



BIBLIOMETRIC STUDY: APPLICATION OF MOBILE TECHNOLOGIES IN LIBRARY

1 POOJA SURESH INGLE,

Research scholar

Dept. of Library and Information science

Dr. Babasaheb Ambedkar Marathwada University Aurangabad, Maharashtra

Prof. Dr. MANISHA S. SUTAR

Research Guide & librarian

J.E.S.B. Arts, Commerce and Science College

Dist. Jalna, Maharashtra.

Abstract:-

The study conducts a bibliometric analysis of 801 research articles published from 2014 to 2023, examining author productivity, geographical distribution, document types, and trends. It underscores the pivotal role of Information Technology (IT) in modern society, particularly its impact on libraries. Libraries have embraced IT advancements to enhance information management, with a focus on mobile technology integration. The paper explores innovative strategies adopted by progressive libraries to meet evolving user demands through mobile platforms and robust infrastructure. Additionally, it emphasizes the benefits of library networking and online access to global databases. While the internet has transformed information access, challenges like equitable access persist. The study advocates ongoing innovation to fully harness technology's potential in advancing library services and knowledge dissemination, emphasizing the transformative impact of IT on libraries and society.

Keyword: -Bibliometric study, Mobile Technology, E-Resources, SMS Notification Services, Mobile Document Supply, Mobile Applications.

- 1) **Introduction:** -Libraries harness technological advancements, particularly in IT, to enhance information access and services, promoting the free flow of information and creative expression. Mobile communication technologies have transformed communication dynamics, facilitating convenient access to information resources via mobile devices. In academia, digital collections are primarily accessed through computers, yet mobile phones offer a promising alternative due to their widespread ownership. Recognizing the importance of Library and Information Science (LIS), there's a growing demand for robust network systems to handle information efficiently. Library networking and the internet are crucial for leveraging scientific information, supporting socioeconomic development. To address the vastness of countries like India, statewide infrastructure linked to national and international networks is essential for efficient resource sharing. Computer communication networks represent a significant technological leap, promoting resource sharing and economic utilization. Ultimately, advancements in IT and telecommunication, combined with effective library networking, drive societal progress and innovation by leveraging information resources.

- 2) **Definition of Mobile Technology:** -

Mobile technology, rooted in cellular communication, has rapidly advanced, particularly through Code Division Multiple Access (CDMA) technology. Modern mobile phones boast additional features beyond communication, including web browsing, gaming, cameras, video playback, and navigation systems. They are commonly referred to as cellular phones or cell phones.

3) Mobile Technology and Libraries: -

Libraries adapt to ICT advancements, integrating mobile technology to facilitate easier access to resources via the internet, reducing the need for physical visits. Librarians must evaluate how mobile devices impact information access and engage users effectively through web content, expanding mobile access through tools like email, SMS, and mobile websites. Mobile technology offers diverse functionalities, from software usage to multimedia interaction, while hardware advancements enhance user experience. Leveraging mobile devices at service desks and utilizing SMS for notifications enhances user engagement, offering specialized information services accessible wirelessly.

4) Libraries Provide Expanded Services: -

Libraries leverage mobile technology to improve user experience, offering mobile access to websites, catalogs, and reference services. They expand offerings to include e-books, journals, videos, and multimedia content, transitioning from physical collections to on-demand streaming and downloads. A 2010 study by the American Library Association shows substantial increases in e-book, audio, and video offerings.

5) Different type of mobile services and mobile phones

Libraries offer a range of mobile services to users, including SMS alerts, mobile library sites, reference enquiry, instant messaging, circulation, CAS & SDI, e-resource distribution, library maps, mobile databases, inter-library loans, purchase suggestions, M-OPAC, new arrivals lists, search functions, news, blogs, events, and Wi-Fi access. These services cater to various mobile devices like PDAs, smartphones, cell phones, iPods, MP3 players, and tablets, ensuring accessibility and convenience for users accessing library resources on-the-go.

6) Objective of the Study:

1. Find out the no. of Author
2. To Study of Keywords types
3. Language wise contribution of distribution.
4. Document types distribution of contribution.
5. Year wise contribution of Distribution.

The following objectives have been formulated for the present study.

7) Scope and Limitation of the study:

The present study keywords analysis on Collection Development in the **Bibliometric study of Application of Mobile Technologies In Library**. From 2014-2023. The present study is based on over all 801 articles in the database of Web of Science during 2014-2023.

8) Review Of literature: -

The chapter reviews existing literature related to library services via mobile technology. While limited research exists in this area, relevant studies provide insights into key aspects such as mobile access to library resources, on-the-go reference services, and the utilization of mobile devices for accessing e-books and multimedia content. Mobile technology, Adoption of mobile services, Mobile library website features, Library & mobile based services, Prerequisites for implementing library-based services.

1) Danielle Herro, Derick Kige (2019) Mobile technologies are ubiquitous in the 21st century, with smartphones and tablets playing integral roles in personal, social, and professional spheres. Educators recognize their instructional potential and are exploring ways to leverage them for learning. This paper reviews emerging evidence and provides case-based suggestions for integrating mobile devices into classrooms. Bridging practices between PK–12 and higher education can enhance instruction. Embracing pedagogical shifts, supporting diverse devices, implementing BYOD initiatives, and providing comprehensive professional development are essential. Flexibility is crucial to adapting to evolving trends in mobile learning. Collaboration among educational institutions is key to maximizing benefits for future students.

2) Tugrul U. Daim, Nuri Basoglu(2014) This paper investigates the adoption process of value-added mobile services, with a focus on information services. It identifies determinants such as intention, attitude, and usefulness, with personalization, mobility, user experience, and content playing indirect roles via usefulness. Through a series of field studies, hypotheses were developed and tested, revealing significant relationships between these factors. The results underscored the importance of factors influencing attitude and intention towards mobile services. The study contributes to understanding the adoption dynamics of value-added mobile services, particularly in the realm of information services, providing insights for practitioners and policymakers aiming to enhance user experience and satisfaction in mobile service provision.

3) Malathy S. and Kantha P, (2013) ICTs offer swift access to information, urging libraries to adapt to technological shifts. This evolution not only transforms information retrieval but also spawns new communication avenues. Mobile phones stand as a pivotal milestone in this progress, revolutionizing

connectivity and access to knowledge. As ICTs continue to evolve, libraries must reassess and innovate their services to remain relevant in this digital era.

4)Mohan Lal Vishwakarma, Shyam Lal Maurya, Shivani Govil, (2013)Traditional library services shift to mobile platforms, posing challenges in timely information delivery. Mobile tech transforms library-user dynamics but raises privacy concerns. The evolution from distance to e-learning, and now to m-learning, indicates a major education shift in India, revolutionizing learning. Adapting to this trend, libraries must cater to users' evolving digital needs, ensuring accessibility and relevance in the modern era of information dissemination.

5) Tabatha Farney (2020)The special issue of College & Undergraduate Libraries, titled "Library Technology: Innovating Technologies, Services, and Practices," explores various aspects of library technology, including infrastructure, services, access, and more. Articles within the issue are grouped into themes such as innovative services, immersive technologies, makerspaces, web and application (re)design, and research practices. Despite the pandemic temporarily halting some technology services, innovation persists. These articles aim to inspire further advancements, emphasizing the ongoing evolution of library technology and the need for reflection on its intended and unintended impacts.

9) Data Collection:

Data can be numerically expressed that is quantified or objective the data was collected from in database of Web of Science with the help of excel sheet.

Data Analysis and Interpretation:

Bibliometrics, a branch of information science, serves as a vital research tool for assessing the relevance and relationships among documents within a field, facilitating deeper understanding and analysis of subjects.

TABLE NO. OF 1 :-Author No. wise contribution of Distributions

Sr. No.	Author	Frequency	Percentage
1	Six & More Than Author	173	21.60
2	Two Time Author	170	21.22
3	Three Time Author	151	18.85
4	Four Time Author	127	15.86
5	One Time Author	94	11.74
6	Five Time Author	84	10.49
7	NA	2	0.25
	Total	801	100.00

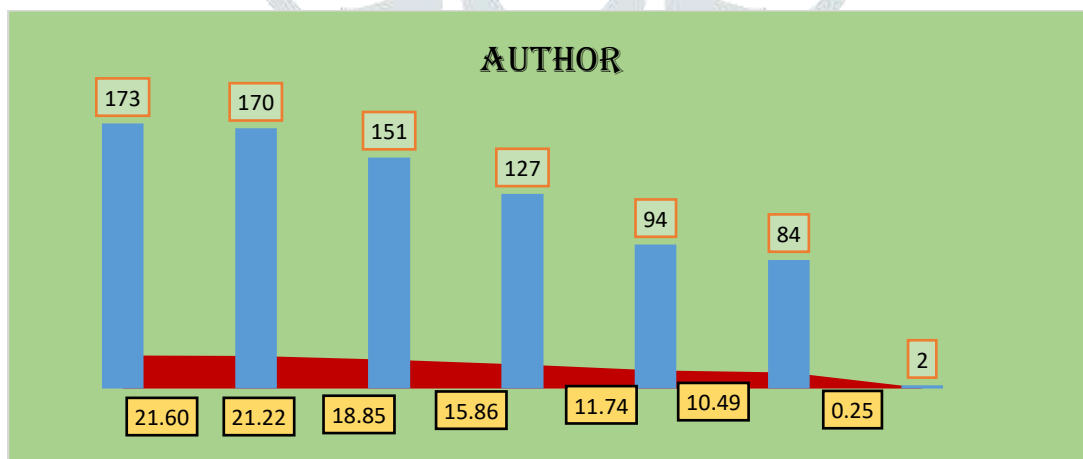


Fig No. 1 .

Table no. 01 and figure no. 1, shows that, The Author names, the total 801 authors has published the papers in the WEB OF SCIENCE databases on information resources during 2014 - 2023, the most productive authors are, six and more than author has the highest number 173 (21.60%) publication Twotimes authors is 170(21.22%) , Three times author publication 151(18.85%), Four time author publication 127(15.86%), One time author publication 94(11.74%), Five Time Author publication 84(10.49%) and 2(0.25%)is not available author in publication.

TABLE NO. 2 :- Keyword wise contribution of Distribution

sr.no.	KEYWORD	FRQUNENCY	PERCENTAGE	RANK
1	Five Time Keyword	201	25.09	1
2	Six Time Keyword	142	17.73	1
3	Four Time Keyword	138	17.23	3
4	NA	106	13.23	3
5	Three Time Keyword	61	7.62	5
6	Ten & More Than Keyword	55	6.87	5
7	Seven Time Keyword	49	6.12	7
8	Eight Time Keyword	32	4.00	7
9	Nine Time Keyword	10	1.25	9
10	Two Time keyword	6	0.75	9
11	One Time Keyword	1	0.12	11
Total		801	100	61

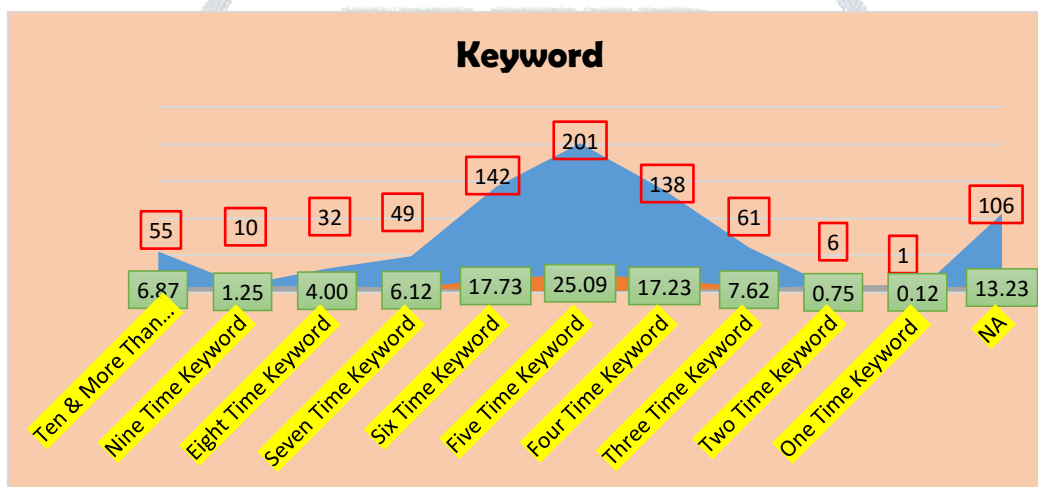


Fig No-2.

Table No.2 & Figure No. 2 shows the keyword wise distribution of contributions total No.801 of with rank, keyword scored the top position with 201(25.09%), followed by 106(13.23%) contribution with 1(0.12%)

TABLE NO. 3 :-Language wise contribution of Distribution

SR. NO.	Language	Frequency	Percentage
1	Chinese	1	0.12
2	German	1	0.12
3	Turkish	1	0.12
4	Ukrainian	1	0.12
5	Portuguese	4	0.50
6	Russian	6	0.75
7	Spanish	12	1.50
8	English	775	96.75
Total		801	100.00

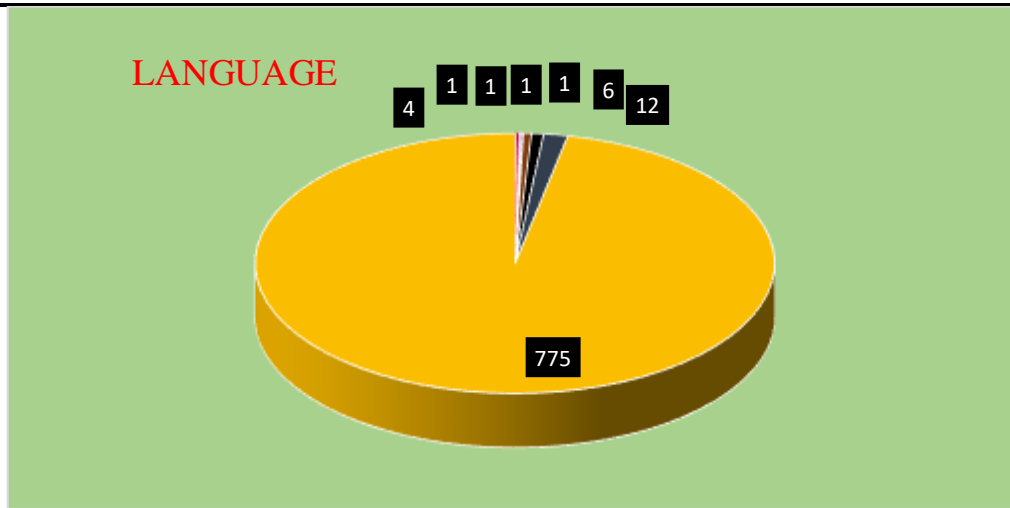


Fig. No -3

Table 3 demonstrates the distribution of contributors across different institutes from 2011 to 2023. Among the total 390 contributors, a significant portion did not specify their institute. The majority were from universities (31.03%), followed by institutes (20.51%), centers (14.62%), and departments (12.05%). Colleges comprised 7.95% of contributors. Hospitals had the lowest contribution at 2.05%, and schools the least at 0.77%. This breakdown underscores varied participation levels across different institutional categories.

TABLE NO. 6 :- Document Types of contribution of Distribution

Sr. No.	Document Type	Frequency	Percentage
1	Article	320	39.95
2	Proceedings Paper	280	34.96
3	Review	161	20.10
4	Article; Early Access	11	1.37
5	Article; Book Chapter	11	1.37
6	Review; Book Chapter	9	1.12
7	Article; Proceedings Paper	7	0.87
8	Article; Retracted Publication	1	0.12
9	Editorial Material	1	0.12
Total		801	100.00

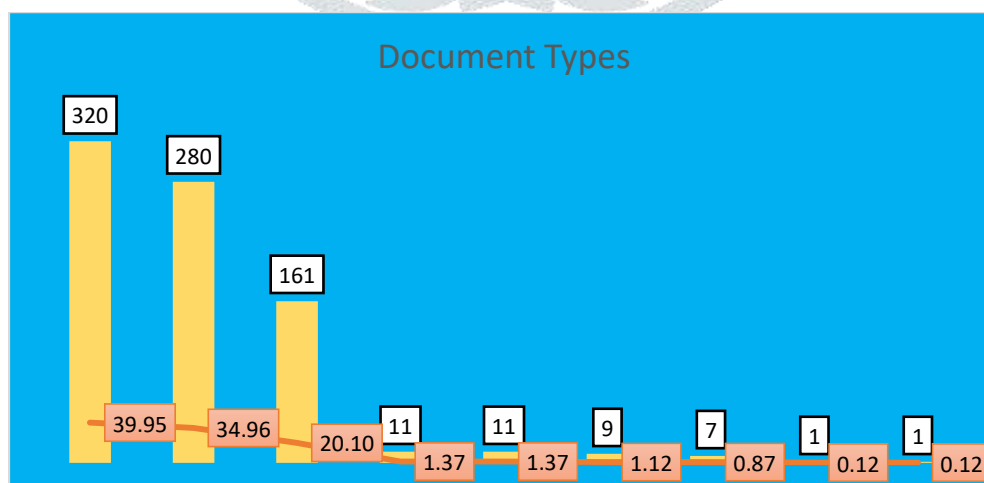


Fig. No.6

It can be observed from Table No. 06 the Documents Types of distribution of contributors, the table 6 reveals that out of the total 801 contributors has contributed during 2014-2023, majority of **Document Article 320** (39.95%), Proceedings Paper 280 ,(34.96%) ,Review 161 ,(20.10%) Books chapter 11 (1.37%) Contributors have been contributed form lowest contributed Editor & Article Retracted publication 1 (0.12%).

TABLE NO. 7 :- Year wise contribution of Distribution

SR. NO.	YEAR	FREQUENCY	%
1	2014	42	5.24
2	2015	72	8.99
3	2016	60	7.49
4	2017	73	9.11
5	2018	100	12.48
6	2019	74	9.24
7	2020	83	10.36
8	2021	108	13.48
9	2022	93	11.61
10	2023	96	11.99
TOTAL		801	100.00

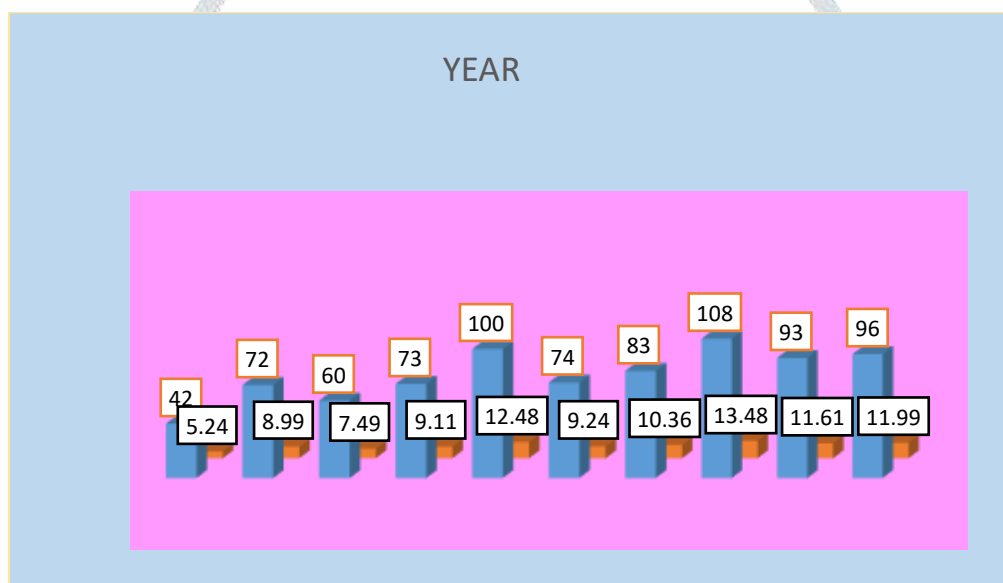


Fig No. 7

CONCLUSION:-

Information technology has revolutionized the world, requiring librarians to embrace modern technologies for efficient information management. The internet offers vast communication opportunities for Library and Information Science professionals, facilitating access to extensive resources. Mobile technology has become indispensable, enabling communication, connection, and innovation globally. Librarians must leverage mobile devices and technologies to enhance teaching, learning, and information dissemination. Implementation of mobile technology raises awareness among library staff, highlighting the need for skill acquisition to maximize its benefits. Mobile applications expand library accessibility, attracting new users and fostering stronger connections between users and libraries, thereby enriching the learning experience. A bibliometric analysis explores mobile technology's impact on libraries, emphasizing IT's crucial role. Libraries adopt mobile services like SMS alerts, enhancing user engagement. English dominates publication language. Challenges like equitable access persist despite mobile tech progress. The study advocates ongoing innovation to maximize technology's potential in advancing library services. Librarians must adapt to modern technologies, particularly mobile applications, to meet evolving user needs and enhance information dissemination, fostering connections between users and libraries for educational advancement globally.

References:-

- Dr.S. N. Dongare, Mrs. U. Y. Magare (2020) Mobile Based Library Services: An Overview, Studies in Indian Place Names (UGC Care Journal), ISSN: 2394-3114. Vol-40-Issue-49-March -2020. Pages 696 – 702.
- Danielle Herro, Derick Kige(2019) Mobile Technology: Case-Based Suggestions for Classroom Integration and Teacher Educators Journal of Digital Learning in Teacher Education Volume 30 Number 1, page no. 30 – 40.
- Tugrul U. Daim, Nuri Basoglu(2013)Service Innovation Adopation:The Case Of ValueAdded Mobile Service. Journal of Konowledge Economy, volume 5. Pages 784 – 805.
- Tabatha Farney (2020)Library technology: Innovating technologies, services, and practicesCollege & Undergraduate Libraries 2020, VOL. 27, NOS. 2–4, 51–55<https://doi.org/10.1080/10691316.2020.1952776>.
- Vishwakarma, M. L. (2013) Use of mobile and wireless technology in Indian Libraries, International Journal of Engineering and Computer Science,2(6),1799-1805. Retrieved from: <http://ijecs.in/issue/v2-i6/10%20ijecs>
View publication stats
- Lippincott, J.K. (2010), A mobile future for academic libraries, Reference Services Review, 38(2), 205. Retrieved from: wikis.uit.tufts.edu/confluence/.../Mobile_Future_Academic_Libs.
- smart library, proc. 6th International Conference on Human Compuer Interaction with Mobile Devices and Services, Glasgow, Scotland, 383-387.
- Barile, L (2011) A list of mobile applications and resources for development, College & Research Libraries News, 72(4), 222-228. Retrieved from <http://crln.acrl.org/content/72/4/222>
- Cau, Y., Tin, T., McGreal, R., Aly, M. and Coffey, S. (2006), The Athabasca University Mobile Library Project: Increasing the boundaries of anytime and anywhere learning for students, Proceedings of the 2006 International Conference on Wireless Communications and Mobile Computing, Vancouver, British Columbia, 3-6 July,1289- 94, Retrieved From: <http://doi.acm.org/10.1145/1143549.1143808>.
- Iwhiwhu, B. E., Ruteyan, J.O. and Eghwubare, A. (2010), Mobile phones for library services: prospects for Delta State University, Abrak, Library Philosophy and Practice, Retrieved from: <http://unllib.unl.edu/LPP/iwhiwhu-ruteyan-eghwubare.htm>.
- G. Thamari Selvi & N. Ganesan, PROSPECTS IN LIBRARY NETWORKING AND INTERNET.
- Nitesh Kumar Verma, Dr. Manoj Kumar Verma (2014) Application of Mobile Technology in the Libraries, Pre- Conference volume of The Second National Conference on “Libraries: Towards Digital Paradigm” (NCLTDP-2014) Copyright © editors ISBN: 978-93-81797-65-5 First Published: 2014. Conference Papers Second SPL Annual Convention (NCLTDP-2014) April 19-20, 2014 University Auditorium, Chhatrapati Shahu Ji Maharaj University, Kanpur, Uttar Pradesh-208024.
- IBN live. (2013, September 8). IBN live. Retrieved april 4, 2014, from IBN live: <http://ibnlive.in.com/news/india-has-5548-crore-mobile-owners-1432-crore-intemet-users/420444-1.html>
- Goria, S. (2012). Building Website for Mobile Phone Users of an Indian Agriculture University Library: A Model. DESIDOC Journal of Library and Information Technology , 358-364.
- Saxena, A., & Yadav, R. (2013). Impact of Mobile Technology on Libraries: A Descriptive Study. International Journal of Digital Library Services , 1-13.
- Lippincott, L. (2010). A mobile for Academic Libraries. Emerald , 205-213.
- Singh Nirmal & Kaur, Trishanjit (2010). Use of Mobile Phone to Provide Library Services: Opinion of Thaper University Students. Proceedings of 13th national Convention on Knowledge, Library and Information Network (NACLIN-2010), DELNET. Pp-277-292
- Ms. Dhara Sharma, Mr. Dipti Ranjan Sahoo (2014)Application of Mobile Technology in Library Services: An Overview, International Journal of Information Technology and Library Science. ISSN 2349-235X Volume 3, Number 1 (2014), pp. 17-24, Research India Publications, <http://www.ripublication.com>.