वेळ वाचला. पुस्तकांची देवघेव बंद झाली. सर्व गोष्टी संगणकाच्या एका क्लिकवर होऊ लागल्या त्यामुळे तरुणवर्गाने या नवप्रणालीला विशेष पसंती दिलेली दिसते. गुडरीड्स, कॉमिक्लॉजी, शेलफी, स्क्राइब, पोएट्री, ओव्हर ड्राइव्ह, स्टोरीविले, कोबो, ऑडिवल, मून रीडर यासारखी ॲप्स तरुण वाचक वर्गात विशेष लोकप्रिय ठरत आहेत. वाचन विश्वातील ही नवी सजगता निश्चितच स्वागताहार्य आहे. पण यामुळे ग्रंथालयाच्या भौतिकत्वाची उपयोगिता धोक्यात येईल का? अशी शंकादेखील उपस्थित होत आहे. अशी शंका जरी रास्त असली तरी ग्रंथालयांचे महत्त्व कमी होऊ शकत नाही. शतकांची परंपरा असणारी ही ग्रंथालये अशा अनेक स्थित्यंतरांना सामोरी गेलेली आपणास दिसून येतात.

ग्रंथालयाचा सभासद होणे, ग्रंथालयात जाणे, ग्रंथ स्वतः हातळणे, सभासद फी भरणे, ग्रंथ देव घेव करणे इत्यादी गोष्टीमध्ये जो जीवंतपणा आहे. तो जीवंतपणा या इलेक्ट्रॉनिक माध्यमामध्ये नसणार हे निश्चित खरं आहे. व्यापक अर्थाने ग्रंथांचे हे नवे रूप पारंपारिक ग्रंथालयांना कसे उपकारक ठरेल यांचा विचार होणे आवश्यक आहे. ग्रंथालयांनी आपल्या पारंपारिक पद्धतीमध्ये या नव्या बदलांचा स्वीकार केला तरग्रंथालये या बदलत्या काळात स्वतःचे अस्तित्व टिकवून ठेवतील असा विश्वास व्यक्त करता येईल.

### निष्कर्ष

- १) ग्रंथालये ही प्रत्येक देशाच्या संस्कृतीचा अनमोल ठेवा आहेत.
- २) स्वातंत्र्यपूर्व व स्वातंत्र्योत्तर कालखंडात ग्रंथालयांनी महत्त्वाची भूमिका पार पाडलेली दिसते.
- ३) भारतातील अनेक ग्रंथालयांना शतकाची परंपरा लाभलेली दिसते.
- ४) वाचक जागृतीसाठी ग्रंथालयांनी चालविलेले अनेक उपक्रम अनुकरणीय असे आहेत.
- ५) ग्रंथालय चळवळ अधिक प्रभावी होण्यासाठी राजकीय इच्छा शक्तीप्रबळ असणे आवश्यक आहे.
- ६) आधुनिक तंत्रज्ञानाचे आव्हान ग्रंथालयांना नाकारता येता येणार नाही.
- ७) आधुनिक तंत्रज्ञानाकडे ग्रंथालयांनी सकारात्मक दृष्टिने बघणे आवश्यक आहे.

### संदर्भग्रंथ

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## डिजिटल ग्रंथालये : काळाची गरज

प्रा.राजेंद्र सखाराम सावेकर  
ग्रंथपाल,  
डॉ.घाळी कॉलेज,गडहिंग्लज  
[rssavekar@gmail.com](mailto:rssavekar@gmail.com)

## ग्रंथालय

ग्रंथालय म्हणजे सर्व प्रकारची सर्वसाधारण पणे छापील तसेच हस्तलिखित माहितीसाधने एकत्रितपणे ठेवण्याची जागा होय. ग्रंथालयाचा मूळ उद्देश ज्ञान व माहिती संग्रहण हा असतो. ग्रंथालयातून ही साधने वापरण्यासाठी नेता येतात व मर्यादित कालावधीत परत केली जातात. आधुनिक ग्रंथालयाची संकल्पना बदलली आहे. ग्रंथालय हे माहितीचे देवाण —घेवाण केंद्र अशी झाली आहे. कारण वाचक पुस्तक न मागता डेटाबेसची माहिती मागण्यासाठी येत असतो.

शाळा-महाविद्यालयांना ग्रंथालय महत्वाचे व सक्तीचे असते. यामुळे संदर्भासहित वाचनाची सवय लागते. लिखाण अभ्यासपूर्ण होण्यासाठी अनेक ग्रंथ एकाच ठिकाणे मिळण्याची सोय होते. बदलत्या काळात दृक्श्राव्य माध्यमेही ग्रंथालयांमध्ये दिसून येतात.

नवीन ग्रंथालयांचे स्वरूप हे संगणकीय होते आहे. आंतरजालावरून माहितीचा शोध शक्य होतो. तसेच योग्य ते सदस्यत्व घेऊन त्या त्या ग्रंथालयाच्या संकेतस्थळावर माहितीचा शोध घेता येतो.

कमीतकमी वेळेत योग्य ते वाचन साहित्य उपलब्ध करून देण्यासाठी आणि ज्ञान साधनांचा वाढलेला आवाका, प्रकाशनांची प्रचंड उपलब्धता, माहितीतील वाढ, ग्रंथालयाच्या आर्थिक समस्या इ.सारख्या अनेक घटकांचा विचार करता विविध प्रकारच्या सेवांचे आयोजन ग्रंथालयांना करावे लागत आहे.

## इतिहास

प्राचीन भारतीय विद्यापीठ **तक्षशिलेचे** ग्रंथालय हे सर्व जगात प्रसिद्ध होते. अनेक **ग्रीक** तसेच **चीनी** प्रवासी या ग्रंथालयाला भेट देऊन गेल्याची नोंद सापडते. प्राचीन काळात राजे-राजवाड्यांची ग्रंथालये, शैक्षणिक संस्थामधून (नालंदा तक्षशीला) व मंदिरांमधून ग्रंथालये अस्तित्वात होती, पण ती एका विशिष्ट घटकांसाठीच होती. संपूर्ण समाजासाठी म्हणून सार्वजनिक ग्रंथालय ही संकल्पना त्या काळी फारशी अस्तित्वात नव्हती. सोसायटी फॉर प्रमोशन ऑफ ख्रिश्चन नॉलेज या १६९८ च्या संस्थेचे मद्रास व बंगालमधील ग्रंथालयाचे कार्य, १७८४ कोलकाता येथील एशियाटिक सोसायटीचे ग्रंथालय, १८३५ ची कलकत्ता पब्लिक लायब्ररी, मुंबईत 'रॉयल एशियाटिक सोसायटी ऑफ ग्रेट ब्रिटन अँड आर्यलंड (मुंबई शाखा)' हे १८२७ साली सुरू झालेले ग्रंथालय ही सुरुवातीची वाटचाल आहे.

## महाराष्ट्रातील ग्रंथालये

पारंपरिक ग्रंथालयांमध्ये देखील काही एक समाजघटकांचा वरचष्मा असे, त्यामुळेच समाजातील सर्व घटकांसाठी म्हणून सुरुवात झाली ती नेटिव्ह जनरल लायब्ररीची. १८२८ पासून महाराष्ट्राच्या कानाकोपर्यात अशी अनेक ग्रंथालये उभी राहली. पहिले ग्रंथालय १८२८ साली रत्नागिरी येथे स्थापन झाले. हे ग्रंथालय ब्रिटिश आमदानीत काही कारणास्तव ब्रिटिशांनी काही काळ बंद केल्यामुळे स्थापनेचे काही संदर्भ नष्ट झाले, पण गॅझेटमधील नोंद आढळते. त्यापाठोपाठ सुरू झालेले ग्रंथालय म्हणजे अहमदनगर येथील १८३८ साली कर्नल पी.टी. फ्रेंच यांनी स्थापलेली नेटिव्ह जनरल लायब्ररी. त्यानंतर नाशिक येथे १८४० साली ग्रंथालय सुरू झाले. काहींच्या मते अहमदनगर हे महाराष्ट्रातील पहिले सार्वजनिक ग्रंथालय आहे. पण सरकारी यादीनुसार रत्नागिरीवर शिक्कामोर्तब करण्यात आले आहे. पाहता पाहता महाराष्ट्राच्या गावोगावी ही चळवळ फोफावत गेली. संस्थानिकांनी या कामी मोलाची मदत केलेली आढळते. इचलकरंजी, सातारा, कुरुंदवाड, सांगली, फलटण अशी काही यातील उदाहरणे.

ब्रह्मपुरी, राजगुरुनगर, अमरावती, इचलकरंजी, दादर, ठाणे इत्यादी ठिकाणी ज्ञानपिपासू व्यक्तींनी पदरमोड करीत ग्रंथालये स्थापन केली. बहुतांश ग्रंथालय नेटिव्ह जनरल याच नावाने सुरू होऊन कालांतराने नगर/सार्वजनिक वाचनालय म्हणून रूपांतरित झाली आहेत. काही ठिकाणी धनिक ग्रंथप्रेमींच्या मदतीला स्मरून त्याचे नाव ग्रंथालयास दिलेले आढळते, तर कोठे वाचनालयासाठी अपार मेहनत घेतली अशांची नावे ग्रंथालयास दिली आहेत (उदा. आपटे वाचन मंदिर, इचलकरंजी). नेटिव्ह जनरलमध्ये बऱ्याच वेळा इंग्रजी साहित्याचा वरचष्मादेखील राहिला आहे. म्हणूनच मराठी भाषा व मराठी ग्रंथांच्या संवर्धनासाठी म्हणून ठाणे व मुंबई येथे मराठी ग्रंथसंग्रहालये स्थापली गेली.

महाराष्ट्राचे शिल्पकार यशवंतराव चव्हाण यांनी 'गाव तेथे ग्रंथालय' असावे, असे मत व्यक्त केले. महाराष्ट्रात सार्वजनिक ग्रंथालयांची उपयुक्तता ध्यानात घेऊन १९६७ साली 'महाराष्ट्र सार्वजनिक ग्रंथालय अधिनियम' हा कायदा अमलात आला. महाराष्ट्रात मान्यताप्राप्त ग्रंथालय संघांना ग्रंथालय संचालनालयामार्फत अनुदान देण्यात येते. शंभर वर्षांची यशस्वी कारकीर्द पूर्ण केलेली महाराष्ट्रात तब्बल ८३ ग्रंथालये आहेत, तर इतर सुमारे ९ हजारांहून अधिक शासनमान्य ग्रंथालये आहेत. राज्यात एकूण १२,८६१ ग्रंथालये आहेत. महाराष्ट्रामधील ७५ टक्क्यांहून अधिक गावांत ग्रंथालये नाहीत.

ग्रंथालय चळवळीत निरपेक्ष वृत्तीने आणि सामाजिक कर्तव्यभावनेने कार्य करणारी अनेक मंडळी आहेत. अनेक ग्रंथालये विविध समाजोपयोगी उपक्रम राबवून समाजजीवन समृद्ध करीत असतात. भारत सरकारने नॉलेज कमिशन नेमून ग्रंथालय चळवळीच्या विकासासाठी नवीन धोरण तयार केले.

कालानुरूप ग्रंथालये बदलत गेली. नव्या इमारती झाल्या, ग्रंथसंख्या तर वाढलीच, पण अनेक सांस्कृतिक शैक्षणिक उपक्रमदेखील वाढले. नव्या तंत्राचा वापर करत अनेकांनी संगणकीकरण केले, बार कोड पद्धत सुरू झाली. काही ग्रंथालयांनी जुने ग्रंथ, हस्तलिखिते स्कॅन करून त्याचे ई-बुक देखील केले. (कल्याण, कोल्हापूर). स्पर्धा परीक्षांची निकड ओळखून जवळपास प्रत्येक ग्रंथालयात स्पर्धा परीक्षा मार्गदर्शन केंद्र सुरू आहे. बदलत्या काळानुसार ग्रंथ संग्रहालये हायटेक होणार आहेत. वाचकांना घरूनच इंटरनेटद्वारे कोणते पुस्तक उपलब्ध आहे ते समजू शकेल तसेच पुस्तक घरपोच देखील मिळी शकते. २४ तास सुरू असणारी अभ्यासिकादेखील आहेत.

प्रबोधनासाठी वाचन, वाचनासाठी पुस्तके व वाचनालयांची गरज असते. वाचन चळवळीचा विकास व्हावा व गावोगावी वाचनालये सुरू व्हावीत, यासाठी महाराष्ट्र सरकार प्रोत्साहनात्मक अनुदान देत असते.

### ग्रंथालयांचे प्रकार

- शैक्षणिक ग्रंथालये
- व्यावसायिक ग्रंथालये
- ऐतिहासिक ग्रंथालये
- व्यक्तिगत ग्रंथालये
- लोक ग्रंथालये
- शालेय ग्रंथालये

या शिवाय विषयवार ग्रंथालयेही असतात जसे,

- कायदा विषयक ग्रंथालये
- वैद्यकीय ग्रंथालये

वरील सर्व प्रकाराव्यतिरिक्त सध्या आधुनिक तंत्रज्ञानाच्या विकासातून पुढील प्रकार उदयास आला आहे

### डिजिटल ग्रंथालय /अंकीय ग्रंथालय

जागतिक पातळीवर दुसऱ्या महायुद्धानंतर ग्रंथालये वाचकाभिमुख होऊ लागली, त्याचप्रमाणे ग्रंथालयाकडे येणाऱ्या वेगवेगळ्या स्वरूपातील साहित्याचा ओघ वाढत गेला. पुढे अनेक नवनवीन माध्यमांचा शोध लागला. उदा. मायक्रोफॉर्मस, चुंबकीय ध्वनीमुद्रण, प्रकाशीय चलतचित्र व शेवटी इलेक्ट्रॉनिक माध्यमे. या इलेक्ट्रॉनिक माध्यमांच्या प्रवाहात ई-जर्नल, ई-

स्रोत, इंटरनेट इत्यादी विविध प्रकारांचा समावेश होतो. मुद्रण व प्रकाशन तंत्रज्ञानाच्या प्रगती वाढीचा वेग पाहता असे वाटले होते की भविष्यकालीन ग्रंथालये पुस्तकाशिवाय (paperless Libraries) असतील का? मग ती कशी असतील? 1970 च्या दशकात लँकेष्टरने (Lanchester) पुस्तकाशिवाय ग्रंथालय (Paperless Libraries) ची संकल्पना मांडली होती परंतु त्यानेच ते मागे घेतले कारण ग्रंथ, संदर्भग्रंथ व नियतकालिके अशा छापील साहित्याचे प्रकाशन त्याच किंवा त्यापेक्षा जास्त वेगाने होत आहे, त्याचप्रमाणे इतर स्वरूपात प्रकाशित होणाऱ्या साहित्याचा व त्यांच्या निर्मितीचा वेगही वाढत आहे. ग्रंथालयातील साहित्यसंग्रहाचे स्वरूप त्यामुळे बदलते आहे. पूर्ण छापील नाही किंवा छापील साहित्य अजिबात नाही, या दोन्हीमधील अवस्था म्हणजे संकरित ग्रंथालय (Hybrid Library) किंवा अनेकविध माध्यमांनी युक्त (Multimedia Library) असे ग्रंथालय म्हणावे अशी स्थिती आपणास प्राप्त झाल्याचे दिसते. संगणकाच्या वापराने तसेच इलेक्ट्रॉनिक माध्यमांच्या प्रभावाचा अलीकडच्या काळात झालेल्या ग्रंथालयांच्या विकासावर खूप परिणाम झालेला दिसतो. याचाच परिपाक म्हणून क्षितीजाविना ग्रंथालये (Libraries without Boundaries), Virtual Library (आभासी ग्रंथालय) आणि जवळजवळ पूर्ण इलेक्ट्रॉनिक ग्रंथालयांचा आभास निर्माण करणारी ग्रंथालये अशा नवनवीन तांत्रिक संकल्पना उदयास आल्या आणि 20 व्या शतकाच्या अखेरीस **डिजीटल ग्रंथालय (Digital Library)** या प्रकारच्या ग्रंथालयाचा उदय झाल्याचा आपल्याला दिसून येतो.

### डिजीटल ग्रंथालय (Digital Library) संकल्पना व व्याख्या

1995 साली Association of Research Libraries ने ग्रंथालयाच्या स्वरूपाविषयी मांडलेली संकल्पना महत्वपूर्ण आहे. ती अशी की डिजीटल ग्रंथालयात अनेक विविध माहितीस्रोत एकमेकांशी जोडण्यासाठी प्रगत माहिती तंत्रज्ञानाची आवश्यकता असते.

Digital म्हणजे अंकीय पण शब्दशः अर्थ न घेता डीजीटल ग्रंथालय म्हणजे आज्ञावलीद्वारे शास्त्रीय पद्धतीने डिजीटल स्वरूपात माहितीचे संकलन व जतन केलेले अनेक माहितीस्रोत व त्यातील माहिती नेमक्या स्वरूपात सुलभ रीतीने उपलब्ध करून देणारे ग्रंथालय होय.

टरेन स्मिथ या विचारवंताच्या मते “डिजीटल ग्रंथालय म्हणजे वाचन साहित्यसंग्रहाचा डिजीटल तंत्रज्ञानाचा वापर करून शास्त्रशुद्ध पद्धतीने तयार केलेला व तो वापरण्यासाठी विविध पद्धतीच्या मार्गांसाहित उपलब्ध डिजीटल साहित्य संग्रह होय.”

**डेगन आणि** सायमन टेनर यांनी डिजीटल ग्रंथालयाची व्याख्या चार भागात सांगितली आहे.

1. डिजीटल ग्रंथालय हा शास्त्रीय पद्धतीने व्यवस्थापित केलेला डिजीटल साहित्यसंग्रह होय.
2. डिजीटल साहित्यसंग्रह निर्माण करताना तांत्रिक तसेच शास्त्रीय तत्त्वे वापरली जातात.
3. ग्रंथालयातील इतर साहित्याप्रमाणेच डिजीटल ग्रंथसंग्रह सुलभतेने वापरण्यासाठी योग्य ती तांत्रिक व्यवस्था/सोय उपलब्ध असेल.
4. डिजीटल ग्रंथालयातील साहित्य हे सतत टिकेल याकडे लक्ष दिले जाईल. त्यातील माहिती दर्जेदार (Qualitative) सतत राहिल यासाठी तांत्रिक व्यवस्था केलेली असते.

वरील व्याख्या इंग्रजीमध्ये —

1. Digital Library is a managed collection of digital objects.
2. The digital sources are created or collected according to principles of collection development.
3. The digital objects are made available in a cohesive manner supported by services necessary to allow users to retrieve and exploit the resources just as they would any other library material.
4. The digital objects are treated as long term stable resources and appropriate processes are applied to them to ensure their quality and survivability.

### डिजीटल ग्रंथालयातील साहित्य संग्रह

1. डिजीटल बुक्स
2. डिजीटल जर्नल
3. डेटाबेस
4. एकेडेमिक रीपोजिटरी (Academic Repository)



**पारंपारिक ग्रंथालय व डिजीटल ग्रंथालय यांची तुलना****पारंपारिक ग्रंथालयात**

1. प्रत्यक्ष साहित्याशी (Physical objects) निगडित गोष्टीवर भर असतो.
2. प्रत्यक्ष साहित्य शोधताना दोन गोष्टींची शक्यता आहे
  1. प्रत्यक्ष साहित्य जागेवर आहे का ?
  2. किंवा त्यासाठी वाट पाहावी लागणार आहे

1. ग्रंथालयतालिका (Library Cataloguing) आपणास साहित्याच्या ग्रंथालयातील ठिकाणी घेवून जातात.

**डिजीटल ग्रंथालयात**

1. डिजीटल ग्रंथालयात डिजीटल साहित्यसंग्रहाचा समावेश असतो यामध्ये शाब्दिक, दृक, श्राव्य, दृक-श्राव्य इ.प्रकारचे साहित्य इलेक्ट्रॉनिक माध्यमाच्या स्वरूपात जतन केलेले असते.
2. इलेक्ट्रॉनिक माध्यमाच्या स्वरूपात जतन केलेल्या साहित्याचे संग्रहण, जतन, प्रतीप्राती अशा प्रकारे केलेली असते की ज्यातून त्या माहितीतून आवश्यक असलेली माहिती स्थानिक तसेच जगातील इतर कोणत्याही ठिकाणाहून संगणक किंवा इतर तत्सम इलेक्ट्रॉनिक माध्यमाच्या सहाय्याने व इंटरनेटच्या मदतीने कितीही वेळा उपलब्ध होत असते.
3. डिजीटल ग्रंथालयात जास्तीत जास्त जुळणाऱ्या माहितीवर भर असतो व माहिती शोधपद्धतीतील माहिती शोध घेणेसाठी मेटाडेटा (metadata) चा वापर केला जातो.

**डिजीटल ग्रंथालयांची गरज**

भविष्यकाळात ग्रंथालयांना व पर्यायाने ग्रंथांना **डिजीटल** स्वरूपात माहिती निर्माती तसेच ग्रंथालयाकडे असलेल्या विविध छापील साहित्याचे डिजीटल स्वरूपात परिवर्तन व डिजीटल स्वरूपातल्या माहितीस्रोतांचे जतन व संरक्षण या बाबीकडे विशेष लक्ष देणे आवश्यक आहे कारण **डिजीटल ग्रंथालयांची निर्माती** ही भविष्यकाळाची गरज आहे. ही गरज का आहे हे पुढील मुद्द्यावरून स्पष्ट होईल.

**1. छापील माध्यमाची मर्यादा**

ग्रंथालय साहित्य संग्रहामध्ये छापील स्वरूपातील साहित्याचा भरणा आजही आपल्याला आढळतो. ग्रंथालये छापील स्वरूपातील साहित्य टिकविण्याचा प्रयत्न करतात, परंतु असे साहित्य टिकविण्यात कागदाच्या मर्यादित आयुष्यामुळे अडचणी येतात. कालांतराने हे साहित्य नष्ट होण्याची भीती असते. अशा संग्रहामध्ये अमूल्य स्वरूपाचे तसेच प्रकाशकाकडून किंवा इतर कोणत्याही मार्गाने उपलब्ध होऊ न शकणारे दुर्मिळ ग्रंथ ( out of print/rare books) असू शकतात. असे छापील साहित्य ते नष्ट होण्यापूर्वीच योग्य त्या माध्यमात परावर्तित करणे आवश्यक होते. ग्रंथ परावर्तित करण्यासाठी मायक्रोफिल्मिंग, फोटोकॉपी यासारखे तंत्रज्ञान उपलब्ध असले तरी असे परावर्तित साहित्यप्रकार टिकण्यावर मर्यादा असतात. तसेच असे परिवर्तन कायमस्वरूपी होऊ शकत नाही. इतर माध्यमाच्या या मर्यादा लक्षात घेता सद्यस्थितीत **डिजीटल** हे एकमेव माध्यम उपलब्ध असून ते कायमस्वरूपी होऊ शकते. तेव्हा ग्रंथालय साहित्यासंग्रहातील अमूल्य साहित्यसंग्रहाचे **डिजीटल** स्वरूपात परावर्तन अग्रक्रमाने करणे आवश्यक आहे.

**2. वेगवेगळ्या स्वरूपातील साहित्य जतन**

ग्रंथालय संग्रहात ग्रंथ, नियतकालिके, संदर्भ ग्रंथ, छापील ग्रंथेतर साहित्य या व्यतिरिक्त अनेक साहित्यप्रकार, वस्तू संग्रहित असतात. ज्यामध्ये अमुद्रित ग्रंथेतर साहित्यप्रकार (ध्वनिमुद्रिका, चलचित्र, व्हिडीओचित्रफीती इत्यादी) पेंटिंग्ज, वस्तूसंग्रहातील वस्तू, दप्तरखान्यातील दस्तावेज, खेळणी, प्रतिकृती, छायाचित्रे इ. गोष्टी समाविष्ट असतात. मोठमोठ्या ग्रंथालयांमध्ये शैक्षणिक वस्तूसंग्रहालाचे दालन असते. वरील सर्व ग्रंथेतर साहित्य प्रकार टिकविण्यासाठी ग्रंथालयाला पराकाष्ठा करावी लागते. काही

वेळा संशोधकांच्या हाताळण्यापलीकडे अशा वस्तूंची परीस्थिती असते. अशा सर्व वस्तूबद्दलची माहिती विशिष्ट माध्यमात परावर्तित करून ती कायमस्वरूपी टिकविणे आणि संशोधकास सुलभपणे उपलब्ध करून देणे हे ग्रंथपालांचे कर्तव्य आहे. **डिजीटल** ग्रंथालय निर्मातीच्या प्रकियेतून अशी माहिती साठविणे, एकसंघरित्या प्रसारित करणे शक्य आहे.

### 3. **विविध भाषेतील माहिती वापरण्याची एकत्र सोय**

भारतासारख्या विविध भाषिक संघराज्यात विविध भाषांमध्ये साहित्यनिर्मिती होत असते. एका ग्रंथालयातही विविध भाषेतील साहित्य उपलब्ध असू शकते. अशा विविध भाषातील उपलब्ध साहित्याचे जतन करताना डिजीटायझेशनचे तंत्रज्ञान वापरता येते. असे परावर्तित साहित्य वाचकांना वापरण्याची एकत्रित सोय डिजीटल ग्रंथालयाच्या माध्यमाने होऊ शकते.

### 4. **इंटरनेट माध्यमातील प्रसारित माहिती वापरण्यातील तांत्रिक अडचणी**

इंटरनेटच्या माध्यमातून विविध प्रकारची डिजीटल स्वरूपाची माहिती उपलब्ध होत असते. उदाहरणार्थ – इ-जर्नल्स, इ-डेटाबेस, ई-बुक्स इत्यादी. हे सर्व प्रकार मुख्यत्वेकरून व्यापारी तत्वावर उपलब्ध होत असतात. त्याचप्रमाणे तसेच ते वापरण्यामागे अनेक अटीच्या मर्यादा असतात. त्याचप्रमाणे त्यांची सततची उपलब्धता अनेक तांत्रिक गोष्टींवर अवलंबून असते. नेटवर्किंग सारख्या तंत्रज्ञानातील छोट्याशा बिघाडाने अशा माहितीचे प्रसारण कधीही बंद होऊ शकते. त्यामुळे संशोधनात अडथळे येण्याची शक्यता असते. ही अडचण लक्षात घेता डिजीटल माध्यमातून उपलब्ध होणाऱ्या माहितीचे स्थानिक पातळीवर जतन करण्याची, संरक्षण, प्रसारण उपलब्धतेची सोय या सर्व बाबी डिजीटल ग्रंथालय निर्मिती अंतर्गत येतात.

### 5. **स्थानिक बुद्धीसंपदेतून साहित्यनिर्मिती**

प्रत्येक ग्रंथालयाला त्याच्याकडे उपलब्ध साधन संपत्तीच्या चौकटीत राहून शक्य तेवढा साहित्यसंग्रह करणे शक्य होते. प्रसिद्ध नियतकालिकांची मोठी वर्गणी तसेच इ-जर्नलसारखे डिजीटल स्रोत विकत घेणे न परवडण्यासारखे असते. अशा परिस्थितीत शैक्षणिक संस्थेकडे असलेल्या बौद्धिक संपदेचा चांगल्याप्रकारे वापर केला जाऊ शकतो. ज्यामध्ये क्लासनोट, कॉम्प्यूटर प्रोग्रॅम्स, प्रॉब्लेम्स आणि सोलुशन्स, पूर्ण स्वरूपातील व्याख्याने ( व्हिडीओ चित्रीत) विविध अभ्यासक्रम, प्रश्नपत्रिका यासारख्या विविध माहितीची निर्मिती स्थानिक पातळीवर करून ती विद्यार्थीसमूहाला उपलब्ध करण्यासाठी डिजीटल ग्रंथालयासारख्या तंत्रज्ञानाचा उपयोग होऊ शकतो. ज्यामुळे स्थानिक पातळीवरील साहित्य निर्मितीस प्रोत्साहन व विद्यार्थ्यांच्या माहितीच्या गरजेची पूर्तता या दोन्ही गोष्टी साध्य होऊ शकतात. स्थानिक पातळीवर असे माहिती स्रोत निर्माण होणे गरजेचे आहे.

सध्या जगात अस्तित्वात असलेल्या काही डिजीटल ग्रंथालयांची उदाहरणे पुढीलप्रमाणे आहेत.

### **राष्ट्रीय व आंतरराष्ट्रीय डिजीटल ग्रंथालये**

1. World Digital Library
2. Million book project
3. Project Gutenberg
4. Digital Public Library of America
5. Internet Archive
6. Digital Library of India : C-DAC, New Delhi
7. National Digital Library in India : Ministry of IT

### **समारोप**

सध्याचा समाज हा माहितीप्रधान समाज म्हणून ओळखला जातो. इंटरनेटच्या माध्यमातून विविध प्रकारच्या माहितीची देवाणघेवाण सध्या सहजपणे केली जात आहे. ग्रंथालयांच्या विकासांमध्ये तसेच शिक्षणामध्ये डिजीटल ग्रंथालये ही महत्त्वाची भूमिका पार पाडत आहेत. मुद्रित साहित्य प्रकाराबरोबरच डिजीटल साधनांची निर्मिती होत आहे. या साधनांचा वापर ग्रंथालयामध्ये होत आहे.

डिजीटल ग्रंथालय निर्मिती व त्याचा परिणामकारक उपयोग यासाठी ग्रंथपाल ,वापरकर्ते तसेच समाज यांच्यामध्ये जागरूकता निर्माण करणे आवश्यक आहे.संबंधित सर्व घटकांना त्याबाबत प्रशिक्षण देणे आवश्यक आहे. डिजीटल भारताच्या निर्मितीमध्ये डिजीटल ग्रंथालयांचे योगदान अपेक्षित आहे.

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**ग्रंथालयामध्ये मोबाईलचा उपयोग****- डॉ. अंजली दशरथ काळे**

ग्रंथपाल,

कला महाविद्यालय, बिडकीन,

ता. पैठण, जि. औरंगाबाद

ई-मेल - anjudkale@gmail.com

**प्रस्तावना —**

ग्रंथालय साहित्य आणि सेवा मोबाईल उपकरणावर उपलब्ध करून देणे ग्रंथालयासाठी आवश्यक बनले आहे. २०१८ च्या रिसर्च सर्वेक्षणाचा अंदाज आहे की, युनायटेड स्टेट्समधील ८० टक्के प्रौढांकडे आता स्मार्ट फोन आहेत आणि ते वापरतात. वंश आणि उत्पन्न यासारख्या पारंपरिक विभागामध्येही मोबाईल डिव्हाइस मालकीची सर्वव्यापिता तुलनेने स्थिर आहे. ग्रंथालयांना मोबाईल ॲक्सेसद्वारे वापरकर्त्यांच्या मोठ्या लोकसंख्येला साहित्य आणि सेवा प्रदान करण्याची संधी आहे. आणि या मागणीला समर्थन देण्यासाठी संग्रह विकास आणि संसाधन व्यवस्थापनाचे नवीन नमुने उदयास आले आहेत. लायब्ररी मोबाईल साइट ऑप्टिमायझेशन, मोबाईल तयार किंवा मूळ मोबाईल संग्रह प्राप्त करणे. अनुप्रयोग सामग्रीचे मूल्यमापन सामावून घेण्यासाठी निवड करण्याच्या पद्धतीमध्ये सूक्ष्मता आणणे आणि या क्रियाकलापांसाठी प्रशिक्षण आणि प्रोत्साहन हे आता माहिती व्यावसायिकांसाठी आवश्यक झाले आहे.

समकालीन शैक्षणिक ग्रंथालयामध्ये मोबाईल वापराबाबत स्पष्टता आणि अभ्यासाची गरज महत्त्वाची आहे. कारण मोबाईल ॲप्स नवीन स्वरूप आणि नवीन सामग्री प्रकार दोन्ही दर्शवतात. संग्रह विकास प्रक्रियेत तार्किकदृष्ट्या मोबाईल ॲप्स समकालीन करण्यासाठी विभागामधील संवाद आणि सहकार्य आणि नवीन कार्यप्रवाहाची स्थापना आवश्यक आहे. या अभ्यासात शैक्षणिक ग्रंथालयामध्ये मोबाईल ॲप्सच्या जाहिरात आणि संकलनातील महत्त्वाचे प्रश्न, नवकल्पना आणि भविष्यातील दिशा स्पष्ट करण्यासाठी वर्तमान साहित्याचा आढावा व्यावहारिक धोरण आणि केस स्टडीसह एकत्रित केला जातो.

**साहित्य समीक्षा —**

मोबाईल उपक्रमांमध्ये ग्रंथालयाच्या सहभागाचा भाग, विविध संस्था आणि पद्धतीचा व्यापलेला आहे. ग्रंथालयाच्या साहित्यात त्यांच्या वेबसाइट्स आणि संग्रहांचे मोबाईल प्रवेशासाठी मूल्यांकन आणि ऑप्टिमाइझिंगची उदाहरणे आहेत. डॉल्फी विद्यापीठाने ग्रंथालयामध्ये २०१५ मध्ये मोबाईल सुसंगततेसाठी त्याचा डेटाबेस सामग्रीचे परीक्षण केले आणि त्यांना आढळले की त्यांनी पुनरावलोकन केलेल्या २८ टक्के सेवा मोबाईल वापरासाठी योग्य होत्या. त्यामुळे असा निष्कर्ष काढला की, मोबाईल-विसंगत डेटाबेस वाढत्या मोबाईल सूचना आणि संसाधन लँडस्केपसाठी आरोग्य होते. आणि हे अजूनही अचूक आहे. मोबाईल कंपॅरिबिलिटी वाढविण्यासाठी ग्रंथालयाकडून विक्रेत्यांवर दबाव टाकल्याने त्यांना अंतिम वापरकर्त्यांसाठी अधिक चांगला मोबाईल अनुभव प्रदान करण्यासाठी मदत होऊ शकते. तो दबाव आणण्यासाठी ग्रंथपाल त्यांच्या स्वतःच्या वेबसाइट्स आणि मोबाईल डिव्हाइससाठी संसाधने ऑप्टिमाइझ करून सुरुवात करू शकतात. हॉकस्ट्रा महाविद्यालयातील विद्यार्थी, प्राध्यापक आणि कर्मचारी यांच्या मोबाईल डिव्हाइस प्राधान्यांचे सर्वेक्षण केले काढला आहे. आधुनिक शैक्षणिक ग्रंथालयांच्या संकलन विकासास प्राधान्य म्हणून मोबाईल तंत्रज्ञान अनिवार्य ॲप्सचा वापर वाढतो.

ग्रंथालयामध्ये मोबाईल वापरकर्त्यांना सामावून घेण्याचा प्रयत्न अद्याप पूर्ण झालेला नाही. या ग्रंथालयांनी वापरकर्त्यांनी सामावून घेण्याचा प्रयत्न केल्याचे पुराव्यासाठी ग्रंथालयाच्या वेबसाइटची तपासणी केली. तेव्हा आढळले की ७१.२% संस्थांनी मोबाईल ॲक्सेस प्रदान करण्यासाठी काही प्रयत्न केले आहेत. परंतु ते भिन्न आहेत. अर्ध्याहून अधिक नियुक्त केलेले मोबाईल ॲप प्रदान केले. उर्वरित मोबाईल ऑप्टिमाइझ केलेले वेबसाइट किंवा डेस्कटॉप होमपेजवरून किंवा संस्थेच्या होमपेजवरून

मोबाईल वेबसाइटशी लिंक केलेली ऑफर केली. मोठ्या संस्थेने संस्थाअभ्यास घेतलेल्या २८.७ टक्के ने लायब्ररी संसाधनांसाठी मोबाईल पर्याय प्रदान केला नाही.

लायब्ररी वेबसाइट आणि ॲप डिझाइनमध्ये मोबाईल वापरकर्त्यांच्या गरजा पूर्ण करण्यासाठी सराव बदलण्याचे एक महत्त्वाचे पाऊल आहे. बाह्य स्रोतांकडून मोबाईल सामग्रीचे योग्यरीत्या मूल्यमापन, संपादन आणि प्रचार करण्यासाठी मोबाईल वापरकर्त्यांसाठी लायब्ररी वेबसाइटद्वारे प्रवेश बिंदू स्थापित करणे आवश्यक आहे. वॉगने लायब्ररी इव्हेंटसाठी डेस्कटॉप तयार करणे ही ॲप ॲक्सेस सुलभ करण्यासाठीची पहिली पायरी आहे आणि तो एक सतत प्रयत्न आहे.

इव्हेंटसाठी डेस्कटॉप वेबसाइट आणि मोबाईल ॲप्लिकेशन विकसित केले. दोन प्लॅटफॉर्ममध्ये वापर आश्चर्यकारकपणे समान होता. या अभ्यासापासून लायब्ररीद्वारे वाढलेला मोबाईल अवलंब आणि संरक्षक आउटरीच उपक्रमामुळे मोबाईल वापरकर्त्यांना अनुकूल होण्यासाठी हा कल बदलला असेल. यावेळी असे दिसते की, लायब्ररी वापरकर्त्यांनी लायब्ररी संसाधनांमध्ये मोबाईल प्रवेशाची अपेक्षा केली आहे आणि मोबाईल-तयार आणि मोबाईल-नेटिव्ह सामग्रामध्ये वाढत्या प्रवेशाची मागणी केली आहे.

उदयोन्मुख संशोधन पद्धती आणि तंत्रज्ञानाबद्दल संरक्षकांना शिक्षित करण्याच्या व्यापक मिशनचा एक घटक म्हणून शैक्षणिक ग्रंथपाल ॲप आउटरीच पाहतात. कॅनेडियन शैक्षणिक लायब्ररीमधील ॲपवापराच्या त्यांच्या सर्वेक्षणात, कॅज्युएल आणि क्रिचटन आग्रह करतात की ॲप लँडस्केप समजून घेणे आणि वापरकर्त्यांनी त्याद्वारे मार्गदर्शन करणे ही ग्रंथपालांची जबाबदारी आहे. ॲप्स विद्यार्थ्यांना नवीन मार्गाने माहिती साक्षरतेची तत्त्वे शिकण्यात गुंतवून ठेवण्यासाठी आणि संशोधकांना ग्रंथसूची डेटा व्यवस्थापित करण्यात मदत करण्यासाठी संधी देतात. त्याचे सर्वेक्षण असे दर्शविते की, अनेक शैक्षणिक ग्रंथालये आधीपासूनच ॲप्सचा प्रचार आहेत. तसेच शैक्षणिक लायब्ररीमधील ॲप्सद्वारे उठवलेल्या महत्त्वाच्या किमती आणि संकलन विकास विचारांमध्ये व्यस्त आहेत. तंत्रज्ञान संप्रेषण करण्यासाठी ग्रंथपालांच्या व्यापक आदेशाशी सुसंगत आहेत.

### निष्कर्ष —

शैक्षणिक ग्रंथालयांमध्ये मोबाईल ॲप्सचे संपादन आणि मूल्यमापन अधिक महत्त्वपूर्ण होत आहे. मोबाईल सक्षम संरक्षकांना त्यांच्या डिव्हाइसेस आणि त्यांच्या गरजा पूर्ण करणारी लायब्ररी सामग्री आवश्यक आहे. प्रतिसादात्मक संग्रह तयार करण्यासाठी ग्रंथपालांनी सामग्री आणि स्वरूपाच्या संगमावर एक उदयोन्मुख संसाधन प्रकार म्हणून ॲपशी संपर्क साधला पाहिजे. पॉइंट ऑफ नीड ॲप्सच्या संदर्भात वापरकर्त्यांच्या विनंत्या आणि वर्तन दस्तऐवजीकरण केल्याने ग्रंथपालांना या संसाधनाची मागणी ऑन-डिमांड-ॲक्सेस करण्याच्या क्षमतेमुळे नवीन अंतर्दृष्टी देण्यास सक्षम एक उदयोन्मुख स्वरूप म्हणून प्रदर्शित करण्यात मदत होऊ शकते.

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## सोशल मिडीयाचा शिक्षणात वापर

सौ. पाटोळे स्मिता प्रकाश

ग्रंथपाल

आझाद कॉलेज ऑफ एज्युकेशन, सातारा

ई मेल [smitapatole1@gmail.com](mailto:smitapatole1@gmail.com)

## सार -

माहिती तंत्रज्ञानाच्या विकासामुळे सगळ्याच क्षेत्रात मोठे बदल झालेले दिसून येतात. मानवाच्या विविध गरजा पूर्ण करण्यासाठी माहिती तंत्रज्ञान खूपच उपयोगी ठरताना दिसून येत आहे. मानवाच्या मानसिक आणि सामाजिक गरजा पूर्ण करण्यासाठी सोशल मिडियाचा वापर होत आहे. मानवाची मुख्य गरज म्हणजे संवाद होय. त्यासाठी अनेक माध्यमे विकसित करण्याकडे मानव प्रयत्न करत असतो. सोशल मिडिया हा अशाच प्रयत्नांचा परिणाम आहे. माहितीची देवाणघेवाण जलद गतीने करण्यासाठी सोशल मिडीयाचा वापर केला जातो. सोशल मिडीयाने सामाजिक, आर्थिक, राजकीय तसेच इतरही प्रत्येक क्षेत्राला प्रभावित केले आहे. या पेपर मध्ये सोशल मिडीयाचा शिक्षणातील वापर यावर चर्चा करण्यात आली आहे.

**शोध संज्ञा** — शिक्षण, सोशल मिडिया, माहिती तंत्रज्ञान

## प्रस्तावना —

माहिती तंत्रज्ञानामुळे प्रत्येक क्षेत्रात क्रांती झालेली आहे. सध्याचे युग हे माहितीचे युग समजले जाऊ लागले आहे. मानवी जीवनात प्रगती घडवून आणण्यासाठी माहिती तंत्रज्ञानाची नितांत आवश्यकता आहे. पूर्वी प्रिंट स्वरूपात मिळणारी माहिती आता आज इलेक्ट्रॉनिक स्वरूपातही उपलब्ध होत आहे. इलेक्ट्रॉनिक स्वरूपात मिळणारी माहिती आता हवी तेव्हा हवी तेथे मिळू शकते. यामध्ये सोशल मिडिया महत्त्वाची भूमिका पार पाडत आहे.

माहिती तंत्रज्ञानाचा एक भाग म्हणजे सोशल मिडिया होय . त्याचा वापर सध्या खूपच वाढलेला दिसून येतो. Social शब्दाचा अर्थच होतो सामाजिक. Social Media म्हणजे असे प्लॅटफॉर्म ज्यांच्या माध्यमातून आपण समाजाशी जोडले जातो. यामध्ये इंटरनेट हे मुख्य माध्यम असते. सोशल मीडिया हा असा प्लॅटफॉर्म आहे जिथे आपण आपल्या ओळखीच्या व्यक्तींशी आणि अनोळखी व्यक्तींशी देखील जोडलेले असतो. सोशल मीडियाच्या माध्यमातून मैत्री होते. काही लोक याचा वापर हा शैक्षणिक आणि व्यावसायिक कामांसाठी देखील करतात. सोशल मिडिया लोकांमधील परस्पर संबंधांचे सर्वात महत्त्वाचे साधन बनले आहे. यामध्ये प्रत्येक व्यक्ती सहभागी होवून माहिती व ज्ञानाची देवाणघेवाण करू शकतो.

सोशल मिडीयाचा वापर दिवसेंदिवस वाढत चालला आहे. तरूण पिढीला तर सोशल मिडियाचे व्यसन लागले आहे असे म्हणणे चुकीचे ठरणार नाही. आज सोशल मिडिया आणि तंत्रज्ञान दोन्ही आपल्या जीवनाचा अविभाज्य भाग बनले आहेत. प्रत्येक व्यक्तीचे खाते, मग ती व्यक्ती अगदी लहान मुल हि असेल तरीही कोणत्या ना कोणत्या लोकप्रिय सोशल मिडीयावर असलेले दिसत आहे. पत्रकारिता, कायदा, शिक्षण अशा भिन्न पार्श्वभूमी असलेले लोक आपल्या कामासाठी तसेच मनोरंजनासाठीही सोशल मिडिया वापरत असलेले दिसून येतात. स्वस्तात उपलब्ध होणारा इंटरनेट डाटा मुळे सोशल मिडीयाचा वापर खूपच वाढला आहे.

कोरोनामुळे वैयक्तिक, सामाजिक, व्यावसायिक तसेच कौटुंबिक अशा सगळ्याच पातळ्यांवर परिणाम झालेला दिसून येतो. या सगळ्यामधून शिक्षणही सुटले नाही. तर उलट त्याच्यावर जास्त परिणाम झालेला दिसून येतो. कोविड नंतरच्या काळात शिक्षणाच्या जगात आमूलाग्र बदल झाला आहे. अनेक शाळा, विद्यापीठे आणि इतर शिक्षण संस्थांना राष्ट्रीय लॉकडाउन आणि सामाजिक अंतराशी संबंधित अनिवार्य आवश्यकता पूर्ण करण्यासाठी त्यांचे दरवाजे तात्पुरते बंद करावे लागले. यामुळेच शिक्षणाच्या नवीन, अधिक नाविन्यपूर्ण आणि "आभासी" मार्गाची गरज वाढवतात.



मार्च 2020 पासून, युनेस्कोच्या म्हणण्यानुसार, एप्रिल २०२० च्या पहिल्या आठवड्यात, साथीच्या रोगाने जगभरातील जवळपास १.३ अब्ज शिकणाऱ्यांवर नकारात्मक परिणाम केला. जुलै 2021 पर्यंत, सुमारे 31 दशलक्ष विद्यार्थी अजूनही वर्गाबाहेर आहेत आणि त्यांना वैयक्तिक शिक्षणात प्रवेश नाही. त्यावेळी सोशल मिडिया उपयोगी पडताना आपल्याला दिसत आहे

### शिक्षणामध्ये सोशल मीडियाची भूमिका -

शाळा, कॉलेज, ऑफिस, आणि घर या सर्व ठिकाणी वापरले जाणारे माध्यम म्हणजे फोन. सोशल मीडियाचा सर्वाधिक वापरसुद्धा स्मार्टफोनद्वारे अधिक आहे. फोनच्या माध्यमातूनच सोशल मीडियाचा वापर करून आपल्याला काही शिकता येईल, काही नवीन गोष्टी माहित करून घेता येतील. शिक्षणामध्ये सोशल मिडियाचा वापर करून शिक्षण अधिक चांगल्या पद्धतीने देता येते.

- माहितीचा जलद प्रसार करण्यासाठी सोशल मिडिया उपयुक्त ठरते. परीक्षा, विषयांच्या नोट्स, तसेच इतर माहिती प्रसारित करण्यासाठी सोशल मिडिया एक जलद माध्यम म्हणून कार्य करते.
- सोशल नेटवर्किंग मुळे शिकणाऱ्या व्यक्तींना त्यांच्या आवडीनुसार आणि ज्ञानानुसार शैक्षणिक साहित्य निवडण्यास वाव मिळतो.
- सोशल मीडियामुळे शिक्षक विद्यार्थी संवादांमध्ये वाढ होवू शकते.
- सोशल मिडीयाच्या वापरामुळे समावेशक शिक्षण हि संकल्पना सहज रूढ होण्यास मदत झाली आहे. अपंग व्यक्तींना त्यांच्या समवयस्क व्यक्तींप्रमाणे सोशल मिडीयाचा वापर करून समान शिक्षण अनुभवाचा फायदा होतो.
- शैक्षणिक अनुभव मिळविण्यासाठी भौगोलिक अंतराचे कोणतेही बंधन राहिले नाही. कोणीही व्यक्ती त्यांच्या स्वतःच्या ठिकाणी बसून जगातील कोणत्याही ठिकाणी असणारी परिषद, चर्चासत्र यामध्ये भाग घेवू शकतात.
- शैक्षणिक हेतूसाठी डिझाईन केलेल्या साईट च्या वापराने विद्यार्थ्यांना अभ्यासक्रमाचे साहित्य कोणत्याही ठिकाणी आणि कोणत्याही वेळी पाहणे शक्य आहे.
- सोशल मिडीयावर असणारे विविध प्रकारचे ग्रुप हे वेगवेगळ्या विषयांवर चर्चा करीत असतात यामध्ये विद्यार्थ्यांना कोणत्याही भौगोलिक बंधनांशिवाय एकमेकांशी संवाद साधण्याची आणि शिकण्याची संधी मिळते.
- विद्यार्थ्यांना आगामी असाइनमेंट, प्रोजेक्ट किंवा फील्ड ट्रिपची आठवण करून देण्याचा दुसरा चांगला मार्ग सोशल मीडियावर पोस्ट करण्यापेक्षा दुसरा नाही.
- ब्लॉगिंग द्वारे विद्यार्थ्यांना व्यावहारिक कामात गुंतवून ठेवता येते त्यामुळे त्यांची कौशल्यांमध्ये वाढ होवू शकते. संगणकीय युगात सोशल मिडीयाचा वापर व्यक्तीला संगणकीय आणि संप्रेषण कौशल्ये विकसित करण्यात मदत करतो. भाषा विकासात भाषण, वाचन, श्रवण, लेखन, संभाषण इ. कौशल्याचा विकास करणे अभिप्रेत आहे. वृत्तपत्र, मासिके, पाक्षिके, वार्षिकांक, विशेषांक, ध्वनिमुद्रिका, रेडीओ, दूरदर्शन, मोबाईल, संगणक, सोशल मिडिया साईट्स इत्यादी साधनांच्या सहाय्याने विद्यार्थ्यांच्या कौशल्याचे विकसन करता येते.

### लोकप्रिय सोशल मिडिया / साईट व त्याचा शिक्षणामध्ये वापर -

1. फेसबुक – विद्यार्थी सहकार्य, चर्चा आणि अतिरिक्त मदत मिळवण्यासाठी शैक्षणिक हेतूसाठी देखील Facebook वापरू शकतात. विद्यार्थी फेसबुकवर ग्रुप तयार करून समवयस्कांकडून फीडबॅक मिळवण्यासाठी प्रश्न पोस्ट करू शकतात. ग्रुप Facebook page wall वर व्हिडिओ तसेच लिंक शेअर करू शकतात. शिक्षक त्यांच्या विद्यार्थ्यांना असाइनमेंट आणि चाचण्यांबद्दल स्मरणपत्रे पाठवण्यासाठी Facebook ग्रुपचा वापर करू शकतात.

उच्च शिक्षणात फेसबुकचा वापर गेल्या काही वर्षात वाढला आहे. विद्याशाखा आणि विद्यार्थी या दोघांनीही SNS चा उपयोग शिक्षणाला पाठिंबा देण्यासाठी केला आहे. संशोधन असे दर्शविते की SNSs शिक्षणाच्या ग्रुपला प्रोत्साहन देऊ शकतात आणि सामाजिक संबंधांच्या विकासास मदत करू शकतात.

2. Twitter — विद्यार्थ्यांचे सर्वेक्षण करण्याचा सोपा मार्ग आणि शिक्षणाबद्दल किंवा शिकवत असलेल्या विषयांबद्दल फीडबॅक मिळवायचा असेल, तर Twitter हे वापरण्यासाठी एक उत्तम साधन आहे. विद्यार्थी प्रश्न किंवा टिप्पण्या ट्विट करू शकतात किंवा विद्यार्थ्यांसाठी सर्वेक्षण पूर्ण करण्यासाठी लिंक ट्विट करू शकता. आजचे पालक व्यस्त आहेत आणि जर त्यांना त्यांच्या मुलाच्या शिक्षणाविषयी माहिती देवू इच्छित असाल, तर तसे करण्याचा सर्वोत्तम मार्ग त्यांना ट्विट करण्याइतका सोपा असू शकतो. तुम्ही पालकांना त्यांचे "संदेश अलर्ट" ठेवण्यास सांगितल्यास, तुम्ही त्यांना रिअल-टाइममध्ये खाजगीरित्या संदेश देखील देऊ शकता आणि सोशल मीडियाद्वारे त्यांच्याशी त्वरित बोलू शकता. विद्यार्थ्यांना त्यांनी शिकलेल्या गोष्टींचा सारांश देण्यास आव्हान देण्याचा उत्तम मार्ग आहे कारण तो त्यांना त्यांचे विचार सारांश रूपाने मांडण्यास भाग पाडतो.
3. ब्लॉग — शिक्षक असाइनमेंट, शैक्षणिक साधने प्रकाशित करण्यासाठी ब्लॉग वापरू शकतात आणि विद्यार्थी आणि अगदी पालकांना वर्ग इव्हेंट, यांच्या ठरलेल्या तारखा याबाबत अद्ययावत ठेवू शकतात. विद्यार्थ्यांच्या लेखनामध्ये मदत करण्यासाठी आणि त्यांचे लेखन कौशल्य सुधारण्यासाठी शिक्षक ब्लॉग वापरू शकतात. विद्यार्थी त्यांचे लेखन प्रकाशित करण्यासाठी आणि एखाद्या विशिष्ट विषयावर इतरांना शिक्षित करण्यासाठी ब्लॉग वापरू शकतात.
4. YOUTUBE — ऑनलाइन शिक्षणाचे साधन म्हणून व्हिडिओचा प्रभाव असलेला दिसून येतो. YouTube व्हिडिओबद्दल सर्वात चांगली गोष्ट म्हणजे ते विविध शैक्षणिक प्रणालींमध्ये विशेषतः ऑनलाइन शिक्षणामध्ये सहजपणे समावेश केले जाऊ शकतात. व्हिडिओ-सहाय्य शिक्षण हा शिक्षण उद्योगातील एक नवीन ट्रेंड आहे कारण तो विद्यार्थ्यांना जटिल संकल्पना आणि विषय शिकण्याचा आणि समजून घेण्याचा एका अर्थाने मनोरंजक मार्ग बनला आहे. कोरोनावायरस साथीच्या आजारामुळे अलीकडील जागतिक लॉकडाऊनमध्ये, शैक्षणिक आणि eLearning संबंधित YT चॅनेलने मोठ्या संख्येने YouTube सदस्य मिळवले आहेत कारण जगभरातील विद्यार्थ्यांना घरबसल्या वर्गांना उपस्थित राहण्यास सांगितले होते. विद्यार्थी व्हिडिओ पाहताना अधिक लक्ष केंद्रित करतात.
5. Whatsapp — WhatsApp विद्यार्थी आणि शिक्षक यांच्यात अखंड, कधीही संवाद सक्षम करते. हे कमी इंटरनेट क्षेत्रांमध्ये आणि ऑनलाइन शिकवण्यासाठी आवश्यक साधने असलेल्या शाळांमध्ये वापरण्यासाठी आदर्श आहे. शिकणे आणि अभ्यास गट तयार करण्यासाठी ग्रुप चॅट तयार करता येतात. विद्यार्थ्यांना थेट पाठवता येतील असे ऑडिओ धडे तयार करता येतात. विद्यार्थ्यांना व्हिडिओ, चित्रे किंवा तक्ते यासारखे ग्राफिक्स थेट पाठवता येतात. विद्यार्थी वर्गात नसतानाही त्यांना असाइनमेंट पाठवता येतात. पालकांच्या संपर्कात राहता येते.
6. कोलेजची वेबसाईट - समजा कॉलेजची वेबसाईट आहे, प्रत्येक शिक्षकाचे एक वेबपेज आहे, त्यावर आपल्या विषयासंबंधित पोस्ट केल्या जातात तसेच सोशल मीडियावरती शिक्षणासंबंधित नियमित पोस्ट करणे गरजेचे आहे. शिक्षकांनी शिक्षणासंबंधीचे विविध रिसोर्सेस तिथे उपलब्ध करून देणे फायद्याचे आहे.

### समारोप -

आपण संपर्कात राहण्याची माध्यमं आणि साधनं उपलब्ध करत असू तर त्याचा योग्य वापर करायला शिकवायला हवं. तसेच त्या योग्य वापर करण्यासाठी अनेक संधीसुद्धा उपलब्ध करायला हव्या. शिक्षक आणि विद्यार्थी या दोघांनी समाजमाध्यमांचा वापर शिक्षणासाठी करणे हा त्यातला सुवर्णमध्य आहे.

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## ‘हरित ग्रंथालय’ - पर्यावरण संवर्धन व पर्यावरण साक्षरतेची एक सामाजिक जबाबदारी

## 1. श्रीमती. मनिषा विलासराव पाटील.

ग्रंथपाल,

श्रीपतराव चौगुले आर्ट्स अँड सायन्स कॉलेज माळवाडी- कोतोली.

ता. पन्हाळा, जि. कोल्हापूर.

इ मेल — [mvpkodoli305@gmail.com](mailto:mvpkodoli305@gmail.com)

## 2. श्री. विलास शामराव पाटील

सहाय्यक प्राध्यापक,

भौतिकशास्त्र विभाग,

यशवंतराव चव्हाण वारणा महाविद्यालय, वारणानगर.

ता. पन्हाळा, जि. कोल्हापूर

इ मेल — [vspkodoli2201@gmail.com](mailto:vspkodoli2201@gmail.com)

## 1. सारांश-

आधुनिक काळातील ग्रंथालय हे माहिती तंत्रज्ञान आणि माहिती व्यवस्थापन शास्त्र यांच्यातील प्रगतीमुळे बदलत्या स्वरूपात सामोरे येत आहे. त्यामुळे सुरुवातीचे छापील साहित्य व आत्ताचे मुद्रित साहित्य यांच्या संकलनांमुळे ग्रंथालयाचे स्वरूप संकरित ग्रंथालय म्हणजेच हायब्रीड लायब्ररी असे होऊ लागले. ग्रंथालयांमध्ये फक्त पुस्तकांची देवघेव न होता माहिती आणि ज्ञानाची देवाणघेवाण सुरू झाली आहे. ग्रंथपालाला ज्ञानाचे व्यवस्थापन व संवर्धन करावे लागले, त्यामुळेच ग्रंथालय ही संकल्पना मागे पडून नॉलेज रिसोर्स सेंटर ही संकल्पना उदयास आली आणि ग्रंथपाल हा नॉलेज रिसोर्स डायरेक्टर म्हणून काम पाहू लागला. जसे हे अंतर्गत बदल अनिवार्य झाले आहेत त्याच प्रमाणे बाह्य बदल ही ग्रंथालयाने स्वीकारण्यास सुरुवात केली. त्यातूनच हरित ग्रंथालय म्हणजेच ग्रीन लायब्ररी ही संकल्पना उदयास आली.

भारत देश प्रदूषणात वाढ करणारा असून, आज या देशात कमी होत जाणारी नैसर्गिक संसाधने संबंधित गंभीर समस्यांना आज देश तोंड देत आहे. त्यामुळे पर्यावरण साक्षरतेला महत्व प्राप्त झाले आहे. याचा परिणाम म्हणून हरित इमारत (Green Building) ही एक नवीन संकल्पना उदयास येऊ पाहते आहे. आजमितीस ग्रंथालय व्यावसायिकांमध्ये मोठ्या प्रमाणात “हरित इमारती” या संकल्पनेस लोकप्रियताही मिळत आहे. आजच्या व्याख्यानामध्ये आपल्याला हरित ग्रंथालयाचे महत्व, हरित ग्रंथालयाची महत्त्वाची मानके, हरित ग्रंथालय करण्याच्या पद्धती, हरित ग्रंथालये साकारण्यासाठीचे व्यवस्थापन, याची जबाबदारी व यात ग्रंथपालाबरोबरच — संस्था व्यवस्थापन व इतर घटक यांची नेमकी भूमिका काय असावी यावर मी आज प्रकाश टाकणार आहे.

असं म्हटलं जातं की पृथ्वी मनुष्याच्या मालकीची नाही, मात्र मनुष्य पृथ्वीच्या मालकीचा आहे. तरी मनुष्य कायमचा पृथ्वीला निरंतर नियंत्रित करण्याचा नेहमी प्रयत्न करीत आहे. तो आपल्या फायद्यासाठी तिचा उपयोग करीत असतो. आधुनिक तंत्रज्ञानामुळे माणसाची जीवनशैली प्रचंड वेगाने बदलत आहे. विज्ञानाच्या आवडीमुळे आणि औद्योगिक विकासांमुळे मानवी जीवनात सुख-समृद्धी जरी आली, तरी मानवाच्या अमर्याद व न संपणाऱ्या मागण्यांमुळे आणि मानवाच्या हव्यासापोटी पर्यावरणाचा ऱ्हास होत गेला आहे. यामुळे आपण पाहतो आहे, आज ‘कोरोना’ सारखे भीषण आजार जगभरात पसरले असून आज संपूर्ण मनुष्यजात आज घरामध्ये बंदिस्त झाली आहे. यामुळेच गेल्या काही वर्षांपासून हरितक्रांतीची व्याप्ती वाढली असून “हरित ग्रंथालय” ही बाब सुद्धा त्यामध्येच येते. अनेक ग्रंथालय क्षेत्रातील वैज्ञानिक यातील विविध प्रकल्पांवर आज काम करीत आहेत. पर्यावरण अस्थिरता ही “सामाजिक जबाबदारी” असून यात अनेक ग्रंथालये पुढाकार घेत असून ग्रंथालयांच्या या पुढाकारामुळे अनेक ग्रंथालयांची प्रतिमा उंचावली आहे. यासाठी ग्रंथालय ग्रंथपालानी, महाविद्यालय आणि विद्यापीठ व्यवस्थापन व इतर घटक यांनी हरित ग्रंथालय आणि पर्यावरण संवर्धन करण्यासाठी वचनबद्ध झालेच पाहिजे व ही आजच्या काळाची महत्त्वाची गरज आहे असे मला वाटते.

की वर्ड - हरित ग्रंथालय, पर्यावरण संवर्धन, सामाजिक जबाबदारी, हरित इमारत, ग्रीन लायब्ररी, पर्यावरण साक्षरता.

## 2. हरित ग्रंथालय:-

1990 च्या दशकाच्या सुरुवातीला हरित ग्रंथालयाच्या चळवळीस प्रारंभ झाला व ग्रंथालय आणि माहितीशास्त्र या व्यवसायामध्ये ही चळवळ लोकप्रियही झाली. पर्यावरण चळवळीत ग्रंथालये मागे नाहीत, ज्यामध्ये कमीतकमी विजेचा वापर, ऊर्जा कार्यक्षमता, आणि जे पर्यावरणास अनुकूल असेल त्याच वस्तूचा वापर ग्रंथालयांमध्ये करून, ग्रंथालयाची इमारत बनविणे, योग्य व्यवस्थापन व सेवा या सर्वांमुळे हरित ग्रंथालयाची चळवळ ही ग्रंथालयासाठी प्रभावी ठरू शकते. या संकल्पनेत

इमारतीतील हवामान व्हेंटीलेशन, हॉटिंग आणि कूलींग, दिवे, अंतर्गत सामान, संप्रेषण, तत्वज्ञान या सर्व बाबी ग्रंथालयात उपयुक्त ठरतात. हरित ग्रंथालय निर्माण करण्यासाठी अनेक एन.जी.ओ. आजमितीस कार्यरत आहेत.

## 2.0 हरित ग्रंथालयाची व्याख्या:-

1. “हरित ग्रंथालय म्हणजे पर्यावरण आणि समुदायाचे रक्षण करण्याच्या हेतूने बनविलेले ग्रंथालय होय”.
2. ऑनलाइन डिक्शनरी ऑफ लायब्ररी अँड इन्फोर्मेशन सायन्स नुसार “हरित ग्रंथालय म्हणजे नैसर्गिक पर्यावरणावर नकारात्मक प्रभाव कमी करण्यासाठी आणि पर्यावरणाची गुणवत्ता वाढविणे, नैसर्गिक बांधकाम साहित्य आणि जैव-उत्पादित उत्पादनांचा वापर करणे. ऊर्जा, पाणी, कागद यासारख्या संसाधनाचा कमीत कमी वापर करून डिझाईन केलेले ग्रंथालय म्हणजेच हरित किंवा शाश्वत ग्रंथालय होय.”
3. “हरित किंवा शाश्वत ग्रंथालय म्हणजे अशी रचना जी रचना,बांधणी, नूतनीकरण पर्यावरणीय आणि संसाधन कार्यक्षम पद्धतीने पुन्हा वापरणे होय.”

3.0 हरित ग्रंथालयाची विविध मानके (प्रकार):- या हरित ग्रंथालये मानाकन करणाऱ्या विविध आंतरराष्ट्रीय संस्था असून त्या वेगवेगळ्या प्रकारचे मानाकन करतात.

- ❖ 1. भारतीय हरित इमारत परिषद (Indian Green Building Council IGBC)-
- ❖ 2. लिडरशीप एनर्जी अँड Environmental डिझाईन (Leadership in Energy and Environmental Design (LEED-India)
- ❖ 3. एनर्जी स्टार (Energy Star)-
- ❖ 4. ग्रीन ग्लोब (Green Globe)
- ❖ 5. ग्रीन सील (Green Seal)

## 3.1. भारतीय हरित इमारत परिषद (Indian Green Building Council ज्याला IGBC म्हंटले जाते)-

भारतामध्ये हरित इमारतीसाठी आणि हरित इमारत यांना प्रोत्साहन देण्यासाठी भारतीय उद्योग संघटनेने “भारतीय हरित इमारत परिषदेची” स्थापना 2001 मध्ये केली आहे. ही परिषद सातत्याने पर्यावरणाला अनुकूल आणि हरित इमारतीच्या व्यापक संकल्पनेसाठी कार्यरत आहे. भारतात हैदराबाद मध्ये हरीत व्यवसाय केंद्र इमारत ही हरीत इमारतीपैकी एक आहे. देशभरामध्ये हरित इमारत संकल्पनेचे प्रबोधन करण्यासाठी परिषद अनेक राज्य सरकार, केंद्र सरकार व ग्रीन बिल्डींग कौन्सिल, अनेक एजन्सीज अशा सुमारे 2190 नोंदणीकृत इमारती व 398 अनोंदणीकृत इमारती या चळवळीचा एक भाग होय.

IGBC हरित इमारत रेटिंग खालील प्रमाणे:-

खालील सर्व प्रकारच्या इमारतीचे मानाकन(रेटिंग)करतात.

IGBC नवीन इमारत,

IGBC हरित नवीन घर,

IGBC नवीन निवासी सोसायटी,

IGBC हरित आरोग्य सेवा,

IGBC हरित शाळा,

IGBC हरित शहरे,

IGBC हरित गाव,

IGBC हरित फॅक्टरी इमारत.

मानाकांचा दूसरा प्रकार किंवा संस्था

## 3.2 लिडरशीप एनर्जी अँड एन्विरॉमेंटल डिझाईन (Leadership in Energy and Environmental Design (LEED-India)

ही एक आंतरराष्ट्रीय मान्यताप्राप्त हरित इमारत प्रमाणपत्र प्रणाली आहे. US Green Building Council (US ग्रीन बिल्डींग कौन्सिल) ने भारतमध्ये लीडरशिप एनर्जी अँड एन्व्हायर्नमेंट डिझाईन(LEED) चा वापर अधिक वेगाने वाढवण्यासाठी LEED

हबची स्थापना केली आहे. हे एक स्थानिक, तांत्रिक, बाजार, प्रमाणपत्र आणि LEED प्रकल्प संघासाठी ग्राहक समर्थन केंद्र आहे. सदरचे हब बाजारात हरित मानदंड याचा अधिक अवलंब करण्यासाठी प्रोत्साहन देत आहे.

इमारत प्रमाणित करण्याचे LEED रेटिंगचे 100 गुण असतात ते खालीलप्रमाणे-

गुण प्रमाणपत्र

40 ते 49 गुण फक्त प्रमाणित केलं जातं

50 ते 59 सिल्वर प्रमाणित

60 ते 79 गोल्ड प्रमाणित

80 + प्लॅटिनम प्रमाणित

यामध्ये अलीकडे खालील पाच मानकांचा अधिकचा अंतर्भाव केला असून त्यामध्ये

1.जागेचे स्थान, 2. जलसंवर्धन, 3. ऊर्जा कार्यक्षमता, 4.इमारत बांधकाम साहित्य, 5.आतील हवेची गुणवत्ता आणि नाविन्यपूर्ण इमारत. याचेही मूल्यांकन केले जाते.

### 3.3. एनर्जी स्टार (Energy Star)-

एनर्जी स्टार ही एक US पर्यावरण संरक्षण एजन्सी Environmental Agency (EPA) असे म्हंटले जाते.यू.एस. ऊर्जा विभागा द्वारे Department of Energy (DOE) ने 1992 मध्ये स्वच्छ हवा कायदा कलम 103 (g) आणि 2005 एनर्जी पॉलिसी कलम 131 च्या अधिकाराने प्रशासित केलेली ऊर्जा कार्यक्षमतेत सुधारणा करण्यावर भर देणारी आणि सरकारचा पाठिंबा असलेली संस्था आहे. एनर्जी स्टार रेटिंग इमारतीची मानके याद्वारे केली जातात. सामान्य, विश्वसनीय आणि निपक्षपाती माहिती पुरविते जेणेकरून ग्राहकाचा पैसा वाचविण्यासाठी आणि उत्सर्जन कमी करण्यासाठी एकत्र प्रयत्न करते. एनर्जी स्टार प्रणालीची तत्वे युरोपियन युनियन तसेच कॅनडा, जपान, नॉर्वे, स्वित्झर्लंड आणि तैवान यांनी स्वीकारली आहेत.

इमारत प्रमाणित करण्याचे एनर्जी स्टार रेटिंग खालील प्रमाणे आहे-

**एनर्जी स्टार-** बँक वित्तीय संस्था, न्यायालय, रुग्णालय, हॉटेल्स, शाळा-महाविद्यालय, वैद्यकीय कार्यालय, निवासी हॉल, सुपर मार्केट, गोदामे इत्यादी इमारतींना म्हणजेच पब्लिक इमारतींना रेटिंग देते.

इमारत प्रमाणित करण्यासाठी 1 ते 100 रेटिंग केले आहेत, 75 किंवा अधिक गुण मिळवलेल्या इमारतींनाच एनर्जी स्टार लेबल मिळू शकतात. त्या खालच्याना नाहीत.

### 3.4. ग्रीन ग्लोब(Green Globe):-

ग्रीन ग्लोब ही US मधील ग्रीन बिल्डिंग इनीशियेटिव्ह द्वारे प्रशासित आहे. ग्रीन ब्लॉग ही व्यावसायिक इमारतीची स्थिती वाढविण्यासाठी मार्गदर्शन आणि मूल्यांकन करणारी प्रणाली आहे ग्रीन ग्लोब प्रणाली चे सर्वात महत्त्वाचे घटक म्हणजे व्यापक पर्यावरण मूल्यांकन प्रोटोकॉल, हरित बांधकाम करण्यासाठी सर्वोत्कृष्ट मार्गदर्शन, अनुभवी हरित इमारत मूल्यांकन कर्ता, ग्रीन ग्लोब इमारतीच्या सामग्रीचे एकूण जीवनचक्र विश्लेषणावर लक्ष ठेवते. ग्रीन ग्लोब मानकांमध्ये 44 महत्त्वाच्या निकषांचा समावेश आहे व जो 380 पेक्षा जास्त निर्देशक यांच्यावर आधारला आहे.

इमारत प्रमाणित करण्याचे ग्रीन ग्लोब रेटिंग खालील प्रमाणे-

1000 विविध श्रेण्या मध्ये गुण- ऊर्जा, घरातील पर्यावरण, साईट, पाणी, संसाधने, उत्सर्जन, प्रकल्प पर्यावरण व्यवस्थापन, यावरून ग्रीन ग्लोब रेटिंग करते. किमान 350 गुण साध्य केल्यावर 1 ते 4 ग्लोब मिळू शकतात.

**मानकांचा पाचवा प्रकार किंवा संस्था**

### 3.5. ग्रीन सील(Green Seal)-

ग्रीन सील एक नवीन पर्यावरण विकास मानक आणि प्रमाणपत्र करणारी संस्था आहे. ग्रीन सील अमेरिकेत पेटंट ट्रेडमार्क ऑफिसमध्ये नोंदणीकृत आहे. ग्रीन सील ग्लोबल इकोलेबलिंग नेटवर्क (पर्यावरण) चे सहसंस्थापक आहे. ज्यात 28 अंतरराष्ट्रीय इकोलेबलिंग कार्यक्रम आहेत. 1989 मध्ये स्थापना झाल्यानंतर रेना डेव्हिड यांनी ग्रीन सील साठी शेकडो उत्पादने आणि सेवासाठी पर्यावरण मानके विकसित केली आहेत. ग्रीन सील कच्चा माल काढून टाकणे, उत्पादित करणे, वापरणे आणि पुन्हा उपयोग करणे या सारख्या परिणामांचा विचार करून मानके मानवी जीवनचक्राच्या दृष्टिकोनावर आधारित आहेत. ग्रीन सील मध्ये पुढील श्रेणीमधील उत्पादने आणि सेवांची मानके आहेत इमारत आणि बांधकाम उत्पादने, कंपनी प्रमानन, हॉटेल, लॉजिंग, घरगुती उत्पादने, संस्थात्मक उत्पादने इ.



**4.0 हरित ग्रंथालय इमारत करण्याच्या पद्धती :**

हरित ग्रंथालय इमारत तयार करण्यासाठी इमारत बांधकाम साहित्य आणि तंत्रज्ञानाचा वापर केला जातो. जसे बांधकामपाया, स्ट्रक्चरल फ्रेम्स, बाह्य इमारत, प्लंबिंग, विद्युत, ऊर्जा बचत उपकरणे, इन्शुलेशन, खिडक्या, नूतनीकरणक्षम उर्जा, छप्पर आणि आतील हवा यांची गुणवत्ता इत्यादी वर आधारित असते.

हरित ग्रंथालय इमारत करण्यासाठी खलील गोष्टी लक्षात घेऊन विकास करणे गरजेचे आहे-

- ❑ 4.1) बाह्य पूर्व किवा स्वरूप- (ग्रंथालय दर्शनी कसे असावे व त्यात कशाचा वापर करावा हे यात सांगितले आहे )
  - ✓ 4.1.1. शाश्वत लाकडी सामग्री आणि फॉरेस्ट स्टुवर्डशीप कौन्सिल प्रमाणित लाकडाचा वापर करणे
  - ✓ 4.1.2 फायबर सिमेंट साईडिंग साहित्याचा वापर :-
- ❑ 4.2. जलसंवर्धन- (Water Harvesting) (हे कसे असावे)
  - ✓ 4.2.1 पावसाच्या पाण्याचे संधारण-
  - ✓ 4.2.2 उच्च कार्यक्षम जलसंवर्धित शौचालय आणि नळ
- ❑ 4.3.विजेचा वापर-(कसा असावा व काय साधने-प्रणाली वापरावी)
  - ✓ 4.3.1-कॉम्पॅक्ट फ्लोरोसेंट बल्बचा वापर (CFLs)-
  - ✓ 4.3.2 प्रकाश नियंत्रण प्रणालीचा वापर:-
- ❑ 4.4. साधने-
  - ✓ 4.4.1.इंसुलेशन-
- ❑ 4.5.उच्च कार्यक्षमता खिडक्या-
- ❑ 4.6.वायुविजन प्रणाली - (Ventilation System)-
- ❑ 4.7.सौरऊर्जा-(Solar Energy)
- ❑ 4.8.ग्रंथालय इमारत परिसरात वृक्ष लागवड –  
या सर्वांचा अनुक्रमे सर्व ऊहापोह आपण पुढे पाहणार आहोत,

**4.1 बाह्य पूर्व किवा स्वरूप-** (ग्रंथालय दर्शनी कसे असावे व त्यात कशाचा वापर करावा हे यात सांगितले आहे )

4.1.1. शाश्वत लाकडी सामग्री आणि फॉरेस्ट स्टुवर्डशीप कौन्सिल प्रमाणित लाकडाचा वापर करणे  
शिल्पशास्त्रांमध्ये डेक (Deck) म्हणजे एक लाकडी सपाट पृष्ठभाग होय. जो वजन पेलण्यास सक्षम असतो. त्याचा उपयोग ग्रंथालय इमारतीच्या मजल्यासाठी केला जातो. पण सामान्यता इमारतीबाहेरील बांधकामात डेकचा उपयोग केला जातो. जे जमिनीपासून वर उचलून इमारतीशी जोडले जातात दोन प्रकारचे पुनरविनी- करणाचे (Recycle) डेक म्हणजे सपाट पृष्ठभाग मिळतात. प्लास्टिक लम्बर आणि कंपोजिट लम्बर. प्लास्टिक लम्बर हे निरुपयोगी प्लास्टिक पासून बनविले जाते, परंतु कंपोजिट लम्बर ही अशी सामग्री आहे जी लाकडाचे तंतू, प्लास्टिक आणि बायडिंग एजंट याचे मिश्रण आहे. पर्यावरणाला आणि सामाजिक दृष्ट्या अनुकूल असणाऱ्या व प्रमाणित केलेल्या लाकडाचा वापर करणे गरजेचे असते.

फायदा-

- (1) ही सामग्री लाकडापेक्षा टिकाऊ आहे.
- (2) किमतीची बचत होते.
- (3) इमारतीचा आकर्षकपणा वाढतो.



**4.1.2 फायबर सिमेंट साईडिंग साहित्याचा वापर:-**

फायबर सिमेंट साईडिंग हे बांधकाम साहित्य आहे, ज्याचा उपयोग ग्रंथालयाच्या इमारतीबाहेरील भागासाठी केला जाऊ शकतो.ग्रंथालय इमारतीच्या बाहेरील भागावर फायबर सिमेंट साईडिंग चा वापर केल्यास ऊन, पाऊस, पाणी, वारा यापासून ग्रंथालय इमारतीचे संरक्षण होते.त्याचबरोबर ग्रंथालय इमारत आकर्षक सुद्धा दिसते. फायबर सिमेंट साईडिंग हे सिमेंट,वाळू आणि सोलुशन (वनस्पतीचे द्रव्य व काष्ट तंतूपासून तयार केलेले असते) ही सामग्री अतिशय मजबूत, टिकाऊ आणि पर्यावरण संवर्धित उत्पादन आहे. फायबर सिमेंट साईडिंग हे शीटच्या स्वरूपात तयार केले असून फायबर सिमेंट साईडिंगचे फायदे हे अधिक लोकप्रिय झाले आहेत.

**फायदे:-**

- (1) इतर सामुग्रीचा तुलनेत जास्त काळ टिकते, हवामान आणि कीटकापासून संरक्षण देते.
- (2) अनेक आकर्षक प्रकारात उपलब्ध
- (3) फायबर सिमेंट साईडिंग हे साहित्य लाकडापेक्षा अधिक टिकाऊ आहे.
- (4)आग प्रतिरोधक आहे.
- (5) फायबर सिमेंट साईडिंग सहजपणे आपण इच्छित असलेल्या रंगात उपलब्ध होते.
- (6)फायबर सिमेंट साईडिंग परवडण्यासारखे आहे.
- (7) फायबर सिमेंट साईडिंग पर्यावरणीय अनुकूल असा स्तर आहे.

**4.2 जलसंवर्धन (Water Harvesting)**

चांगल्या स्वच्छ प्रणालीसाठी ग्रंथालयाने जलसंवर्धनासाठी उत्तम उपाययोजना केल्यास, ग्रंथालय स्वच्छ, हिरवे आणि निरोगी ठेवता येईल,

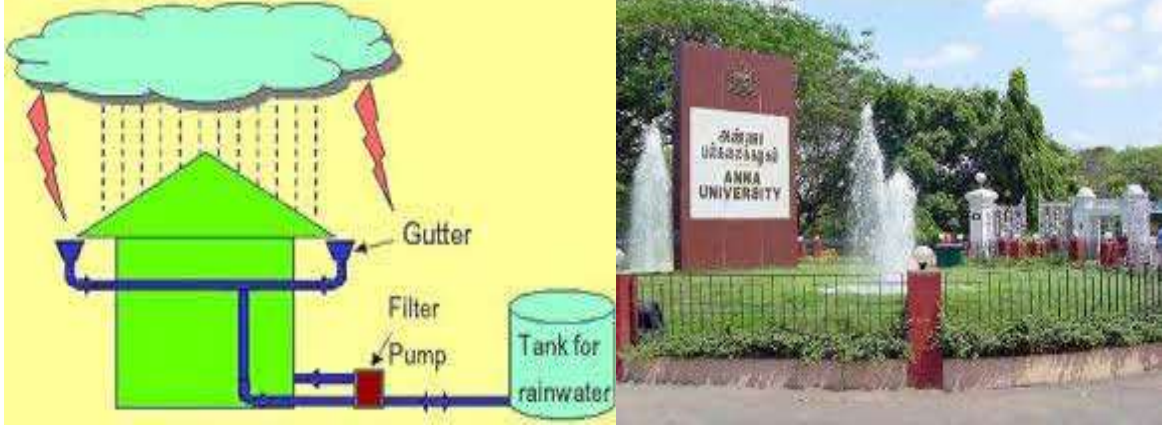
**4.2.1 पावसाच्या पाण्याचे संधारण-**

पाणी प्रश्न निर्माण होण्यासाठी आपला खूप मोठा वाटा आहे. पण सोडवण्यासाठी ग्रंथालयाने शाश्वत पाणी वापराबाबत पुढाकार घेतला पाहिजे. ग्रंथालयाने जलसंवर्धनासाठी पावसाचे पाणी विविध प्रकारे गोळा करण्यासाठी विविध योजना आखून पूर्णता वा अंशता पाणी साठवण्याची व्यवस्था करून या पाण्याचा उपयोग ग्रंथालय इमारतीच्या परिसरातील वृक्ष संवर्धनासाठी, शौचालयासाठी केल्यास, हरित ग्रंथालय ही संकल्पना पूर्ण होण्यास मोठ्या प्रमाणात मदत होईल.

**फायदे :-**

- (1)योग्य प्रकारे जलसंधारण आणि नियोजन केल्यास पाणीपुरवठ्यासाठी बाहेरील स्रोतावर कमी प्रमाणात अवलंबून राहावे लागते.
- (2)जमिनीखालील पाण्याची पातळी वाढते.
- (3)जमिनीची धूप रोखण्यासाठी काही प्रमाणात मदत होते.
- (4) गच्चीवरील पाण्याच्या संधारणाच्या पद्धती तुलनेने अवलंबण्यास सोपे आहेत.
- (5)पाणी पुरवठ्यात स्वयंपूर्णता मिळते.





**4.2.2 उच्च कार्यक्षम जलसंवर्धित शौचालय आणि नळ :** ग्रंथालयाने शौचालयात कमी पाणी वापरून काम करण्यासाठी तयार केलेल्या प्लंबिंग फिक्सरचा वापर केल्यास मोठ्या प्रमाणावर पाणी वाचविले जाते. ग्रंथालय इमारतीत आणि प्लंबिंग कोडद्वारे अनेक भागांमध्ये पाणीबचत करणाऱ्या प्लंबिंगची आवश्यकता आहे. पाणीबचत फिक्सरच्या अनेक पद्धती आहेत. जसे कमी प्रवाह, दुहेरी फ्लश, निर्जल आणि स्वयंचलित सेन्सर प्रकार, कमी प्रवाह सर्वात सोपा आणि सर्वसामान्य आहे. तसेच नळांमधून पाण्याचा वापर कमी करण्याच्या दृष्टीने ग्रंथालयाने बाजारात उपलब्ध असणारे जलबचत उपकरण ग्रंथालयामध्ये बसवून घेतल्यास तसेच नळ गळती बंद केल्यास पाण्याची बचत करता येईल.

**फायदे:-**

- (1) अल्ट्रा लो फ्लश शौचालयात पाण्याची बचत होते.
- (2) कमी खर्च लागतो.
- (3) भूगर्भीय पाणी कमी होण्यापासून आणि पर्यावरणाचे संरक्षण करण्यासाठी योगदान देतात.
- (4) सहज वापरता आणि स्वच्छ करता येते.



**4.3. विजेचा वापर:-**

**4.3.1-कॉम्पॅक्ट फ्लोरोसेंट बल्बचा वापर (CFLs)-**

सी.एफ.एल बल्ब म्हणजे फ्लोरोसेंट बल्बचा प्रकार आहे. सी.एफ.एल बल्बला कमी ऊर्जा लागते. तो बल्ब इतर बल्ब पेक्षा दहापट जास्त चालतो आणि जास्त प्रकाश देतो. हरित ग्रंथालय निर्मितीसाठी असलेल्या उपायांपैकी कॉम्पॅक्ट फ्लोरोसेंट दिव्यांचा वापर हा त्यापैकी एक यामुळे पर्यावरणाचा समतोल राखण्यास मदत होते. सी.एफ.एल चा वापर ग्रंथालयाने काळाची गरज ओळखून करण्यास सुरुवात केली आहे. अशाप्रकारे जर सुरुवात योग्य झाली तर देशातील वीज वितरण क्षमता काही प्रमाणात कमी होईल. भार कमी झाल्यामुळे वीज हानी सुद्धा कमी होईल. त्याचबरोबर वीज वितरणामध्ये आपण अप्रत्यक्षरीत्या खर्च कमी करू शकतो व ही वाचणारी वीज आपल्या पुढील आयुष्यासाठी उपयोगी पडू शकते.



**फायदे:-**

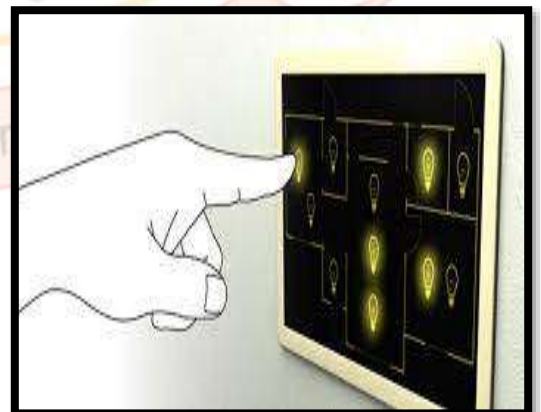
- (1) अधिक प्रकाश मिळतो.
- (2) विजेची बचत होते.
- (3) कॉम्पॅक्ट फ्लोरोसेंट बल्ब ची किंमत कमी असते.
- (4) कॉम्पॅक्ट फ्लोरोसेंट बल्बसाठी एक वर्षाची गॅरंटी मिळते.
- (5) कॉम्पॅक्ट फ्लोरोसेंट बल्ब वजनाला हलका असतो.

**4.3.2 प्रकाश नियंत्रण प्रणालीचा वापर:-**

ठराविक कार्य किंवा परिस्थितीसाठी दिलेल्या जागेत प्रकाशाचा स्तर आणि गुणवत्तेचे नियमन करण्याची क्षमता प्रकाश नियंत्रण प्रणाली मध्ये आहे. योग्य प्रकारे प्रकाश नियंत्रित करून आवश्यक त्या ठिकाणी प्रकाशाचा वापर करून ऊर्जेची बचत करण्यास मदत होते. ग्रंथालयाच्या आतील विविध विभागांमध्ये आणि बाहेरच्या परिसरात प्रकाश नियंत्रण प्रणालीचा मोठ्या प्रमाणात वापर करता येऊ शकतो. प्रकाश नियंत्रण प्रणाली जेव्हा आवश्यक असेल तेव्हा कुठेही, कधीही योग्य प्रकारे प्रकाश देण्याची सेवा पुरविते. जसे ग्रंथालयांमध्ये आवश्यक नसलेल्या विभागांमधील वीज उपकरणे, फॅन, लाईट, बंद करणे, ऊर्जेची बचत करणे. हरितग्रंथालय आणि ऊर्जा संरक्षण कार्यक्रमाचे अनुपालन करण्यासाठी प्रकाश नियंत्रण प्रणाली कार्य करते. प्रकाश नियंत्रण प्रणालीचा वापर स्मार्ट लाइटिंग टर्म अंतर्गत केला जातो.

**फायदे:-**

- (1) प्रकाश नियंत्रण प्रणाली योग्य प्रमाणात प्रकाश स्थापित करते.
- (2) प्रकाश नियंत्रण प्रणाली उर्जेची बचत करते.
- (3) दिवे लवकर खराब होत नाहीत.



**4.4. साधने-****4.4.1.इंसुलेशन-**

इंसुलेशन हे इमारतीत हिवाळ्यामध्ये गरम आणि उन्हाळ्यात थंड वातावरण ठेवते. खरं तर हे हरित ग्रंथालयासाठी इतके छान काम करते की बरेच लोक आता या गोष्टीला मान्यता देतात. ग्रंथालयांमध्ये इंसुलेशन प्रणालीचा वापर केल्यास इंसुलेशन गरम आणि थंड करणाऱ्या उपकरणांना चांगली आणि अधिक कार्यक्षमतेने कार्य करण्यास मदत करते. ग्रंथालयाला हे एक स्वस्थ आणि ध्वनीमुक्त वातावरण देण्यास मदत करते.

**फायदे-**

- (1) ऊर्जा कार्यक्षमतेत सुधारणा होते.
- (2) इमारतीचे आयुष्य वाढते.
- (3) पर्यावरण संवर्धनास मदत होते.

**4.5.उच्च कार्यक्षमता खिडक्या:-**

ग्रंथालयासाठी खिडक्या खूप मोठी भूमिका बजावतात. उच्च कार्यक्षम खिडक्या ग्रंथालय इमारतीमध्ये नैसर्गिक सूर्यप्रकाश उबदारपणा, मोकळेपणा आणि सौंदर्य आणतात. नवीन ग्लेसिंग तंत्रज्ञानावर आधारित उच्च कार्यप्रदर्शन खिडक्या केवळ ऊर्जेचा खर्च कमी करत नाहीत तर ग्रंथालय अधिक सोयीस्कर बनवतात. उन्हाळ्यामध्ये ते अतिरिक्त असलेल्या सूर्यप्रकाशापासून ग्रंथालयाच्या आतील भागाचे संरक्षण करतात.सिंगल पॅनेड खिडक्या-दुहेरी पॅनेड खिडक्यांमध्ये बदलल्या पाहिजेत.कारण सर्व वातावरणामध्ये ते अधिक सोयीस्कर ठरते. ऊर्जा प्रभावी खिडक्या ही एक हरित ग्रंथालयासाठी उत्तम सुधारणा होऊ शकते.

**फायदे:-**

- (1)ऊर्जा आणि पैशाची बचत.
- (2)उन्हाळ्यामध्ये अधिक आरामदायक.
- (3)उत्तम प्रकाश योजनेत वाढ.
- (4)ग्रंथालय इमारतीचे सौंदर्य वाढते.
- (5)इमारतीमध्ये हवा खेळती राहते.

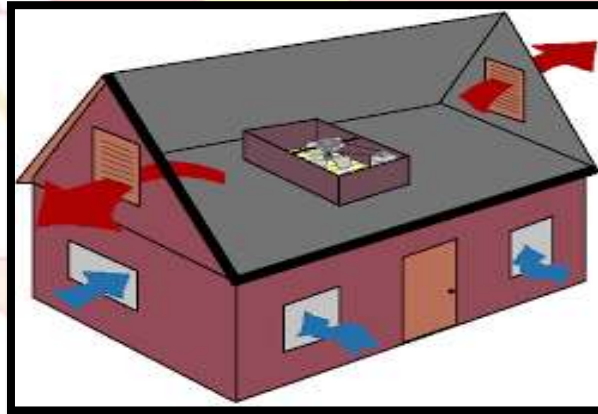


#### 4.6.वायुविजन प्रणाली (Ventilation System)-

ग्रंथालयांमध्ये असलेल्या वाचकांना आणि सेवकांना आनंददायी आणि प्रसन्न वातावरण निर्माण करण्यासाठी किमान ताजी हवा असणे आवश्यक असते आणि ही ताजी हवा मिळविण्यासाठी एक प्रभावी मार्ग म्हणजे वायुविजन प्रणाली होय. वायुविजन प्रणाली म्हणजे व्हेंटिलेशन सिस्टम कोणत्याही इमारतीत वायुवीजन हा पर्यावरणीय नियंत्रणाचा एक महत्त्वाचा भाग आहे. कारण तो अति गर्मी आणि आद्रता काढून टाकण्यास मदत करतो. वायुविजन प्रणालीचे दोन मुख्य कारण म्हणजे आद्रता नियंत्रित करणे आणि प्रदूषण कमी करणे होय. चांगले वायुवीजन ग्रंथालयाला अधिक हवेशीर आणि स्वस्थ बनवतात. मोठ्या ग्रंथालयांमध्ये आवश्यक तापमान आणि आद्रतेचे स्तर काळजीपूर्वक राखला जातो. जेणेकरून खूप जुना ग्रंथसंग्रह योग्यरीत्या जतन केला जाऊ शकतो.

#### फायदे:-

- (1) नियमित ताजी आणि खेळती हवा राहते.
- (2) ऊर्जेची बचत होते.
- (3) आल्हाददायी वातावरण निर्मिती होते.
- (4) आरोग्यासाठी फायदेशीर असते.



#### 4. 7.सौरऊर्जा-(Solar Energy)

आजच्या युगात ऊर्जेची अनिश्चितता आहे. जीवाश्म इंधने भविष्यासाठी पुरेशी नाहीत. यामुळे ऊर्जा स्तोत्र साठी तंत्रज्ञानात मोठी सुधारणा होत आहे. आज अनेक नूतनीकरण ऊर्जा स्रोत आहेत. सौर ऊर्जा व्यवस्थाही विद्युत ऊर्जा प्रणाली आहे. या प्रणालीद्वारे सूर्यप्रकाशाचे विद्युत ऊर्जेमध्ये रूपांतर करून त्याचा वापर ग्रंथालयातही केला जाऊ शकतो. ग्रंथालयाच्या छतावर सौरऊर्जा प्रणाली लावून थेट सूर्यप्रकाशाद्वारे वीज निर्मिती केली जाऊ शकते. सौरऊर्जेचा फोटोव्होल्टाइक( फोटो म्हणजे सूर्यप्रकाश आणि व्होल्टाइक म्हणजे विद्युतऊर्जा होय. ) या तंत्राद्वारे वापर करून प्रकाशापासून विद्युत ऊर्जेचे रूपांतर करण्याचा सरळ साधा मार्ग म्हणजे सौरदिवे होय. सौर दिव्याच्या माध्यमातून ग्रंथालयामध्ये आणि ग्रंथालयाच्या परिसरात सौर दिव्याचा एक उत्तम पर्याय उपलब्ध करून देता येऊ शकतो.



**फायदे-**

- (1)पर्यावरणात Co<sub>2</sub>,S<sub>02</sub> उत्सर्जन कमी करून पर्यावरणावर होणारा परिणाम कमी करता येतो.
- (2) ऊर्जेची बचत होते.
- (3)पैशाची बचत होते.
- (4)एक सुरक्षित गुंतवणूक होते.
- (5)पर्यावरण संवर्धन होते.
- (6) कोणत्याही प्रकारचे प्रदूषण होत नाही.
- (7) मुबलक प्रमाणात वीज वापरता येते.

**4.8. ग्रंथालय इमारत परिसरात वृक्ष लागवड-**

प्रकाशसंश्लेषण प्रक्रियेतून वृक्ष कार्बन डाय ऑक्साईड शोषून घेतात आणि वृक्ष लागवड केलेल्या भागात पर्यावरण स्वच्छ व चांगले राहते. ऑक्सिजनचे प्रमाण सदर हवेमध्ये जास्त असते.ग्रंथालयाचा समृद्ध शाश्वत विकास करण्यासाठी ग्रंथालयाच्या परिसरात वृक्ष लागवडीचे क्षेत्र वाढविणे गरजेचे आहे. उन्हाळ्यातील उष्णतेपासून संरक्षण करण्यासाठी ग्रंथालय इमारतीच्या परिसरात वृक्ष लागवड करणे हे मुख्यता महत्त्वाचे आहे.

**फायदे:-**

- (1) स्वच्छ आणि थंड हवा मिळते.
- (2) वातावरण थंड राहण्यास मदत होते.
- (3)पर्यावरण संवर्धन होते.
- (4)ग्रंथालय इमारतीचे सौंदर्य वाढते.
- (5)प्रखर सूर्यप्रकाशापासून संरक्षण होते.
- (6)प्रदूषण कमी होण्यास मदत होते.

**5.0 हरित ग्रंथालयासाठी ग्रंथपालाची भूमिका:-**

- (1) सोशल मीडिया सारख्या विविध ऑनलाईन साधनांचा वापर करून ग्रंथपालाने हरित ग्रंथालयाच्या हालचालींना प्रोत्साहन देण्याचा प्रयत्न केला पाहिजे.
- (2) ग्रंथपालाने इको ग्रंथालय प्रणाली अंतर्गत काम केले पाहिजे आणि या वातावरणात काम करण्यास इच्छुक लोकांना त्यांनी ओळखले पाहिजे.
- (3) इतरांना हरित ग्रंथालयाच्या साधन आणि तंत्रज्ञानासाठी प्रोत्साहित केले पाहिजे.
- (4) इतर ग्रंथपालांना चर्चासत्र, सेमिनार व कॉन्फरन्सद्वारे हरित ग्रंथालयासाठी प्रोत्साहित केले पाहिजे.
- (5) जैवसंवर्धनक्षम सामुग्री(लाकडी फर्निचर) चा वापर करणे गरजेचे आहे.
- (6) सौर पॅनेलचा वापर करणे गरजेचे आहे.
- (7) स्टीलच्या जागी जास्तीत जास्त बांबूचा वापर करणे गरजेचे आहे.
- (8) कागद आणि जागा जतन करण्यासाठी ई-पुस्तके व ई-जर्नलचा वापर करणे गरजेचे आहे.

**6.0 भारतातील काही हरित ग्रंथालये-**

- 1.Annalibrary Chennai.
- 2.Prema library laddak.
- 3.National library of India. Kolkata.
4. Karnataka University library.
- 5.YCMOU University library
6. Mumbai University library

**7. समारोप:**

भारत एक विकसनशील देश आहे आणि तो सर्व क्षेत्रात विकसित व्हायला हवा. पर्यावरण संरक्षणात हरित इमारतीची फार महत्त्वाची भूमिका आहे. ग्रंथालये आणि ग्रंथपाल थेट समाजाशी संबंधित असून नागरिकांना पर्यावरणासंदर्भात साक्षर करण्यासाठी उत्तम संधी हरित ग्रंथालयाच्या माध्यमातून उपलब्ध होत आहे. सध्याच्या काळात पर्यावरणास अनुकूल अशा हरित ग्रंथालयाची निर्मिती होणे अत्यंत आवश्यक आहे. यासाठी ग्रंथपालाने काही महत्त्वाचे निर्णय घेणे अपेक्षित आहे, त्यास व्यवस्थापन, प्राध्यापक व इतर घटक यांनी सहकार्य करणे गरजेचे आहे. अनेक राष्ट्रीय-आंतरराष्ट्रीय संस्था हरित ग्रंथालयासाठी मदत करीत आहेत. काही भारतीय ग्रंथालय अशा संस्थांची मदत घेऊन हरित ग्रंथालय बनण्याचा प्रयत्न करून पर्यावरण चळवळीत भाग घेत आहेत.

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प्राचार्या, कमला कॉलेज, कोल्हापूर

Email. Id- [tbmudekar@gmail.com](mailto:tbmudekar@gmail.com)**प्रा. सुरेश जोती पाटील**

अर्थशास्त्र विभाग प्रमुख

कला, वाणिज्य व विज्ञान महाविद्यालय कोवाड

Email. Id- [sjpatilsir71@gmail.com](mailto:sjpatilsir71@gmail.com)**प्रस्तवना:**

नैसर्गिक आपत्ती असो किंवा मानवी आपत्ती असो अशा प्रकारच्या आपत्तीमुळे पर्यावरण तसेच मानवी जिवितांची प्रचंड हानी होते. यासाठी आपत्ती व्यवस्थापन महत्वाचे आहे त्याचप्रमाणे ग्रंथालयाचे व्यवस्थापन सुद्धा तितकेच महत्वाचे आहे महाविद्यालयाचे, विद्यापीठाचे किंवा सार्वजनिक ग्रंथालय असो सर्वच ग्रंथालयांमध्ये ज्ञानाचे संग्रहण केले जाते व या ज्ञानाचे एका पिढीकडून दुसऱ्या पिढीकडे हस्तांतर केले जाते. आज माहिती आणि तंत्रज्ञानाच्या प्रगतीमुळे ग्रंथालयांना या आधुनिक सेवा सुविधा संगणक प्रणालीच्या साहाय्याने वाचकांना देण्यात येत आहेत इंटरनेट, फेसबुक आणि इतर सोशल मीडियाचा वापर ग्रंथालयात वाढत आहे. परंतु ग्रंथालयाचे मुख्य कार्य म्हणजे ग्रंथ संग्रह करणे. त्याचे जतन करणे व सर्वांना ग्रंथ उपलब्ध करून देणे.

ज्ञानाचा वारसा ग्रंथालय मध्ये जतन करून ठेवला जातो. कोणत्याही राष्ट्राचा विकास हा त्या राष्ट्रातील ज्ञानावर अवलंबून असतो ज्या राष्ट्रा जवळ ज्ञानाचा/ माहितीचा संग्रह मोठ्या प्रमाणात असतो ते राष्ट्र शक्ती शाली म्हणून संबोधले जाते. म्हणून अशा ज्ञानाचे संरक्षण करणे खूप महत्वाचे असते. अचानक येणाऱ्या आपत्तीमुळे ज्ञानाचा न्हास होऊ नये, व येणाऱ्या आपत्तीस समर्थपणे तोंड देऊन ज्ञानाचे जतन करण्यासाठी आपत्तीपूर्व व आपत्ती नंतरचे व्यवस्थापन ग्रंथालयात करणे आवश्यक असते.

**अभ्यासाची उद्दिष्टे :-**

1. आपत्तीच्या प्रकाराचा अभ्यास करणे.
2. आपत्तीपूर्व घ्यावयाच्या दक्षतेचा अभ्यास करणे.
3. आपत्तीकालीन परिस्थितीमध्ये प्राथमिक कार्याचा अभ्यास करणे.

**गृहीत-**

- 1) ग्रंथालयासाठी आपत्ती व्यवस्थापनाची गरज असते.

**अभ्यास पद्धती:-**

प्रस्तुत अभ्यासासाठी प्राथमिक व दुय्यम साधनसामग्री चा वापर करण्यात आला. प्राथमिक साधनसामग्री मध्ये ग्रंथपाल श्री एम. पी. महागावकर यांची मुलाखत घेतली. त्यावेळी ग्रंथालयाचे आपत्ती काळात कसे व्यवस्थापन करावयाचे या संदर्भात अनेक बाबींचा त्यांनी उल्लेख केला. त्याची नोंद ही प्रस्तुत संशोधन पेपर मध्ये घेतली आहे. तसेच दुय्यम साधनसामग्री मध्ये, पुस्तके सेमिनार प्रोसेडिंग इंटरनेट, संशोधन पेपर इत्यादीचा अभ्यासासाठी उपयोग करण्यात आला आहे.

**आपत्तीचे प्रकार:-**

प्रामुख्याने आपत्तीचे नैसर्गिक आपत्ती व मानवनिर्मित आपत्ती असे दोन प्रकार आहेत. ग्रंथालयातील आपत्तीचे पुढील घटक सांगितले जातात.

- 1) **आग :-** ग्रंथालयातील चांगल्या प्रकारे न केलेल्या वायरिंग, ज्वलनशील पदार्थांचा उपयोग ग्रंथालयात, शॉर्टसर्किट वीज इत्यादीमुळे आग ग्रंथालयाला लागण्याची शक्यता असते. ग्रंथालयाचे सर्वात जास्त नुकसान करणारा हा घटक आहे आगीमुळे धूर आणि हानिकारक वायू निर्माण होत असल्यामुळे ग्रंथालयातील पुस्तके, ग्रंथ साहित्य आणि फर्निचर इत्यादीचे खूप नुकसान होते.



- 2) **पाणी** :- मोठ्या प्रमाणात पडणारा पाऊस, बाष्पयुक्त हवा, पूर इत्यादीमुळे ग्रंथालयातील ग्रंथ साहित्य, वाचन साहित्य इत्यादीचे मोठ्या प्रमाणात नुकसान होते. तसेच ग्रंथालयाच्या बाजूने पाण्याची पाईपलाईन गेली असेल आणि त्या पाईपलाईनला गळती लागली असेल तर ग्रंथालयाचे नुकसान होते. तसेच ग्रंथालयाच्या इमारतीचे काम चांगले न झाल्यामुळे इमारतीच्या भिंती, स्लॅब यांना गळती असेल तर ग्रंथालयाचे खूप मोठ्या प्रमाणात नुकसान होते तसेच ग्रंथालयाचे प्लम्बिंग काम चांगले नसल्याने सुद्धा ग्रंथालयात चे किंबहुना वाचन साहित्याचे मोठ्या प्रमाणात नुकसान होऊ शकते.
- 3) **भूकंप** :- भूकंपा सारखी आपत्ती निर्माण झाली तर ग्रंथालयाच्या इमारतीला तडे जाणे किंवा ग्रंथालयाची इमारत कोसळणे यासारख्या गोष्टीमुळे ग्रंथालयाचे मोठ्या प्रमाणात नुकसान होत असते.
- 4) **रासायनिक घटकांचा प्रभाव** :- ग्रंथालय इमारत व ग्रंथालयातील वाचन साहित्य यावरही रासायनिक घटकांचा मोठ्या प्रमाणात प्रभाव पडून ग्रंथालयाचे मोठ्या प्रमाणात नुकसान घडवून येऊ शकते. उदा- धुके, धुर, आम्ल पाऊस/ पदार्थ यामुळे ग्रंथालयातील ग्रंथ साहित्य खराब होण्याची शक्यता असते.
- 5) **वाळवी, उंदीर, घुशी** :- वाळवी, उंदीर, घुशी यामुळे ग्रंथालयातील वाचन साहित्य चे मोठ्या प्रमाणात नुकसान होऊ शकते. ग्रंथालयातील फर्निचर तसेच पुस्तके वाळवीमुळे खराब होऊ शकतात. त्याचबरोबर उंदीर व घुशीमुळे पुस्तके कुरतडली जातात त्यामुळे वाचन साहित्य चे नुकसान होते.
- 6) **हवामानातील बदल** :- हवामानातील बदलामुळे उदा. अतिउष्ण, अतिथंड, खारट हवामान, पाऊस इत्यादीमुळे ग्रंथालयातील वाचन साहित्य वर दुष्परिणाम घडून येतो.

**मानवनिर्मित आपत्ती** :- युद्ध, हल्ले, दंगे इत्यादीमुळे ग्रंथालय इमारतीची मोठ्या प्रमाणात नुकसान होऊ शकते. विविध देशातील युद्धामुळे आणि हल्ल्यामुळे ग्रंथालय नष्ट झाल्याचे अनेक उदाहरणे जगाच्या इतिहासात पाहायला मिळतात.

#### **ग्रंथालयातील आपत्ती व्यवस्थापनाची गरज:-**

ग्रंथालय ही ज्ञानाची भांडारे असतात त्यांचे जतन आणि संवर्धन करणे ही ग्रंथालयातील कर्मचाऱ्यांची जबाबदारी असते. त्यासाठी ग्रंथालयातील कर्मचाऱ्यांनी सावधगिरी बाळगावी लागते. नैसर्गिक व मानवनिर्मित आपत्तीमुळे ग्रंथालयाची मोठ्या प्रमाणात नुकसान होऊ नये. म्हणून आपत्ती येण्यापूर्वीच संभाव्य आपत्ती गृहीत धरून ग्रंथालयात काही पूर्वतयारी करण्यात आली तर ग्रंथालयाचे होणारे नुकसान टाळता येईल त्यासाठी ग्रंथालयामध्ये आपत्ती व्यवस्थापनाची गरज विशद केली जाते.

ग्रंथालय आपत्ती व्यवस्थापन म्हणजे “नैसर्गिक किंवा मानवनिर्मित घटना/ आपत्ती उदभवल्यास ग्रंथालयाचे नुकसान कसे टाळता किंवा कमीत कमी कसे होईल या नियोजन कार्याला ग्रंथालय आपत्ती व्यवस्थापन असे म्हणतात.”

आपत्ती व्यवस्थापन ही एक किचकट प्रक्रिया आहे. आपत्ती व्यवस्थापनामध्ये लिखित स्वरूपाचा मसुदा तयार केला जातो. वेळोवेळी त्यामध्ये संशोधन होऊन त्यामधील काही त्रुटी दूर केल्या जातात. तसेच ग्रंथालय आपत्ती व्यवस्थापन कार्यक्रमाबद्दल नवीन नियुक्त केलेल्या व इतर कर्मचाऱ्यांना ग्रंथालयातील आपत्ती व्यवस्थापन कार्यक्रम अवगत केला पाहिजे. ग्रंथालय आपत्ती याचे नियोजन व व्यवस्थापन उच्चस्तरीय व्यवस्थापकाद्वारे केली जाते. या मध्ये पुढील प्रक्रिया समाविष्ट केल्या जातात.

- 1) **जबाबदारीची निश्चिती** :- आपत्ती संबंधित कार्यासाठी एका प्रमुख व्यक्तीवर जबाबदारी सोपवली जाते. त्या आपत्ती कार्याची संचालन, नियोजन व सुधार प्रक्रियेमध्ये त्या व्यक्तीची उत्तरदायित्व असते. त्याचबरोबर त्या व्यक्तीसोबत ग्रंथालयीन कर्मचारी, इंजिनियर, सुरक्षा कर्मचारी, सुरक्षा तज्ञ इत्यादी तज्ञ म्हणून असू शकतात.
- 2) **संभावित आपत्तीची निश्चिती** :- आपत्ती व्यवस्थापन कमिटीद्वारे सर्वेक्षणाच्या माध्यमातून संभावित आपत्तीची निश्चिती करण्यात येते. या अंतर्गत नैसर्गिक आपत्ती जसे पूर, भूकंप, चक्रीवादळ, मुसळधार पाऊस इत्यादी तसेच मानवी आपत्तीची शक्यता तपासून निश्चिती केली जाते. व त्यासाठी संरक्षण साधनांची निर्मिती केली जाते.
- 3) **संसाधनांची माहिती घेणे** :- आपत्तीच्या वेळी काही संसाधने, उपकरणे आपत्ती काळात उपयोगात येणारी असतात. अशा संसाधनांची माहिती घेणे आवश्यक असते. मास्क, बॅटरी, प्लास्टिक, स्पॅंज, बकेट इत्यादी उपकरणे, वितरकांची नावे व पत्ते लिखित स्वरूपात ठेवावे लागतात.
- 4) **स्थानिक आपत्तीकालीन एजन्सीशी संपर्क** :- आपत्ती व्यवस्थापन समिती स्थानिक पातळीवर कार्यरत असणाऱ्या आणि संकटकाळात मदत करणाऱ्या स्थानिक एजन्सी उदा. आग नियंत्रण ठेवणारी यंत्रणा, अग्निशामक दल, रुग्णवाहिका, विमा कंपनी, पोलीस इत्यादिना ग्रंथालयात बोलून आपत्ती व्यवस्थापना संदर्भात त्यांच्या सूचना लक्षात घेतल्या जाव्यात.

- 5) **समितीतील सदस्यांना कामाची जबाबदारी :-** आपत्तीच्या वेळी समितीतील प्रत्येक सदस्याची काय जबाबदारी असेल. त्यांनी कशा प्रकारे निर्णय घ्यावे. हे अगोदरच निश्चित केले जाते. अशा स्वरूपाची जबाबदारी व कार्य निश्चिती लिखित स्वरूपामध्ये सुद्धा असावी. त्यामध्ये वेळोवेळी परिस्थितीनुसार सुधारणा केल्या जाव्यात.
- 6) **ग्रंथालय संग्रहाचे सर्वेक्षण :-** ग्रंथालयातील संग्रहाचे सतत सर्वेक्षण केले पाहिजे, त्यानुसार अंतर्गत दैनंदिन कामकाज याविषयी आढावा घेण्यात यावा.
- 7) **सुरक्षा बाबत अग्रक्रम ठरवणे :-** ग्रंथालयातील संग्रहाचा सुरक्षा आढावा वेळोवेळी घेण्यात यावा. व त्यातील उनिवास शोधून आपत्तीकालीन परिस्थितीमध्ये कोणत्या संग्रहाच्या सुरक्षेसाठी प्रथम अग्रक्रम द्यावा हे निश्चित करावे लागते.
- 8) **ग्रंथपरिगणन :-** प्रत्येक वर्षी ग्रंथालयातील ग्रंथ ग्रंथपरिगणन करण्यात यावे. त्यामुळे आपल्या ग्रंथालयातील ग्रंथ साहित्य/ पुस्तके हरवली किंवा गहाळ झाली हे समजण्यास मदत होते.
- 9) **ग्रंथालय साफ-सफाई :-** ग्रंथालयातील साफ-सफाई महत्त्वाची आहे. साफसफाई किंवा स्वच्छतेमुळे वाळवी, उंदीर, घुशी यासारख्या कीटक व प्राण्यापासून ग्रंथालयाची होणारे नुकसान टाळता येते.
- 10) **स्कॅनिंग -** ग्रंथालयातील दुर्मिळ ग्रंथ पुस्तके यांच्या छापील पानांचे स्कॅनिंग करणे आवश्यक आहे. स्कॅनिंग मशीनच्या सहाय्याने साहित्याचे स्कॅनिंग केले तर संवर्धन चांगल्या प्रकारे होऊ शकते.
- 11) **विमा-** ग्रंथालयातील आपत्तीमुळे ग्रंथालया मधील ग्रंथ साहित्याचे मोठ्या प्रमाणात नुकसान होऊ शकते. अशा वेळी झालेल्या नुकसानीसाठी भरपाई म्हणून विमा उतरणे गरजेचे असते.
- 12) ग्रंथालयामध्ये आपत्ती निवारण निधी निर्माण करणे.

#### **आपत्तीकालीन परिस्थिती मधील प्राथमिक कामे :-**

आपत्तीकालीन परिस्थिती निर्माण झाल्यास प्रथम ग्रंथालय सुरक्षा कार्यालयास सूचना दिल्या पाहिजेत. सुरक्षा कर्मचारी आवश्यकतेनुसार जन सुरक्षा कर्मचाऱ्यांना बोलावू शकतात. त्याचबरोबर आपत्तीमध्ये एखादा कर्मचारी किंवा उपभोक्ता अडकला आहे का ? हे तपासले पाहिजे. आग लागली असेल तर ग्रंथालयातील अग्निशामक उपकरणाद्वारे आगीवर नियंत्रण ठेवले पाहिजे. तसेच पाण्यामुळे नुकसान होत असेल तर पाणीपुरवठा करणारा व्हाल बंद करण्यात यावा. आपत्ती परिस्थिती पूर्णपणे नियंत्रणात आल्यानंतरच निस्तारण कार्यास सुरुवात करावी. यामध्ये नुकसान कशा स्वरूपाचे आहे, कोणत्या साहित्याची नुकसान झाले आहे. हे पाहिले पाहिजे .व त्यानुसार आपत्ती व्यवस्थापन समितीस कोणत्या साहित्या चे निस्तारण करावे व कोणत्या साहित्याची पुनः स्थापना करावी यासंबंधीचा निर्णय पुढील प्रमाणे घ्यावा लागतो.

#### **1) पुस्तकांचे निस्तारण :-**

ग्रंथ संग्रहाचे पाण्यामुळे नुकसान झाले असेल, तर ताबडतोब ग्रंथाचे निस्तारण करणे आवश्यक असते. ग्रंथालया शेवाळ येऊन मुद्रण खराब होण्यास सुरुवात होते. व ग्रंथाची बांधणी खराब होण्याची शक्यता असते. त्यामुळे ग्रंथाचे निस्तारण खालील प्रमाणे केले पाहिजे.

- पुस्तके थंड व कोरड्या वातावरणात आणून ठेवली पाहिजे.
- मोठ्या टेबलावर पुस्तके पसरून त्यावर कागद झाकून ठेवला पाहिजे.
- ओल्या पुस्तकांच्या पुष्टांची सातत्याने उघडझाक करू नये.
- ) पुस्तकांना शितलन प्रक्रियेसाठी पाठवले पाहिजे.
- दोन ते चार आठवडे पुस्तकाचा वापर करू नये.

#### **2) इलेक्ट्रॉनिक साधनाचे निस्तारण :-**

माहिती संग्रहणासाठी सीडी, रॅम, हार्डडिस्क , व्हिडिओ कॅसेट इत्यादीचा उपयोग केला जात आहे. संगणकाच्या हार्ड डिस्क मध्ये पाणी गेल्यास हार्ड डिस्क चा उपयोग होऊ शकत नाही. अशावेळी डेटा रिकवरी तज्ञास बोलावून माहिती पुनः स्थापीत सादर करावी.

#### **3) मायक्रो फॉर्मचे निस्तारण :-**

मायक्रो फॉर्म ओले झाले असतील तर थंड डिस्टिल वॉटरने साफ करावे.व ते प्रयोगशाळेत प्रक्रिया करण्यासाठी पाठवावे.

4) फोटोग्राफी साहित्याचे :-

फोटोग्राफी साहित्याची पाण्यामुळे नुकसान झाल्यास त्वरित फोटोग्राफ व त्याचे निगेटिव्ह विस्तारण्यासाठी पाठवावे.

निष्कर्ष :-

नैसर्गिक किंवा मानवनिर्मित आपत्तीमुळे ग्रंथालयाची मोठ्या प्रमाणात नुकसान होते. ग्रंथालयामधील वाचन साहित्याचे, ज्ञानाचे एका पिढीकडून दुसऱ्या पिढीकडे ज्ञानाचे हस्तांतरण होत असते. या मौल्यवान वाचन साहित्याची कमीत कमी नुकसान व्हावे. व आपत्तीनंतर वाचन साहित्याची संरक्षण करण्यासाठी जर आपत्तीचे पूर्व नियोजन केले तर आपत्तीपासून होणारे नुकसान कमी प्रमाणात होऊ शकते. त्यासाठी आपत्तीपूर्व अंदाज घेऊन, आपत्ती व्यवस्थापनाचे नियोजन करणे गरजेचे असते.

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**ग्रंथलयातील वाचन साधनावरील तांत्रिक प्रक्रिया**

संशोधक,  
आमलपुरे विष्णुकांत विश्वनाथ  
Department of Education, BAMU, Aurangabad  
संशोधन मार्गदर्शक  
डॉ. एस.एस.पाठक,  
सहयोगी प्राध्यापक,  
Department of Education, Dr. BAMU Aurangabad

**प्रास्ताविक**

ग्रंथालय विविध वाचन साहित्य हे अध्ययन आणि अध्ययनाच्या अनुषंगाने खरेदी केले जाते. या वाचन साहित्याच्या वाचकांना सहजासहजी उपयोग करता यावा याकरिता त्याच्या वर काही पद्धतीने प्रक्रिया कराव्या लागतात. या साठी प्रत्येक ग्रंथालय तांत्रिक प्रक्रिया विभाग असतो. या विभागाद्वारे वर्गीकरण तालीकीकरण वा वाचन साहित्याची तपासणी इत्यादी. प्रक्रिया उपर्जित वाचन साहित्यावर केला जातात. या प्रक्रिया ना तांत्रिक प्रक्रिया असे म्हणतात.

तांत्रिक प्रक्रियामध्ये प्रामुख्याने वर्गीकरण आणि तालीकीकरण या प्रक्रिया अत्यंत सूक्ष्म पणे व काळजीपूर्वक करावे लागतात. ग्रंथ वर्गीकरण ग्रंथलायच्या धोरणनुसार निश्चित करलेल्या वर्गीकरण पद्धतीनुसार केले जाते. उदा. डुई वर्गीकरण पद्धत. व कोलन वर्गीकरण पद्धतीन. इत्यादी. ग्रंथलयातील वाचन साहित्या वरील तांत्रिक आवश्यक तांत्रिक प्रक्रिया आवश्यक पुढील बेबीच्या साहित्याने विषद करता येते.

**ग्रंथवर्गीकरणाचा हेतू.**

वाचन साधनांचा उपयोग व्हावा या दृष्टीने वर्गीकरणाचे प्रक्रिया केले जाते. वर्गीकरणाचे हेतू पुढीलप्रमाणे

१. वर्गीकरण म्हणजे कपाटातील ग्रंथाचे स्थान निश्चित करणे
२. ग्रंथालय कर्मचारी व वाचकांना वाचन साहित्याचा विषयानुसार सोईस्कर शोध घेता येतो.
३. वाचकांनी केलेल्या ग्रंथालयात परत गेल्यावर पुन्हा त्याच जागेवर तो ठेवता यावा याकरिता वर्गीकरण अत्यावश्यक आहे
४. ग्रंथालयातील अनावश्यक अनावश्यक निरुपयोगी वाचन साधने ग्रंथ ग्रंथालया बाहेर काढण्याकरिता व ग्रंथ रद्द करण्यासाठी वर्गीकरणाचा उपयोग होतो
५. नव्याने खरेदी केलेले ग्रंथ वर्गीकरणानंतर त्यांच्या विषयानुसार त्या विषयाच्या गटात गटात योग्य त्या ठिकाणी ठेवण्यास मदत होते.
६. तालिकेत ग्रंथा ग्रंथाविषयीची माहिती शोधल्यानंतर तालिका पत्रातील ग्रंथाचा वर्गाक घेऊन त्या वर्गाकाच्या सहाय्याने संबंधित विभागात ठेवलेल्या तो ग्रंथ त्वरित शोधा येतो.
७. ग्रंथा स्वतंत्र्य वर्गाक व्यक्तिगत वर्गाक दिला जातो त्यामुळे त्या ग्रंथास व्यक्तिगत क्रमांक प्राप्त होतो या वर्गांमुळे त्याची स्वातंत्र्य ओळख निर्माण होते.
८. एखाद्या विषयावरील ग्रंथाची सूची तयार करायची असल्यास वर्गाकाच्या साहाय्याने संबंधित विभागातील सर्व ग्रंथ एकत्रित प्राप्त होतात त्यामुळे त्या ग्रंथाची सूची तयार करणे सोपे होते.
९. ग्रंथ पडताळणीचे कार्य सहजपणे करता येतो.

**ग्रंथ वर्गीकरणाचे वैशिष्ट्ये.****१. संकीर्ण वर्ग.**

विशिष्ट विषयावरील ग्रंथाविषयी काही ग्रंथ असे असतात की त्यामध्ये असलेली माहिती ही अनेक विषयाशी संबंधित असते त्यामुळे अशा ग्रंथाचे वर्गीकरण एका विषयांतर्गत करता येत नाही म्हणून वर्गीकरण पद्धतीमध्ये अशा ग्रंथाकरिता एक विशेष वर्ग निर्माण केले असते अशा वर्गालाच संकीर्ण वर्ग असे म्हणतात.

**२. स्वरूप वर्ग.**

वाडमयन क्षेत्राशी संबंधित जे वाचन साहित्य लिहिले जाते त्यात ते कोणत्या स्वरूपात लिहिलेले आहे यास महत्त्व असते अशा साहित्यिक कलाकृतीचे वर्गीकरण हे त्याच्या स्वरूपानुसार करावी लागते यालाच स्वरूप वर्ग असे म्हणतात उदा.निबंध.कविता. नाटक इत्यादी.

**३. स्वरूप विभाग.**

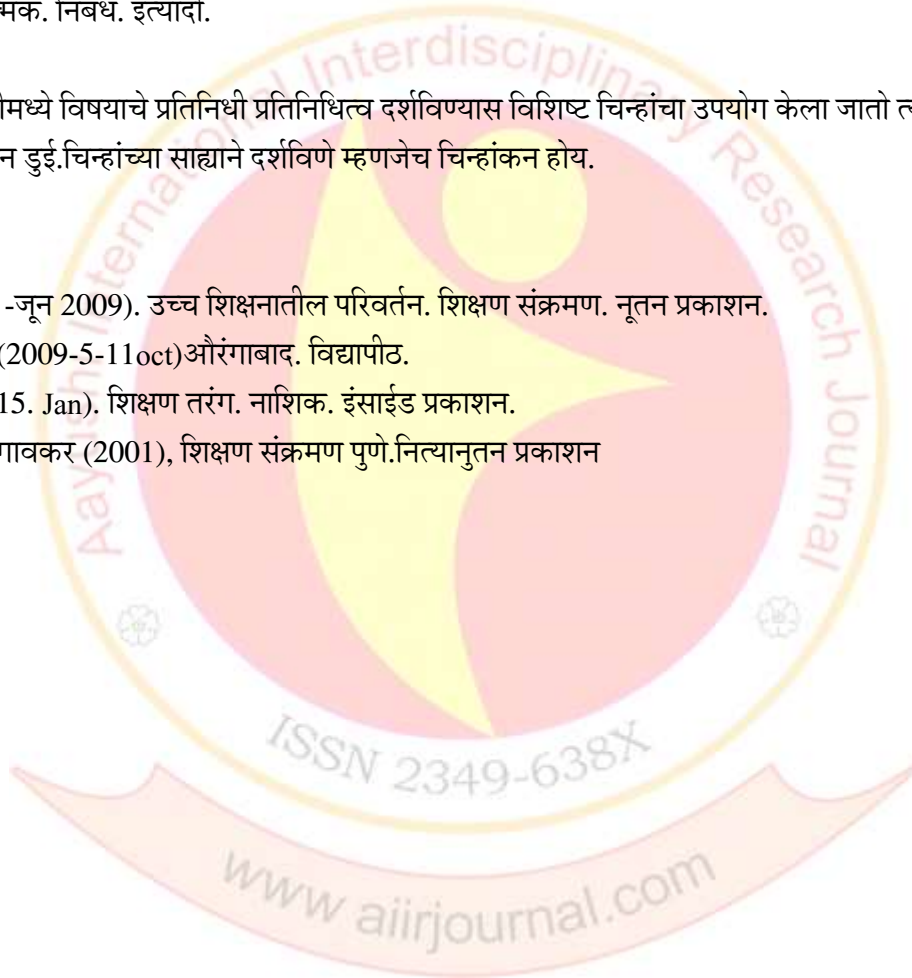
विविध विषयातील माहिती ही ग्रंथाशिवाय इतरही स्वरूपात प्रकाशित केले जाते त्याला स्वरूप विभागाशी म्हणतात उदा. नकाशे. विवेक वाचनात्मक. निबंध. इत्यादी.

**४. चिन्हकन.**

वर्गीकरण पद्धतीमध्ये विषयाचे प्रतिनिधी प्रतिनिधित्व दर्शविण्यास विशिष्ट चिन्हांचा उपयोग केला जातो त्यास चिन्हांकन असे म्हणतात. उदा. जॉन डुई.चिन्हांच्या साह्याने दर्शविणे म्हणजेच चिन्हांकन होय.

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## डिजीटल ग्रंथालय

Snehlata kumbhar

SET (Lib &amp; I.Sc.)

Shivaji University, Kolhapur

## सार :

माहिती तंत्रज्ञानाच्या वापरामुळे समाजामध्ये अमुलाग्र बदल झाला आहे. कृषी, पर्यटन, आरोग्य, पत्रकारिता, वैद्यकीय तसेच शिक्षण क्षेत्रातही माहिती तंत्रज्ञानाचा वापर खुप मोठ्या प्रमाणात वाढला आहे. ग्रंथालय आणि माहितीशास्त्र यामध्ये ग्रंथालय क्षेत्राचा विकास करण्यासाठी माहिती तंत्रज्ञानाचा वापर होत आहे. डिजीटल ग्रंथालयामुळे ग्रंथालयीन व्यवसायिकांचे ज्ञान, कौशल्य यांना चालना मिळत आहे.

**शोध संज्ञा** - डिजिटल लायब्ररी, माहिती तंत्रज्ञान, हायब्रीड ग्रंथालय, व्हर्च्युअल ग्रंथालय, डिजिटायझेशन, ई- लायब्ररी.

## प्रस्तावना :

स्वातंत्र्यानंतर ग्रंथालये वाचकाभिमुख झाली. त्यामुळे ग्रंथालयात येणारे वेगवेगळ्या साहित्यात ही वाद होत राहिली. तसेच आधुनिक काळात वाचनसाहित्यात ही मोठ्याप्रमाणावर बदल होत गेले. उदा. मायक्रोफॉर्म, चुंबकिय ध्वनिमुद्रण, चलचित्र आणि इलेक्ट्रॉनिक माध्यमे.

नवनवीन इलेक्ट्रॉनिक वाचन माध्यम म्हणते इ-जर्नल, ईस्रोत इंटरनेट ई प्रकारांचा सामावेश होता. अशी नवीन माध्यमांचा विचार केला असता असे वाटते - कि भविष्यातील ग्रंथालये हि पुस्तका शिवाय (Paper less) असतील का? आणि कशी असतील या अवस्थे मधुनच डिजीटल ग्रंथालय ही संकल्पना उदयास आली.

- **हायब्रीड ग्रंथालय** :- ज्या ग्रंथालयामध्ये छापील आणि इलेक्ट्रॉनिक (अधाविल) आशा दोन्ही प्रकारच्या वाचन साहित्याचा सामावेश होतो. त्याला हायब्रीड ग्रंथालय असे म्हणतात.
- **डिजिटल ग्रंथालय** : डिजीटल ग्रंथालय म्हणजे डिजीटल "वाचन साहित्यांचा संग्रह, होय. आर्म्स यांच्या मते डिजीटल ग्रंथालाची व्याख्या पुढिलप्रमाणे- डिजीटल ग्रंथालयात साहित्य संग्रह हा डिजिटल स्वरूपात (format) साठवा साठवलेला असतो व इंटरनेट तंत्रज्ञानाच्या सहाय्याने तो जिस वापरता येतो. असे ग्रंथालय वापरण्यासाठी संग्रह व माहिती सेवांचे व्यवस्थापन केले जाते.

## पारंपारीक ग्रंथालय व डिजिटल ग्रंथालय यातील फरक

पारंपारिक ग्रंथालय	डिजिटल ग्रंथालय
• वाचन साहित्य मुद्रित स्वरूपात असतात.	• सर्व वाचन साहित्य हे डिजिटल स्वरूपात असतात.
• वाचनसाहित्य ठराविक मुद्रीत स्वरूपात असतात।	• वेगवेगळ्या प्रकाशत व अधिक प्रमाणात वाचन साहित्य उपलब्ध होते.
• आवश्यक असनारी अभ्यास पूर्वक वाचनसाहित्य उपलब्ध होते.	• आपल्या अभ्यासापेक्षा इतर त्यां विषयासंबंधीत वाचन साहित्य मोठ्या प्रमाणावर उपलब्ध होते.
• पारंपारीक ग्रंथालयातून मिळणारे वाचनसाहित्य मर्यादीत स्वरूपात असते.	• या ग्रंथालयातील साहित्य हे अमर्यादीत स्वरूपात असते.
• याद्वारे आवश्यक माहिती मिळवण्याणि वेळ खूप वेळ लागतो.	• यामुळे माहिती मिळवण्यात वेळ लागत नाही.



**डिजीटल ग्रंथालयासाठी लागणारे साहित्य :-**

डिजीटल ग्रंथालयाची निर्मिती करताना त्यासाठी संगणक, इंटरनेट, इ-जर्नल, इ-डेटाबेस इ-बुक्स, इलेक्ट्रीक कनेक्शन, स्कॅनर अशा प्रकारच्या पायाभूत सुविधा उपलब्ध कराव्या लागतात.

**डिजीटल ग्रंथालयासाठी आज्ञावली (software) :-** डिजिटल ग्रंथालय निर्मिती आणि Bजीटल ग्रंथालय फेडरेशन' नावाची एक संख्या आहे. ती काही मार्गदर्शक तत्वे आपल्याला उपलब्ध करून देते.

- D-space
- Green stone
- E-print

वरील सॉफ्टवेअर हे निशुल्क उपलब्ध आहेत, हे आज्ञावली वाचकांच्या मागणीनुसार त्यांना वेगवेगळ्या स्वरूपात माहिती उपलब्ध करून देते.

**डिजीटल ग्रंथालयाचे व्यवस्थापन :-**

या ग्रंथालय माहिती जमा करणे, ती अद्यावत ठेवणे आणि व्यवस्थित प्रसारित करून जतन करणे. या ग्रंथालयाचे व्यवस्थापन करताना डिजीटलायजेशन, सादरीकरण व शोध सुविधा पुरवला जातात, आपल्या कडे असणारे दुर्मिळ वाचन साहित्याचे स्कॅनिक करून त्याचे खप्या अर्थाने डिजीटलायजेशन म्हणजेच OCR – ओसीसार परावर्तित करणे व ते वाचकाना उपलब्ध काल देणे. म्हणजेच ग्रंथ डिजीटल ग्रंथालयाचे व्यवस्थापन होय.

**डिजीटल ग्रंथालयाचे फायदे:-**

- वेळ - डिजीटल ग्रंथालयाचे मध्ये माहिती मिळवण्यासाठी ग्रंथालया जावे लागत नाही, तुम्हाला आवश्यक असेल त्या ठिकाणी कोणत्याही वेळेस माहिती मिळू शकते.
- मुबलक साहित्य :- डिजीटल ग्रंथालयाद्वारे आपण आणी, किंवा, नाही, या बुलीयन ऑपरेटर द्वारे सर्व शोध घेता येतो. यामुळे मोठ्याप्रमाणावर साहित्य उपलब्ध होते.
- माहिती प्रतिप्राप्ति :- आपनाला जी आवश्यक माहितीची गरज असते ती डिजीटल ग्रंथालया मधून मोठ्याप्रमाणावर उपलब्ध होते
- जागा :- डिजीटल साहित्य असल्यामुळे त्या पारंपरिक ग्रंथालयासारखी जागेची गरज नसते.

**डिजीटल ग्रंथालयाचे दोष:**

- सामीत्व अधिकार (कॉपीराईट) :- डिजिटल ग्रंथालयामुळे आपल्या सामीत्व अधिकारस धोका पोहचवू शकतो.
- खर्च :- डिजीटल ग्रंथालयाची स्थापना करताना खूप मोठ्या प्रमाणावर खर्च येतो.त्यासाठी लागणारी इलेक्ट्रीक साहित्य, कंप्यूटर, स्कॅनर प्रिंटर इ. वेगवेगळे साहित्य खरेदी करावी लागते.
- इंटरनेट अभाव :- डिजीटल ग्रंथालय पूर्णपणे इंटरनेटवर अवलंबून आहे. इंटरनेट कनेक्टेविटी मध्ये अडथळा निर्माण झाला तर आपण या ग्रंथालयाचा वापर करू शकत नाही.

**डिजीटल ग्रंथालयाच्या सेवा**

- ई-मेल
- बुलेटिन बोर्ड सर्व्हिसे
- फाईल ट्रान्सफर प्रोटोकॉल
- रिमोट लॉग-इन
- वर्ल्ड वाईड वेब
- अँटोमेटेड वेब सर्च

**जगातील डिजिटल ग्रंथालये**

1. World Digital Library
2. Million Book Project
3. Project Gutenberg
4. E-Lis: International Open Archive (E-Print in Library and Information Science)
5. World Digital Library: Wikipedia.Inc
6. Digital Book Index: Worlds Virtual Library
7. Indian National Digital Library in Engineering Science and Technology (INDEST)
8. Librarian's Digital Library (LDL)
9. Digital Library of India: Indian Institute of Science, Bangalore
10. Digital Library of India: C-DAC, New Delhi

**निष्कर्ष -**

डिजिटल ग्रंथालयामुळे आज जगाच्या कोणत्याही ठिकाणांची माहिती आपणास उपलब्ध होणे शक्य झाले आहे. औपचारिक व अनौपचारिक शिक्षणासाठी सहाय्य ठरत आहेत. दुर्मिळ वाचन साहित्याचे संरक्षण व संवर्धन शक्य झाले आहे. डिजिटल ग्रंथालयामुळे सर्वात महत्वाचे म्हणजे माहिती गतिमान व परिपूर्णरित्या प्राप्त होत आहे.

**संदर्भ —**

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## शैक्षणिक विकासामध्ये माहिती तंत्रज्ञान

संगीता अशोकराव थोरात

संशोधक शिक्षणशास्त्र विभाग

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ,  
औरंगाबादGmail :- [sangitathorat2088@gmail.com](mailto:sangitathorat2088@gmail.com)

डॉ. एस.एस.पाठक

मार्गदर्शक

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ,  
औरंगाबादGmail :- [sspathak2010@gmail.com](mailto:sspathak2010@gmail.com)

## सारांश (Abstract):

भविष्यावर 'ज्ञानाचा' फार मोठा व सर्वाति जास्त प्रभाव पडणार आहे. माहिती युगाच्या या काळात ज्ञानाला सर्वाधिक महत्त्व प्राप्त होणार आहे. उद्याच्या भविष्यातील सर्व समाज हे 'ज्ञान आधारित समाज' होणार आहेत. उद्याची बाजारपेठ 'ज्ञान आधारित बाजारपेठ' होणार आहे. उद्याची युद्धे माहिती व ज्ञान या नव्या शस्त्रांनी लढली जाणार आहेत. आपण नाविन्यपूर्ण पद्धतीने ज्ञानाचा वापर करूनच समृद्धीकडे जाऊ शकतो. आपण नाविन्याचा ध्यास घेतलाच पाहिजे. ज्ञानाचा नाविन्यपूर्ण पद्धतीने अंमल करून उत्पादन व दर्जात वाढ केलीच पाहिजे, जमीन, पैसा या वस्तुनिष्ठ स्वरूपाच्या बाबींऐवजी ज्ञान, शहाणपणा वापरणाऱ्या कर्मचाऱ्यांची उद्याच्या उद्योगांना आवश्यकता पडणार आहे. नाविन्यपूर्ण ज्ञान मिळवायचे असेल तर माहिती तंत्रविज्ञानाला पर्याय नाही. आपल्याजवळ पैसा हे भांडवल कमी असले तरी उद्योगासाठी लागणारे दुसरे भांडवल म्हणजे बुद्धी भारतीयांजवळ आहे. जगाच्या बाजारात आपल्याला बुद्धी घेऊन उतरावे लागेल आपली बुद्धी अधिकाधिक प्रगल्भ करण्यासाठी माहिती तंत्रज्ञानाची गरज आहे.

## प्रस्तावना-

प्रत्येक युग आपले एक वैशिष्ट्य घेऊन जगत असते. त्या वैशिष्ट्यांमुळे तो काळ त्या नावानं ओळखला जातो. अश्मयुग, लोहयुग, ताम्रयुग अशी नावे मग त्या युगांना पडतात. मागच्या शतकात विज्ञानयुगानं हळूहळू तंत्रज्ञान युगाचा पेहेराव धारण केला व झपाट्याने माहिती तंत्रविज्ञान व संगणक हे या शतकाचे परवलीचे शब्द ठरू लागले. 'ज्ञानाचा विस्फोट' ही संकल्पना आपल्या मनात नुकतीच रूजते न रूजते तोच 'माहितीचा प्रचंड प्रस्फोट' आपल्यावर कोसळला आहे. संगणकीय क्रांतीने प्रभावित नाही असे एकही क्षेत्र शिल्लक राहिलेले नाही. भरभरून वाहणारा माहितीचा हा प्रवाह आपल्या अंगणात वळवून आपला विकास करून घेणे हे आपल्याच हातात आहे. इंटरनेट या नव्या माध्यमामुळे आजच्या युगास 'माहिती युग' असे नामाभिधान प्राप्त झाले आहे.

## माहिती तंत्रविज्ञानाचा इतिहास :

माहिती तंत्रविज्ञानाचा इतिहास हा चार ते पाच दशकांचा, संगणक-शास्त्र व संप्रेषण शास्त्राचा विकास व एकमेकांत अंतर्भाव होण्याचा इतिहास आहे. प्रत्येक सजीव संप्रेषण करतो. वेगवेगळ्या पद्धतीने व मार्गांनी विचारांचे, माहितीचे, भावनांचे आदानप्रदान करतो. मनुष्याची संप्रेषणाची पद्धत सर्वापेक्षा वेगळी, बहुमार्गी, भिन्न प्रकारांची आहे. १५६२ साली वर्तमानपत्राद्वारे माणसाने लिखित स्वरूपात विचारांचे, माहितीचे आदान-प्रदान-संप्रेषण केले आणि संप्रेषणाच्या या पद्धतीत बदल आणि सुधारणा होत गेल्या. १६ व्या शतकात पास्कल यांनी 'गणन यंत्राची' निर्मिती केली. नंतर या गणन यंत्रातही बदल आणि सुधारणा होत गेल्या. १८ व्या शतकापासून दोन्ही क्षेत्रातील विकासाची वाटचाल झपाट्याने होऊ लागली. या विकासात ही दोन्ही क्षेत्रे एकमेकांकडे आकर्षित होत गेली. १९ व्या शतकात दोन्ही क्षेत्रातील अंतर अगदीच कमी झाले. ते एकमेकाला सहाय्य करू लागले, पूरक ठरू लागले. जी काही माहिती संप्रेषित करावयाची ती संगणकामुळे तीव्र गतीने संप्रेषित होऊ लागली. इतरांपर्यंत पोहोचू लागली. संप्रेषणाचे मार्ग ला संगणकाने सोपे, गतीशील व प्रभावी केले आणि हे दोन्ही शास्त्र एकमेकात विलीन झालेले आढळतात. हेच माहिती तंत्रविज्ञान होय. खालील आकृतीतून हे स्पष्ट होते.

## माहिती तंत्रज्ञानाचे फायदे :

1. कोणतीही माहिती बिनचूक, विश्वसनीयरित्या प्रचंड वेगाने या भूतलावर कुठेही पाठविता येते, मागता येते.
2. गोंधळाचे प्रमाण अत्यंत कमी असते.
3. स्वस्त दरात माहिती प्राप्त करता येते.



4. अनेक वाहिन्यांचा वापर करता येतो.
5. भौगोलिकदृष्ट्या अंतर कमी करता येते व संप्रेषण करता येते.
6. Tele-conferencing शक्य होते.
7. तुरंत प्रत्याभरणाची सोय असते.
8. Interactive- आंतरक्रियामक पाठ घेता येतात.
9. पूरक शैक्षणिक प्रणाली उपलब्ध होते..
10. सत्य परिस्थितीच्या अधिक जवळचे अनुभव देता येतात.
11. अद्ययावत माहिती मिळते. विद्यार्थ्यांची निर्णयक्षमता वाढते.

**माहिती तंत्रज्ञानाच्या मर्यादा :**

1. भावनाशून्य, मानवी गुणांचा अभाव.
2. संगणक साक्षरता नसल्यास काम करता येत नाही.
3. चुकीच्या आज्ञा दिल्या गेल्यास साठविलेली माहिती नष्ट होते.
4. Virusमुळे साठविलेली माहिती नष्ट होते..
5. इतरांच्या चुकांमुळे आपले संप्रेषणकार्य, संगणकाची कार्यक्षमता नष्ट होते....
6. संगणकाची पूर्ण माहिती नसल्यास दुसऱ्यांवर अवलंबून रहावे लागते.
7. मनुष्य संगणकाचा दास झाल्यास त्याची सर्जनशीलता नष्ट पावते.

**शैक्षणिक विकासामध्ये माहिती तंत्रज्ञान :**

1. **अध्ययन-अध्यापन** : विद्यार्थ्यांना माहिती देणे हेच केवळ शिक्षणाचे उद्दिष्ट नाही. माहितीबरोबरच तर्क व विचार प्रक्रियेचा विकास, निर्णयक्षमतेचा विकास आकलनक्षमतेचा विकास स्वबोधाचा विकास योग्य अभ्यास सवयींचा विकास साध्य करावयाची असतात. प्रचलित पारंपारिक अध्ययन-अध्यापन प्रक्रियेत ही उद्दिष्टे साध्य होत नाहीत. विषय शिकविणारा एक शिक्षक विषयाचे सर्वच ज्ञान देऊ शकत नाही. माहिती तंत्रविज्ञानाच्या मदतीने वरील उद्दिष्टे साध्य करता येतात. अध्ययनार्थी इंटरनेटच्या साहाय्याने विविध माहिती गोळा करू शकतो. इंटरनेटवर तज्ज्ञांशी चर्चा करून शंकांचे समाधान करून येऊ शकेल. इंटरनेटवर एकाच विषयभागाची विविध प्रकारे माहिती दिलेली असते. तिचा अभ्यास करूनही ज्ञानवृद्धी करता येईल. प्राप्त ज्ञान अधिक काळ धारणेत राहू शकेल. शिक्षक । माहिती तंत्रविज्ञानाच्या मदतीने आपली पारंपारिक व्याख्यान पद्धती सोडून नवनव्या अध्यापन पद्धतीचा अवलंब करू शकतील. इंटरनेटवर विचार व निर्णयक्षमतेचा विकास करणाऱ्या अनेक वेबसाईट्स मोफत उपलब्ध आहेत. त्यांचा उपयोग करून विकास करता येईल.

2. **स्रोताचे सहभागित्व** : उच्च शिक्षणावर शासनाने करावयाच्या अनुदानरूपी खर्चात आता उत्तरोत्तर कपात होते आहे. याचा परिणाम पायाभूत सुविधांवर होतो आहे. नवीन स्रोतांची निर्मिती करणे अशक्य झाले आहे. अशावेळी विविध ठिकाणी असलेल्या सुविधा व स्रोते यांचे सहभागित्व (Sharing of resources) करावे ही कल्पना पुढे आली व त्याप्रमाणे इंदोरच्या देवी अहिल्या विश्वविद्यालयात Inter University Consortium (IUC) स्थापन झाले. त्याचा अनेकांना फायदा झाला. माहिती तंत्रामुळे आता विविध ठिकाणी विविध स्रोतांचे सहभागित्व शक्य झाले आहे.

3. **शिक्षकांचा व्यावसायिक विकास**: शिक्षणाची गुणवत्ता शिक्षकांच्या गुणवत्तेवर आधारित असते. सेवापूर्व प्रशिक्षणात मिळालेले प्रशिक्षण शिक्षकाची गुणवत्ता वाढविण्यात पुरेसे ठरत नाही. शिक्षकांचे सतत सेवांतर्गत प्रशिक्षण केले तरच शिक्षकांचा व्यावसायिक विकास शक्य आहे. सेवांतर्गत प्रशिक्षणाच्या सध्याच्या सुविधा पुरेशा नाहीत, सेवांतर्गत प्रशिक्षण देणाऱ्या संस्थांचाही सर्वांना प्रशिक्षण देण्याइतका आवाका नाही. शिक्षकांना प्रशिक्षण केंद्रात जाऊनच शिक्षण घ्यावे लागते. माहिती तंत्रविज्ञानाच्या मदतीने शिक्षक प्रशिक्षणाची साधन स्रोत केंद्रे (Learning resource centres) निर्माण करता येतील. ही स्रोत केंद्रे विविध साधन सुविधांनी सज्ज करता येतील. शिक्षक आपल्या कार्यस्थळी राहून आपला व्यावसायिक विकास करू शकतील. शिक्षकांची जिथे कमतरता आहे तेथे विकसित केलेले शिक्षण कार्यक्रम सादर करून उणीव भरून काढता येईल. शिक्षकांच्या व्यावसायिक विकासासाठी ही केंद्रे विविध कार्यक्रम तयार करून ती इंटरनेटद्वारे प्रक्षेपित करू शकतील.

**4. प्रतिरूप वास्तव विद्यापीठ (Virtual University):** सध्याची विद्यापी व त्यांच्यात शिकविले जाणारे अभ्यासक्रम यांच्या अनेक मर्यादा आहेत. विद्यार्थी संख्या अभ्यासक्रमातील पाठ्यक्रम, ऐच्छिक विषय निवडीच्या मर्यादा, परीक्षांची तांत्रिकता कालावधीच्या मर्यादा या सर्वांमुळे शिकू शकणाऱ्या सर्वांनाच प्रवेश मिळतो असे नाही. या मर्यादांवर प्रतिरूप वास्तव विद्यापीठ प्रणाली (VUS) हा एक पर्याय माहिती तंत्रविज्ञानाने उपलब्ध करून दिला आहे. इंटरनेट माध्यमातून विद्यार्थी या विद्यापीठात प्रवेश घेऊ शकतील, आपल्या सोयीनुसार, क्षमतेप्रमाणे विविध पाठ्यक्रम शिकू शकतील, इंटरनेट माध्यमाद्वारेच ऑनलाईन परीक्षा देऊ शकतील.

माहिती तंत्रज्ञानामुळे जग हे छोटे खेडे झाले आहे. याचा अर्थ खेड्यात आपण ज्या पद्धतीने एकमेकांच्या घरात डोकावू शकतो, सुखदुःखे वाटू शकतो, मदत करू शकतो त्याच प्रमाणे इंटरनेटमुळे आपण जगातल्या कुठल्याही स्थळी डोकावू शकतो. इंटरनेट, व्हाईस मेल, ई-मेल, व्हिडिओ मेल, सायबर कॅफे या सर्वांमुळे कोणत्याही ठिकाणची माहिती शोधू (Access) करू शकतो. जगातल्या कोणत्याही ग्रंथालयातील कोणतेही पुस्तक वाचू शकतो. याचाच प्रतिरूप वास्तव विद्यापीठात उपयोग केला आहे.

**5. संशोधन व विकास :** मोठ्या उद्योगधंद्यात संशोधन व विकास (R & D) यासाठी स्वतंत्र व्यवस्था असते. तसेच विशेष रक्कम राखून ठेवली जाते. विद्यापीठातही संशोधने होतात, पण या संशोधनासाठी उद्योगधंद्याकडून फंड मिळतातच असे नाही. याचे कारण विद्यापीठातील संशोधन उद्योगधंद्याच्या विकासास उपयुक्त असतेच असे नाही. आता संशोधन ही व्यक्तिगत कृती राहिली नसून सांघिक कृती झाली आहे. माहिती तंत्रज्ञानामुळे नेमक्या समस्यांचा शोध घेणे, जगातील विद्वानांच्या सहकार्याने समस्येच्या सोडवणुकीचे मार्ग शोधणे, प्राप्त माहितीचे विश्लेषण-विशदीकरण करणे अधिक सुलभ झाले आहे. संशोधनाची पुनरावृत्ती / प्रतिरूपके करणे शक्य झाले आहे. त्यामुळे संशोधन निष्फळांची स्वीकारता वाढली आहे. संशोधनाची गुणवत्ता वाढविणे माहिती तंत्रविज्ञानामुळे शक्य झाल्याने आता उद्योगव्यवसाय व विद्यापीठे संशोधन व विकासाबाबतीत जवळ येण्याची प्रक्रिया वाढली आहे.

**6. मनुष्यबळ विकास :** विकास हा साधनसंपत्ती व मनुष्यबळ यावर अवलंबून असतो. यापैकी साधनसंपत्तीच्या विकासास व उपयोगास मर्यादा आहेत. परंतु पुष्पबळाचा गुणवत्तेच्या दृष्टीने विकास करून साधनसंपत्तीचा योग्य विनियोग करता येतो व देशाचा विकास साधता येतो. आपली सध्याची उपलब्ध मनुष्यबळ संपत्ती काय आहे व आपणास कोणकोणत्या क्षेत्रात कोणकोणत्या प्रकारच्या मनुष्य बळाची गरज भासणार आहे, याचा Database तयार केला तर त्याचा विकासासाठी उपयोग होऊ शकेल. माहिती तंत्रविज्ञानाच्या साहाय्याने असा Database तयार करणे शक्य आहे. माहिती तंत्रविज्ञानाच्या माध्यमातून करता येईल. मनुष्यबळा विकासही

**7. दूरस्थ शिक्षण :** शिक्षणाची मागणी वाढल्याने व सध्याची महाविद्यालये/विद्यापीठे ही मागणी पुरविण्यात अपुरी पडल्याने दूरस्थ सुविधांची सुरुवात झाली. विद्यापीठांनी दूरस्थ शिक्षण विभाग सुरू केले. मुक्त विद्यापीठे निघाली. दूरस्थ शिक्षणात दूरच्या ठिकाणी असलेल्या अध्ययनार्थीस छापील माध्यमाद्वारे, श्राव्यफितीद्वारे, दृकश्राव्य फितीद्वारे शिक्षण दिले जाऊ लागले. दूरचित्रवाणीचा उपयोग केला जाऊ लागला. आता माहिती तंत्रविज्ञानामुळे दूरस्थ शिक्षण अधिक सुलभ झाले आहे. दूरस्थ शिक्षणाचे नियोजन, स्त्रोतांचे व्यवस्थापन, अभ्यासक्रमांचे विकसन, परीक्षा पद्धतीतील सुधारणा, अध्ययन-अध्यापन प्रक्रियेचे विकसन या बाबी करणेसाठी माहिती तंत्रविज्ञानाचा उपयोग अधिक प्रभावी ठरू लागला आहे.

**8. गुणवत्तापूर्ण व्यवस्थापन :** शिक्षण व्यवस्था ही एक प्रणाली (System) आहे. कोणत्याही प्रणालीचा उपयुक्तता प्रणालीतून प्राप्त होणाऱ्या निष्पत्तीच्या (Outputs ) गुणवत्तेवर अवलंबून असते. शिक्षण प्रणालीची गुणवत्ता वाढविण्यासाठी तिचे गुणवत्तापूर्ण व्यवस्थापन करणे गरजेचे आहे. माहिती तंत्रज्ञानाच्या साहाय्याने गुणवत्तापूर्ण व्यवस्थापन करणे शक्य होते.

शिक्षणासाठी माहिती तंत्रविज्ञानाचा किती उपयोग आहे याची जाणीव भारताला पूर्णपणे झाली आहे. भारताने विद्यावाहिनी नेटवर्क तसेच सर्व विश्वविद्यालयांचे नेटवर्क (IUNET) करण्यास आता सुरुवात केली आहे. देशातील शिक्षण प्रसाराच्या कार्याला याची मदत होईल. महाराष्ट्र राज्यानेही माहिती तंत्रविज्ञानाची दखल घेतली असून प्राथमिक, माध्यमिक व उच्च माध्यमिक स्तरावर माहिती तंत्रविज्ञान विषय सुरू करून नव्या शिक्षण युगास सुरुवात केली आहे.

### संदर्भ

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**वाचन वृद्धीसाठी महाविद्यालयामध्ये आधुनिक तंत्रज्ञानाचा वापर****Wakure Vishakha Suresh**

Librarian

Dr.Bapuji Salunkhe Law College (O.bad)

इंटरनेट, ट्विटर, व्हॉट्सप, टीव्ही, यांसारख्या इलेक्ट्रॉनिक्स प्रसारमाध्यमांमुळे ग्रंथालय तसेच वाचनसाहित्य याकडे सर्वांचा पाहण्याचा दृष्टीकोण बदलत जात आहे. या साधनांमुळे वाचक पुस्तके वाचताना दिसत नाहीत. 'वाचन संस्कृती टिकविण्यासाठी तसेच वाढविण्यासाठी आधुनिक तंत्रज्ञानाचा वापर करावा लागेल.

**प्रास्ताविक-**

सध्या तंत्रज्ञानामध्ये वेगाने बदल घडून येत आहेत. आजच्या माहिती तंत्रज्ञानाच्या युगामध्ये ग्रंथ हे फार दुर्मिळ होताना दिसत आहेत. सर्वच महाविद्यालयामध्ये समृद्ध ग्रंथालये आहेत. अनुदानित महाविद्यालयांना विद्यापीठ अनुदान आयोगामार्फत लाखो-करोडो रुपयांचे अनुदान दिले जाते. महाविद्यालय त्या अनुदानाचे ग्रंथ, अभ्यासविषयक पुस्तके, खरेदीही करते पण वाचक पाहीजे तसा ग्रंथालयाचा उपयोग करून घेत नाहीत. 'पूर्वी वाचेल तो वाचेल', ग्रंथ हेच गुरु, असे पुस्तकांचे महत्व पटवून दिले जायचे. 21 व्या शतकात विज्ञान तंत्रज्ञानाच्या विकासांमुळे सध्या संगणकीय साक्षरता वाढत जात आहे. पूर्वीसारखे आता घरामध्ये पुस्तक वाचनाची आवड दिसत नाही. हातातील पुस्तकाची जागा मोबाईल, कॉम्प्युटर, इंटरनेट या साधनांनी घेतलेली अलीकडे दिसते आहे.

**उद्दिष्टे**

- 1) तरुण-विद्यार्थी-विद्यार्थीनींना विविध ज्ञानशाखांचा सखोल स्वरूपाचा परिचय करून देणे.
- 2) विविध ज्ञानशाखांमध्ये आधुनिक तंत्रज्ञानाचा वापर करून ग्रंथालये पारंगत बनविणे.
- 3) तरुणांना उच्चशिक्षणासाठी प्रेरित करणे जसे वकील, वैद्यकीय महाविद्यालयीन शिक्षणाने विद्यार्थ्यांमधून बुद्धीप्रामाण्यवादी व देशाला प्रगतीपथावर नेण्यासाठी आवश्यक गुणांनी परिपूर्ण असे नागरिक निर्माण व्हावेत हे उद्दिष्टे आहे.

**कार्य**

- 1) भविष्यातील जबाबदाऱ्या ओळखून तरुणांमध्ये सक्षमता निर्माण करणे, वेळेची जाणीव करून देणे.
- 2) नवे प्रयोग व उपक्रम राबवून वाचनाची आवड, प्रेरणा निर्माण करणे विद्यार्थ्यांना ग्रंथालयाचे महत्वाचे घटक ग्रंथसंग्रह व इतर अध्यापन विषयक साहित्य माहिती करून देणे व पुरवणे.
- 3) वाचक वर्गाला दिली जाणारी ग्रंथालयीन सेवा.

**ग्रंथालयाचे व्यवस्थापन**

- 1) ग्रंथसंग्रह "ग्रंथालयामध्ये क्रमिक पुस्तके तसेच विषयाशी संदर्भात संदर्भ पुस्तके (Reference Book)
- 2) गुणवत्ता प्राप्त विद्यार्थ्यांसाठी पुस्तक पेढी (Book Bank) योजना राबविली जाते.
- 3) विशिष्ट विषयावरिल ज्ञानकोश, शब्दकोश किंवा विश्वकोश उपलब्ध करून देणे, संबंधित विषयाची पुस्तके उपलब्ध करून देणे.
- 4) ग्रंथालयांमध्ये उपलब्ध साहित्य सामग्रीचा उपयोग करून देता येतो. वार्षिक अहवाल, चरित्रे, भौगोलिक ग्रंथ, संदर्भग्रंथ यामध्ये गॅझेटियर्स, नकाशासंग्रह यांचा समावेश करून देता येतो.



- 5) मनोरंजन तसेच मार्गदर्शन करणारे ललित साहित्य, कथा कादंबरी ,प्रवासवर्णन, विनोदी साहित्य यामुळे विद्यार्थ्यांमध्ये वाचनाची अभिरुची वाढते .निवडक नियतकालिके, कादंबरी ,कथा ,उत्कृष्ट निवडक नियतकालिके ,मासिक मागील अंक इ.
- 6) अध्यापनसाठी आवश्यक दृक:श्राव्य साधने, चित्रफिती,चित्रे,ऑडिओ,व्हिडीओ,कॅसेट्स, डिस्क फाईल्स, टेप रेकॉर्डर इत्यादी. संगणक साहित्ये.
- 7) भौतिक सुविधा - फर्निचर,इंटरनेट संगणक सुविधा साधने इत्यादी.सुविधा विद्यार्थ्यांना पुरविणे.

**एनसायक्लोपिडिया ऑफ लायब्ररी अँड इन्फॉर्मेशन सायन्स .**

एनसायक्लोपीडिया ऑफ लायब्ररी अँड इन्फॉर्मेशन सायन्स हे ग्रंथालय आणि माहितीशास्त्रातील सर्वात व्यापक माहिती साधन आहे.या ज्ञानकोशाची पहिली आवृत्ती 72 खंडांमध्ये प्रकाशित करण्यात आली होती.

- भौतिक सुविधा
- 1) महाविद्यालयीन ग्रंथालयामध्ये विद्यार्थी, प्राध्यापक, कर्मचारी, संशोधक इतर वाचक येत असतात. या सर्वांना त्वरित ग्रंथालयाचा उपयोग व्हावा यासाठी मध्यवर्ती ठिकाणी असणे आवश्यक असते.
- 2) पुस्तके शोधण्यासाठी जास्त वेळ जावु नये यासाठी कर्मचारी असणे आवश्यक आहे. यासाठी ग्रंथप्रदर्शन, चर्चासत्रे, द्राक-श्राव्य ,संगणक माहिती असणे इ.साधनांचा वापर होणे देखिल गरजेचे आहे.
- 3) ग्रंथालयामध्ये ग्रंथसंग्रह दालन,अभ्यासिका, नियतकालिका विभाग स्वतंत्र असणे आवश्यक आहे.
- 4) महाविद्यालयीन ग्रंथालयाची ठेवण ही आकर्षक व वाचकांना प्रेरित करणारी असावी आकर्षक फर्निचर, हवेशीर जागा असणारी वाचण कक्ष असावा.
- 5) विद्यार्थी ,वाचक ,यांना ग्रंथालयाची माहिती पूर्ण पणे असावी आणि नवीन साधन सामग्री माहित असणे व उपलब्ध करून देणे आवश्यक असते .
- 6) ग्रंथालय मध्ये सर्व सुविधा असणे आवश्यक आहे .इंटरनेट ,संगणक, शांतता, मुलींची मुलांची बसण्याची स्वतंत्र व्यवस्था असायला हवी इ.

सध्या ग्रंथालय मध्ये नव्याने विकसित होत असलेल्या नवीन तंत्रज्ञानाचा वापर करताना वापरल्या जाणाऱ्या पद्धती, उपाय, धोरणे, त्यांचे यश अपयश यांची माहिती देत असताना खालील मुद्द्यांचा यामध्ये समावेश होतो.

- मल्टीचॅनेल लर्निंग (बहु-वाहिनी ग्रंथालय शिक्षण)
- शैक्षणिक दूरदर्शन
- शैक्षणिक रेडियो
- वेब-आधारीत सूचना
- शोधासाठी ग्रंथालये
- विज्ञान व तंत्रज्ञान यांची प्रात्यक्षिके
- माध्यमांचा (मीडिया) वापर

विविध क्षेत्रातील तंत्रज्ञानाचा वापर मुलांचा मुलींचा ग्रंथालय विषयक दृष्टिकोन विकास, ग्रंथालयात नसणाऱ्या सुविधांचा विकास करणे ,स्त्री शिक्षण, मनुष्यबळ विकास,

- शिक्षकांच्या तयारीसाठी व प्रशिक्षणासाठी तंत्रज्ञानाचा वापर.
- धोरणे माहिती व्यवस्थापन (डेटा प्रबंधन) करण्यासाठी तंत्रज्ञानाचा वापर,
- शाळा व्यवस्थापनासाठी तंत्रज्ञानाचा वापर.

- तंत्रज्ञान क्षेत्रातील कोणकोणत्या गोष्टींचा वापर ग्रंथालय मध्ये करता येऊ शकतो.
- सूचनात्मक साधने
- ऑडियो, व्हिडियो व डिजिटल उपकरणे
- सॉफ्टवेअर व कन्टेन्टवेअर
- संपर्काची साधने
- माध्यम (मीडिया)
- शैक्षणिक वेबसाईट

**भविष्यातील तंत्रज्ञान:**

सध्या अस्तित्वात असलेले तंत्रज्ञान व भविष्यात उपलब्ध तंत्रज्ञान यावर एक नजर वापर करणाऱ्या आणि निर्णय घेणाऱ्यांच्या कल्पनेला प्रोत्साहन देण्यासाठी ग्रंथालयात नवीन साधन सामग्री उपलब्ध करून देणे.

आधुनिक साधने वापरल्या मुळे ग्रंथालय आणि ग्रंथालयात कितपत आणि कसा प्रभाव पडतो हे साधने कशी व कशासाठी वापरली जातात .यावर अवलंबून असते. या साधनांचा सर्वांनाच सारख्याच प्रमाणात फायदा होईल असे ही नाही. मात्र ही साधने योग्य पद्धतीने वापरली गेल्यास त्यांचा फायदा नक्की होतो. या कार्यक्रमांमुळे शिक्षणाचा दर्जावर उत्तम परिणाम झाल्याचे दिसून येते . तसेच विद्यार्थ्यांच्या गुणांत व उपस्थितीत ही सुधारणा झाल्याचे आढळले.

मात्र संगणक, इंटरनेट यांच्या वापरामुळे ग्रंथालयाच्या दर्जात खूप मोठा फरक पडल्याचे आढळून आले आणाला अलीकडे दिसत आहे. इंटरनेट संगणक इ. साधनांचा वापर करणाऱ्या विद्यार्थ्यांच्या गुणवत्तेत व व्यक्तीगत मार्गदर्शन घेणाऱ्या विद्यार्थ्यांच्या गुणवत्तेत त्याला खूप मोठा फरक आढळला आहे . माहिती व संप्रेषणाच्या साधनांद्वारे दिल्या जाणाऱ्या व्याख्यांनामुळे विद्यार्थ्यांमधील उपस्थितीचे प्रमाण वाढल्याचे ही मत अनेक समीक्षक व्यक्त करतात.

मात्र माहिती व दळणवळणाच्या साधनांमुळे विद्यार्थ्यांच्या गुणवत्तेत सुधारणा होत असल्याचे ही निदर्शनास आले आहे. पारंपारिक शिक्षणाच्या जोडीला संगणकाचा वापर करण्यात आल्यास शिक्षणाच्या गुणवत्तेत वाढ होऊ लागली आहे . संगणकाचा वापर केल्यामुळे विद्यार्थ्यांमध्ये शिक्षणाविषयी आणि वाचनाची आवड निर्माण झाल्याची अलीकडे आपणाला दिसत आहे ही काही उदाहरणे आहेत.

शिक्षकांना व ग्रंथालयात माहिती व दळणवळणाची साधने हाताळण्याचे योग्य ते प्रशिक्षण दिल्यास शिक्षणपद्धतीत आमूलाग्र बदल घडून येऊ शकतो. मात्र अजून या प्रयत्नांना म्हणावा तसा भर देण्यात आलेला नाही शिवाय अशा प्रशिक्षणामुळे शिक्षणपद्धतीत बदल घडून आल्याचे अनेक पुरावे आढळून आलेले दिसतात. सध्या या विषयी उपलब्ध असणारी माहिती ही विद्यार्थी व शिक्षकांकडून मिळविण्यात आली आहे व त्याद्वारे काढलेले निष्कर्ष सकारात्मक आहेत.

संगणक व इंटरनेटमुळे होणारे फायदे मोजण्यासाठी प्रमाणित अशा चाचण्या नाहीत त्यामुळे ही या साधनांचा प्रभाव मोजण्यात अडथळे येत आहेत. शिवाय ही साधने ग्रंथालयांमध्ये वापरून एक नवीन क्रांती होत आहे असे म्हंटले तरी चालेल..

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**क्यू आर कोड प्रणालीचा ग्रंथालयात वापर**

कु. नीता दत्तात्रय गोजारे

(बी.एस्सी, बी.लिब. अँड आय. एस्सी.)

विवेकानंद कॉलेज, कोल्हापूर

Email ID – [gojareneeta21@gmail.com](mailto:gojareneeta21@gmail.com)**सार**

क्विक रिस्पॉन्स (क्यू आर) कोड हे स्वयंचलित तंत्रज्ञान बऱ्याच अनुप्रयोग मध्ये वापरले जाते. एक बारकोड हा परिभाषित गुणोत्तरात छापलेल्या 12 आणि स्पेस च्या मालिकेचा मशीन वाचनीय कोड आहे, ज्याचे मुख्य कार्य डेटा सांगणे हे आहे आणि प्रतिकात्मक नियमांचे संच आहेत, जे त्या नमुन्यांना त्यांच्या एनकोड संदेशाशी संबंधित आहेत. या शोधनिबंधामध्ये क्यू आर तंत्रज्ञानावर लक्ष केंद्रित केले आहे. क्यू आर कोड म्हणजे काय? क्यू आर कोड ची उद्दिष्टे, आवश्यकता आणि क्यू आर कोड चे ग्रंथालयात होणारे उपयोग आणि फायदे यावर माहिती दिली आहे. जे विविध विद्यापीठे आणि ग्रंथालयांमध्ये वापरले जाते.



**शोध संज्ञा :** क्यू आर कोड प्रणाली क्यू आर कोड प्रणालीची उद्दिष्टे, क्यू आर कोड प्रणालीचे फायदे.

**प्रस्तावना**

आजच्या आधुनिक जगामध्ये तंत्रज्ञान हे खूप प्रगतीपथाकडे जात आहे. आज क्यू आर कोड हे सुरुवातीच्या टप्प्यात आहे. संपूर्ण डिजिटल जगाला बदलण्यासाठी थोडा वेळ लागेल. इंटरनेट हा प्रत्येकाच्या जगण्याचा एक प्रकारे भाग बनला आहे. क्यू आर कोड हे कोणत्याही विशिष्ट माहितीमध्ये प्रवेश करण्याची देखील एक आवश्यकता बनणार आहे.

आयसीटीच्या आगमनाने, ग्रंथालयांची संकल्पना बदललेली आहे. ग्रंथालये इ-जनरल, मासिके, सीडी, डीव्हीडी इत्यादी वाचन साहित्य खरेदी करतात. आता ग्रंथालये ही ऑनलाईन सेवा, संदर्भ सेवा आणि आर एफ आय डी-आधारित सेवा प्रदान करत आहेत. आपण जेव्हा भौतिक लायब्ररी बद्दल बोलतो, तेव्हा असे दोन घटक आहेत जे वातावरण अनुकूल ठेवण्यापासून परावृत्त करतात. मोठ्या ग्रंथालयांमध्ये कॅटलॉग मधून पुस्तक शोधणे कंटाळवाणी आहे, शिवाय जरी तो डिजिटल कॅटलॉग असला, इतर व्यक्ती त्यांना हवे असलेले पुस्तक शोधत असताना वाचक रांगेत थांबू इच्छित नाही. म्हणून त्यांना हवे असलेले पुस्तक शोधण्याचा जलद आणि सोपा मार्ग हवा असतो तो क्यू आर कोड मार्फत त्यांना मिळू शकतो..

ग्रंथालयांना अधिक आकर्षक बनवण्यासाठी आणि ग्रंथालय व्यवस्थापन सोपे करण्यासाठी क्यू आर कोड तंत्रज्ञान सादर करणे हा एक उपाय आहे. क्यू आर कोड चा सर्वात जास्त उपयोग महाविद्यालय संस्था यांना होतो. त्यामुळेच जपान मधील “Denso Wave” या वाहन उद्योगातील कंपनीने १९९४ क्यू आर कोड ची निर्मिती केली.

**क्यू आर कोड व्याख्या**

क्यू आर संकेतावली ही एक प्रकारच्या मॅट्रिक्स बारकोड साठी असलेला ट्रेडमार्क आहे. क्यू आर कोड भरपूर डेटा संजय करण्यास. परंतु स्कॅन केल्यावर किंवा कोडणे वापरकर्त्याला माहिती त्वरित एक्स एक्स करण्याची अनुमती दिली पाहिजे म्हणून त्याला क्विक रिस्पॉन्स कोड म्हणतात.

**क्यू आर कोड म्हणजे काय?**

क्यू आर चा अर्थ “क्विक रिस्पॉन्स” आहे. क्यू आर कोड हा बारकोड चा एक प्रकार आहे, जो चौरस आकाराच्या ग्रीडमध्ये पिक्सेलची मालिका म्हणून माहिती संग्रहित करतो. पुरवठा साखळीतील उत्पादनाविषयी माहितीचा मागवा घेण्यासाठी क्यूआर कोड वारंवार वापरले जातात.



टोयोटा उप कंपनी व डेन्सोहेब या जपानी कंपनीने १९९४ मध्ये पहिल्या क्यूआर कोड प्रणालीचा शोध लावला होता. क्यू आर कोड हा दोन दिशांनी वाचला जातो- वरपासून खालपर्यंत आणि उजवीकडून डावीकडे. लक्षणीय अधिक डेटा ठेवण्यास अनुमती देते.

### क्यू आर कोड ची उद्दिष्टे

1. वाचकांसाठी ग्रंथ शोध सोपे करणे.
2. वाचन सामग्री साठी त्वरित प्रवेश प्रदान करणे.
3. ग्रंथालयाचा कार्यक्षमतेने प्रचार करणे.
4. ग्रंथालय संपर्क माहिती सहसतेने प्रदान करणे.
5. ग्रंथालयाचे वातावरण अधिक आकर्षक बनवणे.
6. ग्रंथालयाबद्दल अतिरिक्त माहिती लवकर देणे.

### क्यू आर कोड ची आवश्यकता

ग्रंथालयांचा जेव्हा विचार केला जातो तेव्हा असे लक्षात येते की क्यू आर कोड हे आधीपासून प्रचलित आहे. ग्रंथालयात क्यू आर कोड ची आवश्यकता पुढीलप्रमाणे..

#### 1. वाचकांसाठी पुस्तक शोधणे सोपे होते.

क्यू आर कोड हे मर्यादित माहिती लिंक करू शकतात, त्यामुळे आपण आपल्या लायब्ररी कॅटलॉगला क्यू आर कोडशी लिंक करू शकतो. आणि आपल्याला फक्त वेबसाईट URL QR कोड तयार करून प्रवेशद्वाराच्या सोयीच्या ठिकाणी ठेवायचा आहे. केल्यावर, वाचक थेट कॅटलॉग वर जातात आणि त्यांचे पुस्तक शोधू शकतात.



#### 2. वाचन सामग्री साठी प्रवेश प्रदान करणे शक्य होते.

एखादे पुस्तक किंवा एखाद्या विषयाचे ई-बुक क्यू आर कोड सी लिंक करून हा क्यू आर कोड योग्य बुक शेल्फ वर ठेवू शकतो. स्कॅन केल्यावर वाचकाला एन कोड केलेल्या धुव्यावर पीडीएफ किंवा आपल्याला हवे असलेल्या सर्व मस्करासह लॅंडिंग पृष्ठावर पुनर्निर्देशित केले जाईल...

#### 3. ग्रंथालयाचा प्रचार करणे

जर आपण आपल्या ग्रंथालयाचा प्रचार करण्यासाठी प्रिंट मीडिया वापरत असो तर क्यू आर कोड वापरल्याने ती कृती करण्यायोग्य आणि ट्रॅक करण्यायोग्य होईल.



म्हणजेच आपण डायनॅमिक क्यू आर कोड तयार करू शकतो. याच्या मदतीने आपण आपल्या क्यू आर कोड च्या स्कॅनिंग क्रियाकलापाचा मागोवा घेऊ शकतो. एखाद्या ग्रंथालयाचा प्रचार करण्यासाठी तुम्ही किंवा कोड वापरू शकता असे काही मार्ग आहेत.

अ. वेबसाईट QR कोड तयार करून लायब्ररी वेबसाईटची लिंक करा.

आ. क्यू आर कोड तयार करून तुमच्या लायब्ररी आपला लिंक करा.

इ. क्यू आर कोड मध्ये सोशल मीडिया खात्याच्या लिंक द्या.

एकदा तुम्ही पेम्प्लेट तयार केल्यानंतर ते पॅम्प्लेट आणि ब्रोशरवर मुद्रित करू शकता. त्यामुळे, वाचकांना तुमच्या वेबसाईट किंवा आपला भेट देण्यासाठी वेब पत्ता मॅन्युअली टाईप करावा लागणार नाही अशा प्रकारे आपण रहदारी वाढवाल. शिवाय, ट्रेकिंग मुळे तुम्हाला विश्लेषणात्मक डेटा मिळू शकेल आणि उपयुक्त अंतर दृष्टी मिळविण्यास मदत होईल.

#### 4. ग्रंथालयाचे संपर्क तपशील मिळवणे

ग्रंथालयाचे संपर्क तपशील मिळवण्यासाठी, अभ्यासकांना सर्व तपशील व्यक्तीचलितपणे टाईप करावे लागतील. आणि मग ते त्यांच्या फोन बुक मध्ये जोडा. परंतु क्यू आर कोड सह, तुम्ही संपूर्ण प्रक्रिया सुलभ करता. क्यू आर कोड मध्ये संपर्क माहिती जोडू शकता. हे संबंधित व्यक्तीचे नाव, पदनाम, संपर्क क्रमांक आणि ईमेल पत्ता असू शकतो आणि Vcard QR तयार करा.

त्यानंतर तुम्ही हा क्यू आर कोड वाचकांच्या सदस्यत्व कार्डावर प्रिंट करू शकता. स्कॅन केल्यावर, सर्व संपर्क माहिती वाचकांच्या स्मार्टफोनमध्ये स्वयंचलितपणे जतन केली जाईल.



#### 5. ग्रंथालयातील किंवा कोड मनोरंजक घटक जोडू शकतो

तुम्ही त्यांच्या क्यू आर कोड मध्ये प्रश्नमंजुषा इनकोट करू शकता. एखाद्या विषयावर, लेखकावर, पुस्तकावर किंवा थीमवर असू शकते. किस्सा वाचायला सर्वांनाच आवडते आणि तुम्ही एक क्यू आर कोड मध्ये लिंक करू शकता. उदाहरणार्थ तुम्ही लेखकाबद्दल एक मनोरंजक तथ्य सांगू शकता आणि पुस्तकांच्या कपाटावर लेखकांच्या पुस्तकांविरुद्ध हा किंवा कोड ठेवू शकता.

तुम्ही क्यू आर कोड सह गेम देखील खेळू शकता उदाहरणार्थ तुम्ही क्यू आर कोड स्कॅव्हेजर हंट गेम खेळू शकता. महत्त्वाची माहिती देणाऱ्या ऑडिओ फायदेशीर तुम्ही किंवा कोड लिंक करू शकता.

#### 6. ग्रंथालयात नवीन बदल प्रदान करणे

ग्रंथालयामध्ये कोणतेही नवीन बदल प्रदान करण्यासाठी तुम्ही क्यूआर कोड तयार करू शकता. शिवाय, तुम्ही ग्रंथालयाच्या नियमांची माहिती किंवा आर कोड मध्ये ठेवू शकता. यासाठी तुम्ही रिच टेक्स्ट क्यूआर कोड तयार करू शकता.

याशिवाय, सदस्यत्व फॉर्म आणि फीडबॅक फॉर्म मध्ये हट प्रवेश प्रदान करण्यासाठी किंवा कोड वापरू शकता. क्यू आर कोड मध्ये फॉर्म लिंक इन कोड करा. पुस्तकांसाठी काउंटर वर ठेवा.

अशाप्रकारे लायब्ररीमध्ये क्यू कोड ची विविध वापरांसाठी आवश्यकता असते. याव्यतिरिक्त पेमेंट सुलभ करण्यासाठी किंवा आर कोड वापरू शकतो. क्यू आर कोड आधारित देयके सामान्यता वापरली जातात आणि ती जलद आणि सुरक्षित असतात. तसेच लायब्ररी आर्किटेक्चर क्यू आर कोड सह डिझाईन करू शकतात.

## क्यू आर कोड चे फायदे



1. कोड हे तंत्रज्ञान वेगवान आहे.
2. क्यू आर कोड मोठ्या प्रमाणात डेटा संग्रहित करते..
3. ग्रंथालयात क्यू आर कोड तंत्रज्ञानाचा अनुप्रयोग विनामूल्य आणि वापरण्यास सोपे आहेत. तसेच अनेक प्रकारचे माध्यम एम्बेड करतात.
4. क्यू आर कोड मध्ये चित्र किंवा लोगो समाविष्ट करता येतो.
5. ग्रंथालय वापरकर्त्यांमधील माहिती साक्षरता आणि तंत्रज्ञान वाढविण्यात देखील क्यू आर कोड उपयुक्त आहेत.
6. वेब - ओ पी एस सी डिजिटल संस्था सारख्या ग्रंथालय संसाधनांसह वापरकर्त्यांना कनेक्ट करण्यास सक्षम करते.
7. ग्रंथालय वापर करता समुदाय मध्ये आणि लायब्ररीची उद्दिष्टे साध्य करण्यासाठी क्यू आर कोड चा उपयोग होतो.

## निष्कर्ष

“शैक्षणिक ग्रंथालयांमधील ए सी आर एल २०१० टॉप ट्रेंड” यांचा असा अंदाज आहे. की “मोबाईल डीव्हाइसची स्फोटक वाढ आणि अनुप्रयोग नवीन सेवा चालवतील”. (एसीआरएल, २०१०) क्यू आर कोड चा व्यापक वापर नक्कीच एक भाग असू शकतो. परंतु आपण ही सावधगिरी बाळगली पाहिजे की हे तंत्रज्ञान केवळ नवीन वापरण्याच्या नावासाठी वापरले जाऊ नये.

ग्रंथालयांनी विविध क्षेत्रात हे तंत्रज्ञान अमलात आणण्यासाठी एक पाऊल पुढे उचलले पाहिजे आणि त्यांच्या वापरकर्त्यांना प्रोत्साहित केले पाहिजे. ग्रंथालयाच्या भविष्याच्या विस्तारात क्यू आर कोड हे निर्णायक भूमिका बजावते, परंतु हे पण माहित असणे गरजेचे आहे की भविष्यातील वाढीसाठी आणि क्यू आर कोड च्या दीर्घ टिकाऊ पणासाठी ग्रंथालयाने प्रदान केलेल्या सेवांची ‘गुणवत्ता’ खूप महत्त्वाचे आहे.

## संदर्भ

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**विद्यार्थी जीवनात ग्रंथालयांचे महत्त्व****राजलक्ष्मी रणजीत कदम**

बी.ए. भाग II

कमला कॉलेज कोल्हापूर

**सार:-**

विद्यार्थी जीवनात शिक्षणाला पूरक असे साहित्य असणे गरजेचे असते ग्रंथालय हे पुस्तकांचे दालन विद्यार्थ्यांना नवे विचार करण्यासाठी समृद्ध करते ग्रंथालयांमध्ये पुस्तक त्यांच्या असलेल्या प्रश्नांना उत्तर देण्यास महत्त्वाचे ठरतात पूर्वपारपासून वाचनाची आवड आपल्यात निर्माण व्हावी यासाठी प्रयत्न केले गेले आहेत वाचनाने माणूस समृद्ध होतो हे निश्चित

**की वडर्स:-**ग्रंथालय, विद्यार्थी जीवन, पुस्तकांचे व्यवस्थापन, ग्रंथ नियतकालिके, ग्रंथ साहित्य

**प्रस्तावना:-**

ग्रंथ हेच गुरु ग्रंथालय म्हणजे सर्वसाधारणपणे सर्व प्रकारचे छापील तसेच हस्तलिखित माहिती साधने एकत्र ठेवण्याची जागा होय विद्यार्थी जीवनात ग्रंथालय महत्त्वाची भूमिका पार पाडत आहेत वाचनाची आवड आता थोडीफार प्रमाणात कमी होत असताना दिसताना अनेक मुलं ग्रंथालयांमध्ये जाऊन त्यांच्या आवडीचे पुस्तके वाचण्यास घेत आहेत

**उद्दिष्ट :-**

विद्यार्थी जीवनात ग्रंथालयाचा होत असलेला वापर व त्या वापरामुळे पुढील आयुष्यावर होणारे परिणाम यांचा शोध घेण्यासाठीचा प्रयत्न या संशोधन निबंधामध्ये केला आहे.

**नमुना निवड**

या संशोधन निबंधासाठी कमला कॉलेज मध्ये 11 वी व 12 वी आर्ट्स, कॉमर्स व सायन्स या वर्गांमध्ये शिकत असलेल्या एकूण 1100 पैकी 25 % म्हणजे 275 विद्यार्थिनींकडून मुलाखत घेऊन व प्रश्नावली भरून संशोधन निष्कर्ष काढले आहेत.

**निरीक्षण व अनुमान :-**

- ❖ विद्यार्थिनींचा अभ्यास करत असताना असे निदर्शनास आले कि, 50% पेक्षा जास्त विद्यार्थिनी या ग्रंथालयाचा वापर करताना दिसून येतात.
- ❖ आर्ट्स शाखेकडील विद्यार्थिनींची पसंती अवांतर वाचन म्हणजे कथा, कादंबरी, चरित्र या साहित्य प्रकारचे साहित्य जास्त वाचाताना दिसून येत आहे.
- ❖ कॉमर्स शाखेकडील विद्यार्थिनी स्पर्धा परिक्षा व संदर्भ पुस्तके वाचन करताना अढळून येतात.
- ❖ सायन्स शाखेकडील विद्यार्थिनी सायन्स अधारित परिक्षा जसे NEET, JEE, Medical Entrance या परिक्षांसाठी ग्रंथालयाचा वापर करताना आढळून येत आहेत .

**निष्कर्ष**

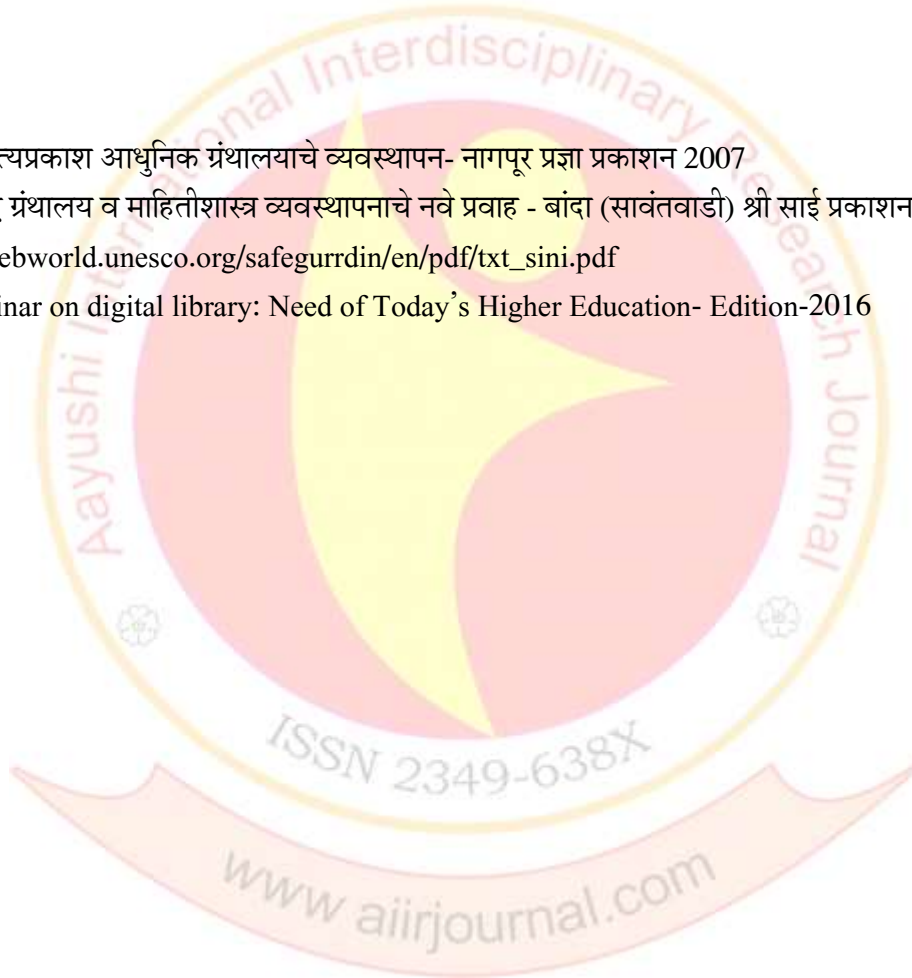
वरील अभ्यासातून असे दिसून येते कि विद्यार्थी जीवनामध्ये ग्रंथालयाचा वापर करण्याची सवय विद्यार्थिनींमध्ये रुजवणे खूप गरजेचे आहे. त्यासाठी वेगवेगळे उपक्रम राबवून विद्यार्थिनींना वाचनासाठी प्रवृत्त करणे गरजेचे आहे.

डॉक्टर बाबासाहेब आंबेडकर ,लोकमान्य टिळक अशा अनेक विचारवंत ज्यांनी आपला खूपसा वळ या वाचनांमध्ये या ग्रंथालयांमध्ये घालवला समृद्ध जीवनाला बनवत असताना एखाद्याला सोबती आणि मित्र असणे गरजेचे आहे आणि सोबती आणि मित्राची भूमिका जर पुस्तके पार पाडत असतील तर त्याच्या सारखा दुसरा मित्र नाही योग्य वयात योग्य पुस्तक वाचायला मिळाले तर आयुष्यात भविष्यात नेमके काय करावे हे लक्षात यायला लागतं योग्य परिस्थितीत योग्य वाचन रोज वाचनाने

कल्पकतेला चालना मिळते कळत नकळत या धावपळीच्या युगांमध्ये प्रत्येका जवळ शब्दसाठा कमी होत चाललाय कारण माणसांना टायपिंग करायला वेळ आहे मात्र बोलायला वेळ नाही या सगळ्याचा अनुषंगाने विचार केला गेला तर वाचन कमी झाल्यामुळे शब्दसाठा कमी होत चाललाय आजकाल मोबाईलवर सगळं साहित्य उपलब्ध असून देखील त्यातली कितपत सत्ता हा पडलेला मोठा प्रश्नच आहे त्या अनुषंगाने प्रत्येक शाळा कॉलेजमध्ये असलेले ग्रंथालय शिक्षण व्यवस्थेमध्ये असलेला महत्त्वाचा भाग वाटतो कारण प्रत्येक वेळेस आपण एखाद्या गुणपत्रिका वर एखाद्या विद्यार्थ्यांचे आयुष्य ठरवतो मात्र समृद्ध विद्यार्थी तोच जो आपल्या जीवनामध्ये काहीतरी करण्याचे ध्येय निश्चित करतो. ध्येय निश्चिती नेमकी कशी येते तर आपल्याला हे लक्षात आलं पाहिजे की आपण कोणाचा आदर्श ठेवून पुढे चालतो नेमकं आपण काय लक्षात आणतोय आपल्या डोक्यात नेमकं काय चालू आहे मात्र आज पुस्तकांच्या दुनिया मध्ये हरवलेला माणूस जगात कधीच हरत नाही कारण पुस्तकांच्या दुनियेमध्ये जिंकणारा माणूस जग जिंकण्याची ताकद ठेवतो ग्रंथालय हे एक असे झाले नाही जिथे पुस्तके नाही तर जिवंत विचारधारा वाहत असते ग्रंथ कादंबरी नियतकालिके मासिके वृत्तपत्रे ह्या सगळ्यामुळे नेमकं काय सुरू आहे समाजाचा वास्तव काय आहे हे लक्षात यायला लागले आणि यातूनच विद्यार्थ्यांचे जीवन समृद्ध होत आहे त्यामुळे ग्रंथालय हे निश्चित महत्त्वाची भूमिका बजावत आहे.

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## शैक्षणिक व्यवस्थापनातील नवीन सेवा विकासामध्ये वापरलेले तंत्रज्ञानाची भूमिका

डॉ.लोखंडे समता ऋषिकांत

सहाय्यक प्राध्यापक, शिक्षणशास्त्र विभाग

डॉ. बाबासाहेब आंबेडकर मराठवाडा विद्यापीठ, औरंगाबाद.

## सारांश

एकविसाव्या शतकातील सर्वात मोठी क्रांती म्हटली तर आयसीटीचा सर्वच क्षेत्रात वाढलेला वापर हा होय. ज्यामुळे शासनाने देखील आयसीटीच्या वापराच्या माध्यमातून विविध शासकीय योजना एका लिंक वर आधार कार्ड नंबरची जोडण्याचा व आधार कार्ड बँक खात्याशी जोडण्याचा उपक्रम हाती घेऊन गतिमान प्रशासन व सुसज्ज शासन व्यवस्थेच्या दिशेने टाकलेले पाऊल होय.

शासनाने माहिती तंत्रज्ञानाच्या माध्यमातून सामान्य जनतेस शासनाच्या सर्व सेवा माफक दरात पारदर्शक व जलद गतीने मिळवण्यासाठी ई प्रशासन प्रकल्प धोरण डॉ. विजय भटकर यांच्या अध्यक्षतेखाली नेमण्यात आलेल्या तज्ञ समितीच्या शिफारसी वरून दिनांक 23 सप्टेंबर 2011 ही प्रशासन धोरण जाहीर केले. त्यांच्या प्रस्तावनेत म्हटले आहे की, महाराष्ट्र शासन भारतात ई प्रशासन व माहिती आणि तंत्रज्ञानाचा पाया रचना-यापैकी एक आहे. तसेच नागरिकांच्या गरजा आणि उच्च प्रतीचे सेवा पुरविणाऱ्या ई प्रशासन बाबतचे कार्यक्रम राबविण्यात आघाडीवर आहे. ह्या ई प्रशासन धोरणाची ध्येय व उद्दिष्टे स्पष्टपणे नमूद केलेले आहे की, शासनाने कामकाज अधिक कार्यक्षम आणि कागद विरहित करणे, तसेच नागरिकांना विविध सेवा ऑनलाईन पद्धतीने पुरविणे व ई प्रशासनाकडून मोबाईल प्रशासनाकडे वाटचाल करणे ही आहेत. हे धोरण महाराष्ट्र राज्यातील केंद्र व राज्य शासनाच्या कायदानुसार स्थापन केलेल्या संस्था आणि अशा संस्था ज्यांच्या रचनेत आणि प्रशासनात सरकारचे नियंत्रण मुख्य असेल व केंद्र अथवा राज्य शासनाच्या मालकीच्या असतील किंवा त्यांच्या नियंत्रणाखाली असतील व शासनाकडून इतर प्रत्यक्ष व अप्रत्यक्ष लाभ मिळालेल्या संस्था तथा सार्वजनिक हिताचे कार्य करणाऱ्या संस्था या सर्वांना लागू राहिल.

त्याचप्रमाणे आयसीटीच्या वापरातून शैक्षणिक गुणवत्ता विकास करणे हे भारत सरकारचे महत्त्वाचे धोरण आहे. आयसीटीचा शिक्षणातील वापर संदर्भात 23 मार्च 2012 ला नॅशनल पॉलिसी आणि इन्फॉर्मेशन अँड कम्युनिकेशन टेक्नॉलॉजी इन स्कूल एज्युकेशन जाहीर केली आहे.

सदरील धोरणाच्या अनुषंगाने स्कूल एज्युकेशन अँड स्पोर्ट्स डिपार्टमेंट ने महाराष्ट्रातील एक ते बारा पर्यंत अध्ययनार्थींची माहिती एकत्रित करण्यासाठी विद्यार्थी डाटाबेस (सरल) पोर्टल विकसित केले आहे तसेच बालभारतीच्या संकेतस्थळावर अध्ययनार्थींसाठी पुस्तके व इतरही माध्यमातून साहित्य उपलब्ध करून दिले आहे. ऑनलाईन शिष्यवृत्ती अर्ज भरण्यासाठी देखील शासनाच्या संकेतस्थळावर लिंक उपलब्ध करून दिली आहे.

सदर पेपर विकसनासाठी विविध शासकीय दस्तावेज, ऑनलाईन शासकीय संकेतस्थळावरून मिळालेली माहिती तसेच विविध मासिके यांच्यामार्फत मिळालेल्या माहितीचा वापर केला आहे म्हणजेच दुय्यम माहिती स्रोतांचा वापर करण्यात आला असून वर्णनात्मक सर्वेक्षण पद्धतीचा वापर केला आहे.

## प्रस्तावना

आयसीटीच्या वापरामुळे अध्ययनार्थी गुंतून राहतात. टेक्निकल प्रॅक्टिकल अँड क्रिटिकल थिंकिंग म्हणजे टेक्नॉलॉजीच्या वापराच्या हेतूने गुंतलेले वाटतात. त्यांच्याबरोबर अनेक प्रात्यक्षिक कृती ते करत असतात त्यासाठी सक्षम होत राहतात. उदाहरणार्थ संगणकाचा वापर करीत असल्याने ते एखाद्या गोष्टीची अधिक माहिती मिळवण्यासाठी ऑनलाईनचा वापर करतात. संशोधन पब्लिशिंग अँड प्रेडिक्शन चे दैनंदिन कामे करतात. त्यासंदर्भात चिकित्सकपणे वापर करतात, आयसीटीच्या वापरा संदर्भात एक घटना विकसित करतात तसेच त्यातून स्वतःचे मूल्यमापन देखील करतात. आज आयसीटी चा वापर कला शाखेतील विषयापासून विज्ञान शाखेतील विषयांपर्यंत केला जात आहे. आयसीटीचा वापर करून विकेंद्रीत असलेल्या



अध्ययनार्थिना त्यांचे ग्रुप वापर करून अध्ययन अध्यापन हे अधिक चांगले होऊ शकते शिवाय केंद्र शासनाने म्हणजेच अध्ययन आरतीच्या व्यक्तिमत्व विकासासाठी आयसीटीची भूमिका महत्त्वाची ठरते.

आयसीटीच्या माध्यमातून अनेक बाबींचे गोष्टींचे जतन सीडी, मोबाईल, कॅमेरा, हार्ड डिस्क यासारख्या साधनांचा वापर केला जातो हे जतन केलेले वाचन साहित्य प्रसंगी अध्ययन अनुभूती देण्यासाठी ज्ञानाचे स्रोत ठरतात व उपलब्ध करून देतात. शिवाय ऑनलाइन पद्धतीने ज्ञानाचे स्रोत मोठ्या प्रमाणात उपलब्ध होत आहेत. इ लायब्ररी, इबिस्को, inflibnet, डिजिटल लायब्ररी, शोधगंगा, गुगल स्कॉलर, शासनाचे माहिती देणारे पोर्टल, रेडिओ, दूरदर्शन वरून प्रसारित होणारे विविध शैक्षणिक कार्यक्रम यामुळे ज्ञान स्रोतांमध्ये मोठ्या प्रमाणात वाढ झाली असून त्याचा वापर करून विद्यार्थी स्वतः ज्ञान संपन्न होण्यासाठी करत आहे थोडक्यात सांगायचे म्हणजे आयसीटीच्या वापरामुळे ज्ञानाचे स्रोत मोठ्या प्रमाणात उपलब्ध होत आहेत.

वाढत्या लोकसंख्येबरोबर शिक्षणाचा प्रचार व प्रसार यातून शैक्षणिक गुणवत्ता विकसित करण्यासाठी आयसीटी हे एक प्रभावी माध्यम आहे. ज्ञानाचे जलद संक्रमण संवर्धन व संरक्षण करण्यासाठी आयसीटीच्या माध्यमांचा योग्य प्रकारे शैक्षणिक व्यवस्थापनासाठी उपयोग केल्यास गुणवत्ता विकास निश्चित होईल यात शंका नाही त्यासाठी गरज आहे ती तज्ञांची, योग्य व पुरेशा भौतिक सुविधा शैक्षणिक संस्थांना पुरविण्याची. इंग्रजी भाषेबरोबरच इतर भाषेतूनही माहिती इंटरनेटच्या माध्यमातून मिळाल्यास निश्चितपणे आयसीटीचा शैक्षणिक व्यवस्थापनाच्या कार्यासाठी वापर वाढेल यात शंका नाही, तसेच इंग्रजी बरोबरच इतर भाषेतूनही शैक्षणिक कार्यक्रम तयार करण्यावर भर दिल्यास त्याचा फायदा हा निश्चित भाषेच्या विकासाबरोबरच विद्यार्थी विकासासाठी देखील होईल. म्हणजेच आयसीटी हा आजच्या गतिमान शिक्षण पद्धतीचा आधारस्तंभ म्हणून निर्माण होत आहे. समाजाच्या व देशाच्या विकासासाठी आयसीटी चा वापर प्रभावीपणे शैक्षणिक व्यवस्थापनात केल्यास निश्चितपणे कौशल्यपूर्ण देशाच्या निर्मितीचे ध्येय धूर नाही.

### संशोधन पेपरची उद्दिष्टे

- 1) आयसीटी संकल्पना स्पष्ट करणे
- 2) शैक्षणिक व्यवस्थापनातील आयसीटी वापराची गरज व महत्त्व स्पष्ट करणे
- 3) आयसीटीच्या शैक्षणिक व्यवस्थापन व विद्यार्थी गुणवत्ता विकासासाठी वापरा संदर्भातील शासनाच्या प्रयत्नांचा आढावा घेणे
- 4) आयसीटीच्या शैक्षणिक व्यवस्थापनाच्या वापराच्या संदर्भात मुख्याध्यापकांची भूमिका स्पष्ट करणे
- 5) आयसीटी शैक्षणिक व्यवस्थापनाच्या वापरा संदर्भातील मर्यादा स्पष्ट करणे
- 6) आयसीटी शैक्षणिक व्यवस्थापनात वापर वाढावा यासाठी शिफारसी सुचवणे

### संशोधनाची पद्धती

सदर पेपर विकसनासाठी विविध शासकीय दस्तऐवज, ऑनलाइन शासकीय संकेतस्थळावरून मिळालेली माहिती तसेच विविध मासिके यांच्यामार्फत मिळालेल्या माहितीचा वापर केला आहे. म्हणजेच दुय्यम माहिती स्रोतांचा वापर करण्यात आला आहे वर्णनात्मक सर्वेक्षण पद्धतीचा वापर केला आहे.

### नवीन सेवा विकासात तंत्रज्ञानाची भूमिका

1) शासनाच्या ध्येय धोरणांची अंमलबजावणी करण्यासाठी :- शालेय प्रशासन व व्यवस्थापन इ प्रशासनाच्या दृष्टीने चालविता येण्यासाठी शासनाने पावले उचलली असून त्या अनुषंगाने विद्यार्थी डाटाबेस विद्यार्थी पोर्टल ऑनलाइन पद्धतीने सुरू केले आहे. महाराष्ट्र शासनाच्या स्कूल एज्युकेशन अँड स्पोर्ट्स डिपार्टमेंटने देखील महाराष्ट्रातील सर्वच एक ते बारा पर्यंत अध्ययन करणाऱ्या अध्ययनार्थींची माहिती संग्रहित करण्यासाठी विद्यार्थी डाटाबेस पोर्टल विकसित केले आहे. विद्यार्थी डाटाबेस पोर्टल द्वारे विद्यार्थ्यांची वैयक्तिक माहिती संग्रहित केली जाते आहे. ज्यामुळे अध्ययनार्थींना एक विशिष्ट संकेतांक देऊन ती

माहिती विद्यार्थ्यांच्या संपूर्ण शैक्षणिक कार्यकाळात वापरता येईल ज्यामुळे पुढील टप्प्यात अध्ययनार्थींना दिल्या जाणाऱ्या विविध शिष्यवृत्ती त्यांची कौटुंबिक माहिती आणि आरोग्यात्मक बाबी यासारख्या इतर बाबींना संरक्षण दिले जाऊ शकते त्यात मुख्याध्यापक वर्गशिक्षक दोघांना देखील विद्यार्थी संदर्भात माहिती अपडेट करावी लागते अध्यापकाला फक्त त्याच्या कामाच्या संदर्भातील माहिती भरता येते. मुख्याध्यापकाला विद्यार्थी व संपूर्ण शाळेच्या संदर्भात माहिती अपडेट करता येते ती माहिती पोर्टलवर ऑनलाईन अचूक भरण्याची जबाबदारी शाळेचा प्रमुख म्हणून मुख्याध्यापकांचीच आहे म्हणजेच शासनाने ध्येय धोरणांची अंमलबजावणी करून सुसज्ज व गतिमान प्रशासनासाठी आयसीटी चा वापर शैक्षणिक व्यवस्थापनात करणे महत्त्वाचे आहे

2) **बायोमेट्रिक पद्धतीने कर्मचारी व विद्यार्थी उपस्थिती नोंद:-** महाराष्ट्र शासनाच्या ई प्रशासन धोरणाने सर्व कार्यालयांमध्ये बायोमेट्रिक हजेरीची पद्धत अनिवार्य करण्याबाबत मार्गदर्शन केलेले आहे त्यानुसार इतर कार्यालयांबरोबरच बऱ्याच शालेय कार्यालयात देखील बायोमेट्रिक मशीन लावण्यात आले आहे. त्यांच्या माध्यमातून कर्मचारी उपस्थितीची नोंद घेतली जात आहे त्याचप्रमाणे विद्यार्थ्यांची सुद्धा बायोमेट्रिक पद्धतीने उपस्थिती नोंद घेता येऊ शकेल व विद्यार्थी उपस्थिती नोंदण्यासाठी लागणाऱ्या वेळ वाचेल व तो अध्यापन कार्यासाठी वापरता येईल. बायोमेट्रिक यंत्र संगणकाला जोडले जात असल्याने ते जतन आपोआप केले जाईल.

3) **संगणकाद्वारे विद्यार्थ्यांशी संबंधित विविध प्रकारच्या माहितीचे संकलन व व्यवस्थापन:-** अध्ययनाची संबंधित विविध प्रकारच्या माहितीचे उदाहरणार्थ त्यांची शैक्षणिक प्रगती त्यांची आर्थिक परिस्थिती त्यांची सामाजिक वर्गवारी त्यांचे राहण्याचे क्षेत्र पालक इत्यादी संदर्भातील माहिती संगणकाद्वारे जतन करता येते.

4) **ई- ग्रंथालय:-** आज इंटरनेटवर माहितीचा खजिना आहे आपल्याला हवी असलेली माहिती आपणाला इंटरनेटच्या माध्यमातून मिळवता येते शालेय अध्ययनार्थींसाठी आवश्यक असलेली माहिती मिळवण्यासाठी विविध प्रकारच्या शैक्षणिक वेबसाईटवरून माहितीचे संकलन करून ग्रंथालय संगणकीकरण करता येते आजच्या इंटरनेटच्या माध्यमातून ऑनलाईन ग्रंथालय उपलब्ध आहेत. तसेच अनेक प्रकारचे ऑनलाईन जनरल, पुस्तके उपलब्ध आहेत. त्यांचा वापर अध्ययनार्थींची वाचन समृद्ध करण्यासाठी करता येईल

5) **CCTV कॅमेऱ्याच्या प्रभावी शालेय व्यवस्थापनासाठी वापर :-** आज जवळपास बऱ्याच कार्यालयात तसेच दुकानात तसेच सार्वजनिक व गर्दीच्या स्थळी देखील CCTV कॅमेरे बसवलेले आढळतात. त्यामुळे बाहेर काय घडामोडी घडत आहेत त्याची माहिती एका जागेवरून दिसते. बऱ्याच कालावधीपर्यंत त्या माहिती जतन करता येते. त्यामुळे शालेय व्यवस्थापन तसेच वर्ग व्यवस्थापन ICT कॅमेऱ्याच्या वापरा वापर करता येईल.

6) **ऑडिओ व्हिडिओ व्याख्यानांचे संग्रहीकरण व सादरीकरण :** ICT चा वापर करून विविध तज्ञांची व्याख्यान ऑडिओ व्हिडिओ पद्धतीने रेकॉर्ड करून अध्ययनार्थींच्या विकासासाठी सादर करता येते. त्यामुळे त्यांच्या तज्ञतेचा फायदा ICTचा वापर अनेक विद्यार्थ्यांपर्यंत पोहोचविता येतो.

7) **वेबसाईटवरून शालेय उपक्रम व कार्याची माहिती :-** आज बहुसंख्या शैक्षणिक संस्थांनी वेबसाईट विकसित केल्या आहेत. त्यांच्या माध्यमातून शैक्षणिक उपक्रम अभ्यासक्रम व कार्यक्रमांच्या माहितीचा प्रचार व प्रसिद्धी त्या करतात. त्यामुळे एका शाळेशी संबंधित माहिती कुणालाही सहज मिळते. 8) **मेसेज व मेल द्वारा पालकांशी संपर्क**

शाळेच्या चालणाऱ्या विविध कृतींची माहिती पालक आपल्या पाल्याच्या शैक्षणिक प्रगतीच्या बाबतीत जागरूक होत आहे. त्यामुळे त्यांच्या पाल्याच्या प्रगतीची माहिती मेसेज व मेलच्या माध्यमातून पालकांना देता येते. त्यामुळे आपला पाल्य शाळेत काय करीत त्याची त्यांना जाणीव होते.

9) **विद्यार्थी विकास :-** ICT वापरामुळे अध्ययनार्थी हे गुंतून राहतात. Technical Practical & Critical Thinking म्हणजे Technology वापरण्याच्या हेतूने गुंतलेले वाटतात. त्यांच्याबरोबर अनेक प्रात्यक्षिक कृती ते करत असतात. त्यासाठी सक्षम होत असतात. उदा. संगणकाचा वापर करीत असल्याने, ते एखाद्या गोष्टीची माहिती मिळवण्यासाठी ऑनलाईन चा वापर करतात. संशोधन Publishing and Prediction चे दैनंदिन कामे करतात. त्या संदर्भात चिकित्सकपणे विचार करतात. ICT वापर

संदर्भात एक घटना विकसित करतात. तसेच त्यातून स्वतःचे मूल्यमापन देखील करतात. आज ICT चा वापर कला शाखेतील विषयापासून विज्ञानातील विषयांपर्यंत केला जात आहे. ICT चा वापर करून विकेंद्रीत असलेल्या अध्ययनार्थीना त्यांचे ग्रुप वापर करून त्यांचे अध्ययन अध्यापन हे अधिक चांगले होऊ शकते. शिवाय केंद्र शासनाने म्हणजे अध्ययनार्थींच्या व्यक्तीमत्त्व विकासासाठी ICT ची भूमिका महत्त्वाची ठरते.

10) **विद्यार्थी प्रवेशासाठी ICT चा वापर :-** अध्ययनार्थींच्या प्रवेशासाठी सॉफ्टवेअर तयार करून ऑनलाईन प्रवेश केले जातात. प्रवेशासाठी पात्र असलेल्या अध्ययनार्थींचे गुणवत्ता यादीतून प्रवेश निश्चित करता येते. ज्या शाळात प्रवेशासाठी जास्त प्रवेशाच्छुक असतात. तेथे या पद्धतीने प्रवेश केले जाऊ शकतात.

11) **ज्ञानाच्या स्रोतांची उपलब्धता :-** ICT च्या माध्यमातून अनेक बाबींचे गोष्टींचे जतन C.D. Mobile, Camera, Hard Disk यासारख्या साधनांचा वापर करून केल्या जाते. ते जतन केलेले प्रसंग बाबी अध्ययनार्थींच्या अध्ययन अनुभूती देण्यासाठी ज्ञानाचे स्रोत ठरतात व उपलब्ध करून देता येतात. शिवाय ऑनलाईन पद्धतीने ज्ञानाचे स्रोत मोठ्या प्रमाणात उपलब्ध आहेत. Google, e-Library, Ebsco, infolibnet Digital Library, Shodh Ganga, Google, Scholar, शासनाची माहिती देणारे पोर्टल, रेडिओ, दूरदर्शन करून प्रसारित होणारे विविध शैक्षणिक कार्यक्रमांमुळे ज्ञानाचे स्रोत मोठ्या प्रमाणात अध्ययनार्थींना उपलब्ध होत असून त्यांच्या वापर करून अध्ययनार्थी स्वतः ज्ञानसंपन्न होण्यासाठी करत आहे. थोडक्यात सांगायचे म्हणजे वापरामुळे ज्ञानाचे स्रोत मोठ्या प्रमाणात उपलब्ध होत आहेत.

12) **ICT च्या वापराने विद्यार्थी विकास साधण्यासाठी शासनाकडून केले जाणारे प्रयत्न :-** ICT च्या माध्यमातून विद्यार्थींची शैक्षणिक गुणवत्ता वाढावी यासाठी शासन देखील मोठ्या प्रमाणात प्रयत्न करीत आहेत. SWAYAM हा शैक्षणिक पोर्टलवर इयत्ता नववी पासून ते पदवीत पर्यंतच्या शिक्षणक्रमाच्या संदर्भात तज्ञ अध्यापकांसोबत आंतरक्रियात्मक अध्ययन अध्यापन व्याख्यान दिले जाते. सदरील अध्यापन हे दृकश्राव्य तसेच छापील स्वरूपात असून त्यावर आधारित स्वयं मूल्यमापनासाठी स्वाध्याय देखील दिले आहेत. काही आशय संदर्भात अध्ययनार्थींना शंका असल्यास वा त्यांचे आकलन न झाल्यास ऑनलाईन डिस्कशन फोरम देखील तयार करण्यात आलेले असून त्यांच्या माध्यमातून अध्ययनार्थींच्या शंकांचे निरसन केले जाते.

ई पाठशाला या पोर्टलच्या माध्यमातून अध्ययनार्थींना साठी E- Text book, Supplementary book, e resource उपलब्ध करून दिले आहेत. तसे शिक्षकांसाठी e-textbook, teaching instruction, learning outcomes, periodicals and journals, circular resource and e resource उपलब्ध करून दिले आहेत. तसेच पालकांसाठी e textbook, curricular resource, learning outcomes and e resource आहे.

तसेच महाराष्ट्र शासनाने देखील e balbharti पोर्टलच्या माध्यमातून e-book library उपलब्ध करून दिली असून तेथे इयत्ता पहिली ते आठवी पर्यंतचे अध्ययन साहित्य उपलब्ध करून दिले आहे. त्याचा लाभ निश्चितच अध्ययनार्थींच्या गुणवत्ता विकासासाठी होण्यास मदत होईल. तसेच ऑनलाईन शिष्यवृत्ती पोर्टल द्वारे शिष्यवृत्ती योजना राबवून विद्यार्थी कल्याण व विकासाच्या दिशेने मोठे पाऊल उचलले आहे.

### शालेय व्यवस्थापनात संगणकाचा वापर करण्यासाठी शिक्षकांची भूमिका

- 1) शाळेच्या मुख्याध्यापकांवर शाळेमध्ये ICT च्या वापराबाबत मार्गदर्शन करण्याची महत्त्वाची जबाबदारी आहे.
- 2) ICT वापरा संबंधित शाळेला एक मॅप तयार करणे.
- 3) आय सी टी च्या वापरासंदर्भातील योग्य व्यक्तीची निवड करणे इतरांना प्रशिक्षण देणे शंकांचे निरसन करणे
- 4) आपले स्वतःचे आयसीटी ज्ञान अद्यावत ठेवून विविध अडचणी हाताळण्याच्या बाबत मार्गदर्शन करणे.
- 5) अध्यापन व विद्यार्थी सेवा तसेच कार्यालयीन व्यवस्थापन व आर्थिक व्यवस्थापन यासाठी योग्य सॉफ्टवेअर तयार करून घेणे व त्याचा वापर करून घेणे.
- 6) शाळेच्या बजेटमध्ये आयसीटी खर्चाबाबतची तरतूद करणे.



- 7) शाळेतील सर्व कर्मचारी अध्यापक व अध्ययनार्थी यांना आयसीटीचा वापर करायला लावणे त्यासाठी त्यांना आवश्यक असल्यास प्रशिक्षण देणे व वापराबाबत प्रेरणा देणे.
- 8) आयसीटी वापरा संबंधात तंत्रज्ञानाच्या शिफारशी लक्षात घेऊन त्यांची पूर्तता आपल्या शाळेच्या संदर्भात करणे.
- 9) आयसीटीच्या संदर्भात आधुनिक बदलाच्या प्रवाहाबरोबरच राहून शाळेला आयसीटीच्या वापर जास्तीत जास्त फायदा कसा देईल याचा विचार करणे.
- 10) शाळेत कर्मचारी व विद्यार्थी यांच्यासाठी इंटरनेटची सुविधा उपलब्ध करून देणे.
- 11) अध्ययनार्थिना आवश्यक त्या माहितीची प्रिंट घेण्यासाठी प्रिंटरची व्यवस्था करणे.
- 12) शाळेत आयसीटी वापरासाठीच्या भौतिक सुविधा उपलब्ध करून देणे.
- 13) शासनाने बंदी आणलेल्या वेबसाईट कुणीही पाहणार नाही याची काळजी घेणे.
- 14) शैक्षणिक माहिती असणाऱ्या वेबसाईट वापरण्यासाठी प्रोत्साहन देणे.
- 15) प्रत्येक अध्यापकाकडून अध्यापनात आयसीटीचा वापर होण्यासाठी प्रोत्साहन व मार्गदर्शन करणे.
- 16) प्रत्येक कार्यालयीन कर्मचारी वर्गाकडून कार्यालयीन कामासाठी आयसीटीचा वापर होण्यासाठी प्रोत्साहन व मार्गदर्शन करणे
- 17) शाळेचे संगणक लॅबची आवश्यकतेनुसार अध्ययवतीकरण करणे

**आयसीटीच्या शालेय व्यवस्थापनात वापर करण्यासाठी खालील प्रकारची व्यवस्था शाळेत करणे आवश्यक आहे**

- 1) संगणक
- 2) digital cameras and digital video
- 3) cameras telephone fax machines
- 4) mobile telephone
- 5) video conferencing technology and closed a circuit television
- 6) data projector and electronic whiteboards
- 7) power supply
- 8) pen drive/ hard disc and other softwares
- 9) Internal services ISP internet service provider
- 10) wireless local loops Wi-Fi wireless connectivity

### **उपाय योजना**

आयसीटीचा शैक्षणिक व्यवस्थापनातील वापर अधिक वाढवा यासाठी खालील प्रमाणे उपाय योजना सुचविता येतील.

- 1) शिक्षणातून आयसीटी वापराबाबतचे प्रभावी प्रशिक्षण
- 2) शाळांना आयसीटी वापर संदर्भातील भौतिक सुविधांची उपलब्धता करून देणे
- 3) योग्य वापरण्याच्या संदर्भातील धोरणांची योग्य काटेकोरपणे अंमलबजावणी करण्यात कार्यवाही करणे
- 4) सामाजिक दृष्ट्या अयोग्य साईट शैक्षणिक संस्थेमध्ये वापरण्यास बंदी घालण्यात यावी.
- 5) आयसीटीच्यामुळे उपलब्ध होणारी माहिती ही इंग्रजी बरोबरच अन्य भाषेच्या माध्यमातून उपलब्ध करून देणे
- 6) आयसीटी वापरासाठी आवश्यक शैक्षणिक संस्थांमध्ये इंटरनेट जोडनी उपलब्ध करून देणे
- 7) विद्यार्थी संख्येनुसार संगणक सुविधा उपलब्ध करून देणे
- 8) आयसीटीच्या माध्यमातून आशय ज्ञानाचे सादरीकरण करण्यासाठी व पाठ तयार करण्याचे प्रशिक्षण अध्यापकांना देण्यात यावे यातून तज्ञांची नियुक्ती करण्यात यावी.

- 9) सर्व शैक्षणिक संस्थांना आयसीटीच्या अध्यापनात वापर करणे बंधनकारक करावे.
- 10) मुख्याध्यापकाना आयसीटीच्या शैक्षणिक व्यवस्थापनाच्या वापरा संदर्भात वेळोवेळी प्रशिक्षण देण्यात यावे.

यासारख्या अनेक उपाययोजना आयसीटीचा वापर शैक्षणिक व्यवस्थापनाच्या कार्यासाठी करण्याकरता येईल व त्यांच्या योग्य अंमलबजावणीतून शैक्षणिक व्यवस्थापन हे गतिमान होण्यास मदत होईल व अध्ययन अर्थीनचा गुणवत्ता विकास निश्चितपणे साप्ता येईल.

### समारोप

वाढत्या लोकसंख्येबरोबरच शिक्षणाचा प्रचार व प्रसार यातून शैक्षणिक गुणवत्ता विकसित करण्यासाठी आयसीटी हे प्रभावी माध्यम आहे. ज्ञानाचे जलद संक्रमण, संवर्धन व संरक्षण करण्यासाठी आयसीटीच्या माध्यमांचा योग्य प्रकारे शैक्षणिक व्यवस्थापनाच्या कार्यासाठी उपयोग केल्यास अध्ययनार्थींच्या गुणवत्ता विकास निश्चित होईल यामध्ये शंका नाही. त्यासाठी गरज आहे ती तज्ञांची, योग्य व पुरेशा भौतिक सुविधा शैक्षणिक संस्थांना पुरविण्याची, इंग्रजी भाषेबरोबरच इतर भाषेतून ही माहिती इंटरनेटच्या माध्यमातून मिळाल्यास निश्चितपणे आय सी टी चा शैक्षणिक व्यवस्थापनाच्या कार्यासाठी वापर वाढेल यात शंका नाही. तसेच इंग्रजीबरोबरच इतर भाषेतूनही शैक्षणिक कार्यक्रम तयार करण्यावर भर दिल्यास त्याचा फायदा हा निश्चित भाषेच्या विकासाबरोबरच अध्ययनार्थींच्या विकासासाठी देखील होईल. थोडक्यात सांगायचे म्हणजे आयसीटी हा आजच्या गतिमान शिक्षण पद्धतीचा आधारस्तंभ म्हणून निर्माण होत आहे. समाजाच्या व देशाच्या विकासासाठी आयसीटीचा वापर प्रभावीपणे शैक्षणिक व्यवस्थापनात केल्यास निश्चितपणे कौशल्य पूर्ण देशाच्या निर्मितीचे ध्येय धूर नाही.

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**नविन सेवा विकासामध्ये तंत्रज्ञानाचा वापर****Smita Kolekar**

Home Science Department

Kamala College, Kolhapur

**प्रस्तावना:**

सध्याचे युग हे माहितीतंत्रज्ञानाचे युग असल्याकारणाने ज्ञानार्जनाच्या साधनामध्ये झपाट्याने वाढ होते व मनुष्यसुद्धा ज्ञान मिळविण्यासाठी कोणत्या एका साधनावर अवलंबून न राहता त्यासाठी नवनवीन साधनांचा शोध घेत असतो. यामध्ये नवीन नवीन शोध करणे सगळ्यात महत्वाचे स्थान आहे. आजच्या इंटरनेटच्या आभासी युगात वाचकांसाठी उसंत मिळत नाही. मोबाईल, फेसबुक, व्हॉट्सअप, टिक्कीचे शेकडो चॅनेल्स यामुळे मनोरंजनाची अनेक माध्यम उपलब्ध झाली आहेत.

माहिती व तंत्रज्ञानाचा वापर करून शिक्षणाच्या दर्जात उल्लेखनीय आणि सकारात्मक सुधारणा करता येईल असे साधारणतः सर्वच शिक्षणतंत्राचे माहिती व शेतीविषयक उपयुक्तेचा जास्तीत जास्त फायदा करून घेता येऊ शकतो व तंत्रज्ञानामुळे आरोग्यविषयक माहिती वैद्यकीय क्षेत्रात माहिती तंत्रज्ञानाने बऱ्याच मशीन्स तयार केल्या आहेत. आज अशी अनेक वैद्यकीय मशीन्स आहेत ज्यांच्यासाठी विविध आरोग्याचा समस्या सहजपणे शोधल्या जाऊ शकतात. प्रगत तंत्रज्ञानाचा मदतीने अत्यंत जटिल/अवघड ऑपरेशन सुलभ केले जात आहे. वेगवेगळ्या प्रकारच्या चाचण्या किंवा रोगांची तपासणी या तंत्राद्वारे विकसित झाली आहे.

**उद्दिष्ट्ये:**

- १) शिकवण्याच्या व शिकण्याच्या पध्दतीत सुधारणा करण्यासाठी तंत्रज्ञानाचा वापर करता येतो याविषयी माहिती घेणे.
- २) तंत्रज्ञानामुळे नवीन नवीन गोष्टी आत्मसात करून घेणे.
- ३) विविध क्षेत्रात तंत्रज्ञानाचा वापर कसा होतो हे जाणून घेणे.

**तंत्रज्ञानाचा वापर व कार्यक्षेत्रे:**

- भविष्यातील तंत्रज्ञान
- शेतीमध्ये वाढावा तंत्रज्ञान वापर/उपयोग
- आरोग्य सेवा क्षेत्रात तंत्रज्ञानाचा उपयोग/वापर
- शैक्षणिक प्रक्रियेत माहिती तंत्रज्ञान

**भविष्यातील तंत्रज्ञान**

सध्या अस्तित्वात असलेले तंत्रज्ञान व भविष्यात येऊ घातलेले तंत्रज्ञान यावर एक नजर वापर करणाऱ्या आणि निर्णय घेणाऱ्यांच्या कल्पनेला प्रोत्साहन देण्यासाठी आणि काय उपलब्ध आहे यावरच आधारीत नव्हे तर काय येत आहे यावर भविष्यातील तंत्रज्ञानावर अवलंबून आहे.



रेडिओ व दुरदर्शनचा वापर मुख्यत्वे खालील प्रकारे केला जातो.

- १) शालेय विषयांशी संबंधीत ध्वनी चित्रफीती व रेडिओ वरून प्रसारीत केले जाणारे कार्यक्रम यांच्या सहाय्याने वर्गात शिकवणे.
- २) शाळेमध्ये शिक्षणाला पुरक असे कार्यक्रम प्रक्षेपित करणे.
- ३) सामान्य ज्ञान व माहितीवर शैक्षणिक कार्यक्रम दाखविणे किंवा प्रसारीत करणे.

शिक्षणामध्ये रेडिओ व दुरदर्शन प्रसारण सेवेचा कसा वापर करून घेण्यात आला आहे.

- १) थेट वर्गात शिकविण्यासाठी जेथे कार्यक्रमाचे प्रसारण शिक्षणाचा तात्पूरता पर्याय मानला जातो.
- २) शाळांमध्ये शिक्षणाला पुरक असे कार्यक्रम प्रक्षेपित करण्यासाठी.
- ३) सामान्य ज्ञान व माहितीवर शैक्षणिक कार्यक्रम प्रसारीत करण्यासाठी.

शेतीमध्ये वाढावा तंत्रज्ञानाचा वापर/उपयोग

- १) जलसिंचन, पाणी व्यवस्थापन व निचरा प्रणाली
- २) शेडनेटगृह तंत्रज्ञान
- ३) मुख्यतः खालील पिके शेडनेटगृहात लागवडीसाठी घेतली जातात.
- ४) मुख्य साखळी विकास प्रकल्पातील घटक  
अ) संकलन गृह (Collection & Center)  
ब) प्रतवारी व पॅकींग गृह (Grading & Packing Unit)  
क) न्यूनतम/प्राथमिक प्रक्रिया केंद्र (Minimum/Preliminary Processing Unit)

१) जलसिंचन, पाणी व्यवस्थापन व निचरा प्रणाली

- अ) सुक्ष्म जलसिंचन — तुषार सिंचन, ठिबक सिंचन
- ब) पाणी व्यवस्थापन— पिकवाढीच्या संवेदनशील अवस्था, पिकांच्या गरजेनुसार पाण्याचे व्यवस्थापन
- क) मर्यादीत सिंचन

ड) फर्टिगेशन तंत्र — विद्राव्य खते देण्याच्या पध्दतींचा योग्य वापर केल्यानेच इस्त्राईलसारख्या वाळवंटी प्रदेशामध्ये कृषी क्षेत्राची प्रगती साध्य झाली पाण्याची साठवणुक करणे, पाण्याच्या उपलब्धतेनुसार पिक घेणे, पाण्याचा पुनर्वापर करणे असे उपाय करणे आवश्यक आहे.

२) शेडनेटगृह तंत्रज्ञान

उन्हाच्या अधिक तीव्रतेमध्ये पिक तग धरण्यासाठी मर्यादा येतात. त्यात उन्हाळ्यात पाण्याची उपलब्धता कमी असते. परिणामी वाढीवर अनिष्ट परिणाम होऊन उत्पादनात लक्षणीय घट येते.

मुख्यतः खालील पिक शेडनेटगृहात लागवडीसाठी घेतली जातात.

- १) १) रंगीत ढोबळी मिरची २) टोमॅटो ३) काकडी ४) ब्रोकोली ५) लेट्युस ६) ऍन्थ्युरियम ७) इतर पालेभाज्या पिके उदा. वाटाणा, फ्लॉवर, कोबी, वांगी, मिरची, भेंडी इ. ८) सर्व भाजीपाला व फळपिकांच्या रोपवाटीका ९) भाजीपाला पिकांचे बियाणे घेण्यासाठी
- २) शेडनेट उभारणी व सुक्ष्म जलसिंचनप्रणाली शेतीमध्ये बसण्यासाठी कृषी विभागातर्फे अनुदान योजना आहेत.

- ३) हरितगृह तंत्रज्ञान, शेतीमध्ये आच्छादनांचा वापर, शेततळे व सामुहीक तलाव, एकात्मिक तण व्यवस्थापन, एकात्मिक कीड व्यवस्थापन
- ४) काटेकोर शेती (Precision Farming)चा उपयोग परदेशांमध्ये मोठ्या प्रमाणात होतो. भारतातही त्यांचा वापर वाढला पाहिजे.
- ५) काढणीपश्चात शेतमालाचे नेमके स्थान जाणण्यासाठी (Traceability) तसेच शेतकरी ते ग्राहक या साखळी व्यवस्थापनासाठी नव्या तंत्रज्ञानाचा वापर वाढला पाहिजे.

### आरोग्यसेवा क्षेत्रात तंत्रज्ञानाचा व्यापक वापर

आरोग्यसेवा केंद्र आणि लॅब यांना एकमेकांशी जोडले जाणार आहे. देशातील प्रत्येक जिल्ह्यात अत्याधुनिक लॅब उभारण्यात येणार आहे. कोरोना विषाणुच्या फैलावाच्या पार्श्वभूमीवर हा निर्णय महत्वाचा असून तीव्र संक्रमण काळात सर्व यंत्रणासमोर चाचणी, निदान व तपासणी याचे आव्हान निर्माण झाले होते.

कोरोनानंतर या क्षेत्रात मोठ्या प्रमाणात बदल होण्याची गरज आहे. याखेरीज सगळ्यात महत्वाची बाब म्हणजे, समाजातील तळागाळातील घटकांपर्यंत आरोग्याच्या उत्तम सेवा पोहोचण्यासाठी कटिबद्ध असले पाहिजे. समाजातील तळाच्या वर्गाना सरकारी आणि खासगी वैद्यकीय संस्थांमध्ये परवडणाऱ्या दरात आरोग्यसेवा मिळाल्या पाहिजेत. शेवटी एक महत्वाची बाब आरोग्य क्षेत्रासाठी वाढविलेला निधी हा खर्चासाठी नसून भविष्याच्या दृष्टीकोनातून केलेली ती उत्तम गुंतवणूक आहे. यंदाच्या अर्थसंकल्पात सरकारने पुढील सहा वर्षात आरोग्यसेवेचा टप्प्याटप्प्यात दर्जा सुधारण्याचा सकारात्मक मानस व्यक्त केली आहे. प्राथमिक द्वितीय आणि तृतीय स्तरातील आरोग्यसेवा सुधारण्यासाठी सरकारने सहा वर्षांची योजना तयार केली आहे. राष्ट्रीय आरोग्य अभियानाला यामुळे फायदा हाईल. या योजनेत ग्रामीण भारतात १७,००० आणि शहरी आणि निमशहरी भागात ११,००० नवीन आरोग्य केंद्र उभारली जातील.

कोरोनानंतर या क्षेत्रात मोठ्या प्रमाणात बदल होण्याची गरज आहे. याखेरीज सगळ्यात महत्वाची बाब म्हणजे समाजातील तळागाळातील घटकांपर्यंत आरोग्याच्या उत्तम सेवा पोहोचण्यासाठी कटिबद्ध असले पाहिजे. समाजातील तळाच्या वर्गाना सरकारी आणि खासगी वैद्यकीय संस्थांमध्ये पडवडणाऱ्या दरात आरोग्यसेवा मिळाल्या पाहिजेत. शेवटी एक महत्वाची बाब आरोग्य क्षेत्रासाठी वाढविलेला निधी हा खर्चासाठी नसून भविष्याच्या दृष्टीकोनातून केलेली ती उत्तम गुंतवणूक आहे.

### शैक्षणिक प्रक्रियेत माहिती तंत्रज्ञान

शैक्षणिक प्रक्रियेत माहिती तंत्रज्ञान वापरण्याची व्यवहार्यता व तथ्याद्वारे निश्चित केले जाते की त्याच्या मदतीने वैज्ञानिक व प्रवेशायोग्यता, व्हिज्युअलायझेशन, चैतन्य आणि विद्यार्थ्यांची क्रियाकलाप, शिक्षणाकडे एक वैयक्तिक दृष्टीकोन, पध्दती, फॉर्म आणि प्रशिक्षणाचे साधन यांचे संयोजन ज्ञानावर प्रभुत्व असणे. कौशल्ये सर्वात प्रभावीपणे आणली जातात आणि कौशल्य आत्मसात केले जाते. तांत्रिक आणि मानवी संसाधने आणि त्यांच्यातील परस्पर संवाद लक्षात घेऊन शिक्षण आणि शिकण्यात कौशल्यात भर देता येते.

### माहिती तंत्रज्ञान ही संधी देते

- शैक्षणिक प्रक्रियेदरम्यान विद्यार्थ्यांचा संज्ञानात्मक क्रिया तर्क संगतपणे आयोजित करा.
- शिकणे अधिक प्रभावी बनविण्यासाठी एका मल्टीमिडीया संदर्भात विद्यार्थ्यांविषयी सर्व प्रकारच्या संवेदनाक्षम समज समाविष्ट करून आणि बुध्दीला नवीन वैचारीक साधनांसह सुसज्ज करणे.
- एक मुक्त शिक्षण प्रणाली तयार करा जी प्रत्येक व्यक्तीस त्यांच्या स्वतःच्या शिक्षणाचा मार्ग प्रदान करते.

- वेगवेगळ्या क्षमता आणि शिकण्याच्या शैली असलेल्या मुलांच्या सक्रिय शिक्षण श्रेणीच्या प्रक्रियेत सामील व्हा.
- संगणकाच्या विशिष्ट गुणधर्माचा वापर करा. शैक्षणिक प्रक्रिया वैयक्तिकृत करण्यास आणि मुलभूतपणे नवीन संज्ञानात्मक मार्गाकडे वळण्यासाठी
- शैक्षणिक प्रक्रियेच्या सर्व स्तरांवर तीव्रता आणण्यासाठी.  
माहिती तंत्रज्ञानाचे मुख्य म्हणजे शैक्षणिक मुल्य म्हणजे ते आपल्याला शिक्षक आणि विद्यार्थी दोघांनाही जवळजवळ असीमित संभाव्य संधी सह अत्याधिक सुखसोयी शैक्षणिक प्रक्रियेत तयार होते.

### निष्कर्ष

उपरोक्त माहितीवरून असे दिसून येते की, तंत्रज्ञानाचा वापरावरून नवीन माहिती संपादन करून अनेक क्षेत्रात विकास होत आहे. वाढीव शेतीसाठी जलसिंचन, शेडनेटगृह, तंत्रज्ञान वापरून अनेक विकास होत चालला आहे. तसेच वाढीव शेतीसाठी वेगवेगळ्या प्रकारचे अवजारे वापरून शेतीमध्ये नवीन तंत्रज्ञानानुसार शेतीकामास चांगला उपयोग केला जात आहे. तसेच शिक्षणपध्दतीत तर नविन संधी विद्यार्थ्यांना मिळवून मुक्त प्रणाली तयार करून प्रत्येक विद्यार्थ्यांस स्वतःचा मार्ग प्रदान करता येतो.

### संदर्भ सुची

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