

# **Ubiquitous Library: A SMART Library (Services through Mobile Access and Reading Technology)**

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**Abstract:** This article throws light about Ubiquitous learning, a new paradigm shift from traditional learning to virtual learning. Ubiquitous learning is often simply defined as learning anywhere, anytime and is therefore closely associated with mobile technologies. Identifying user information is the most challenging issues in the library service. Analyzing different user requirements through their search strategies gives users expectations from library. The portability of computers and computing devices has blurred the traditional lines between formal and informal learning. Librarians have to find user information needs in the ubiquitous environment for providing service anytime and anywhere to patrons. This paper describes the development of ubiquitous environment in Library and how can a Librarian support online education. This paper suggests the skills needed for Ubiquitous library service and discuss about the librarians role in ubiquitous space. Innovative library services must be planned for the future requirement of ubiquitous environment which allows maximum flexibility for library users. It will be the best information management in academic library sector.

**Keywords:** SMART Libraries, Ubiquitous Library, Ubiquitous environment, Mobile Access, Virtualization, RFID, Modern Libraries.

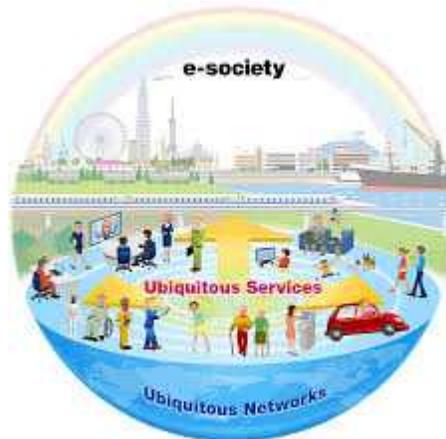
## **1. Introduction:**

This article explores newly emerged trend in Digital Library and reports on the development of library and library services. This study offers insights of Ubiquitous Library. This article suggests what are all the IT enabled services needed for re-engineering the digital library into Ubiquitous Library.

## **2. Objectives:**

- To provide effective library services at anytime, from anywhere to anyone
- To find digital natives requirements and fulfill their expectations
- To provide mobile access to library resources

### 3. Need for this shift



1. Change in learning paradigms, Ubiquitous learning
2. Digital Natives requirements shifted from physical resources to digital resources
3. ICT have changed the information seeking behavior of the users and services being provided by the librarians

(Carl Grant,2011) The “Perceptions of Libraries 2010” produced by OCLC is a wonderful service to the library profession. This report holds a mirror to our profession and allows us to see ourselves as our end-users see us. The newest edition surveyed some 2,229 respondents, based in the U.S. and Canada who are age 14 and older, in order to determine how they perceive today’s libraries of all types.. A table shown on page 59 which reports on college students’ utilization of library activities further documents this trends (comments/numbers in parentheses are mine “Annual use between :2005 to 2010”<sup>3</sup>

- Research specific reference book - 81 to 56% (a 25% decline)
- Homework/study - 80-66% (a 14% decline)
- Get copies of articles/journals - 64-50% (a 14% decline)
- Get assistance with research - 64-51% (a 13% decline)
- Use online databases - 68-59% (a 9% decline)
- Borrow print books - 66-60% (a 6% decline)
- Leisure reading - 52-48%” (a 4% decline)

With few exceptions college student usage statistics are showing a double-digit decline over the last five years. Technology will move ahead more in the next twenty-five years than it has in the last one-hundred years.”In other words, change will continue to accelerate and while technology is only a tool for librarianship, it is a tool available to both librarians and our end-users. Decline in use of library Web sites, electronic

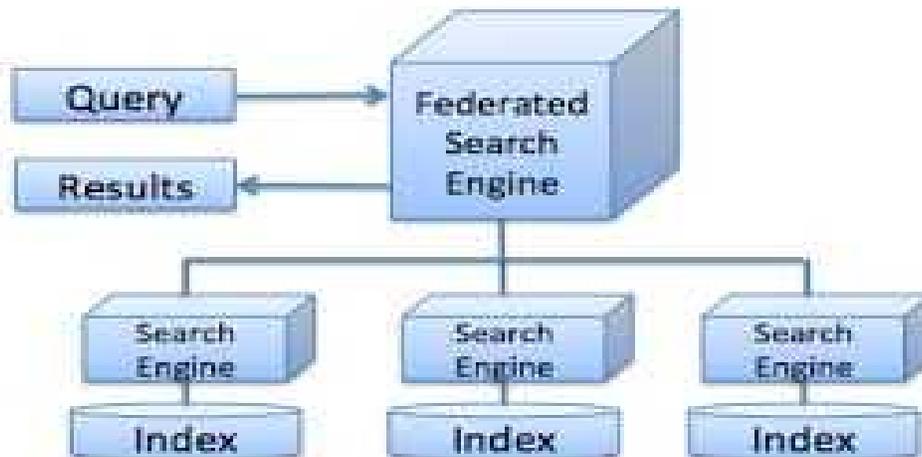


journals and online databases since 2005. This drop is driven by a decrease in use among college students, ages 25–64. The report goes on to summarize the change over the last five years wherein end-users increasingly have pocket computers and increasingly use them to interact with information. Yet as we all know, libraries are moving slowly to address that method of access and the report shows that libraries, even in meeting users in the PC environment, hasn't proven satisfactory for end-users (Carl Grant,2011). This paved way for need of Ubiquitous Access, Ubiquitous services through Ubiquitous library.

**Ubiquitous Library – Technical section**

**Cataloguing**  $\implies$  **OPAC**  $\implies$  **Federated search engine**

(Shailendra Kumar ,2008) Using federated search, a single tool searches and accesses all databases with one, easy to use interface. It provides opportunity to the users that they get their desired information from various databases, search engines etc. <sup>11</sup>



Classification  $\Rightarrow$  Barcode  $\Rightarrow$  RFID technology



#### 4. High-speed inventorying <sup>12</sup>

A unique advantage of RFID systems is their ability to scan books on the shelves without tipping them out or removing them. A hand-held inventory reader can be moved rapidly across a shelf of books to read all of the unique identification information. Using wireless technology, it is possible not only to update the inventory, but also to identify items which are out of proper order

#### 3M Cloud library in Ubiquitous space <sup>14</sup>



#### 4.1. Browse and Check out popular titles from your library

You can browse the shelves that your library set up by category or you can use the filter button to filter by genre.

#### 4.2. Easily transfer e-books to E-reader

Use the 3M Cloud Library PC Software to transfer e-books to your Nook Simple Touch, Kobo e-Reader.



Easily we can take notes and create bookmarks. We can read in multiple devices.

### Ubiquitous Library – Circulation section

#### 5. Automated materials handling

Another application of RFID technology is automated materials handling. This includes conveyer and sorting systems that can move library materials and sort them by category into separate bins or onto separate carts. This significantly reduces the amount of staff time required to ready materials for re-shelving.

#### 6. Ubiquitous Library <sup>1</sup>

##### On-campus

**Wired connections:** Using Laptop or Tablet we access e-resources from Ubiquitous library directly in college campus

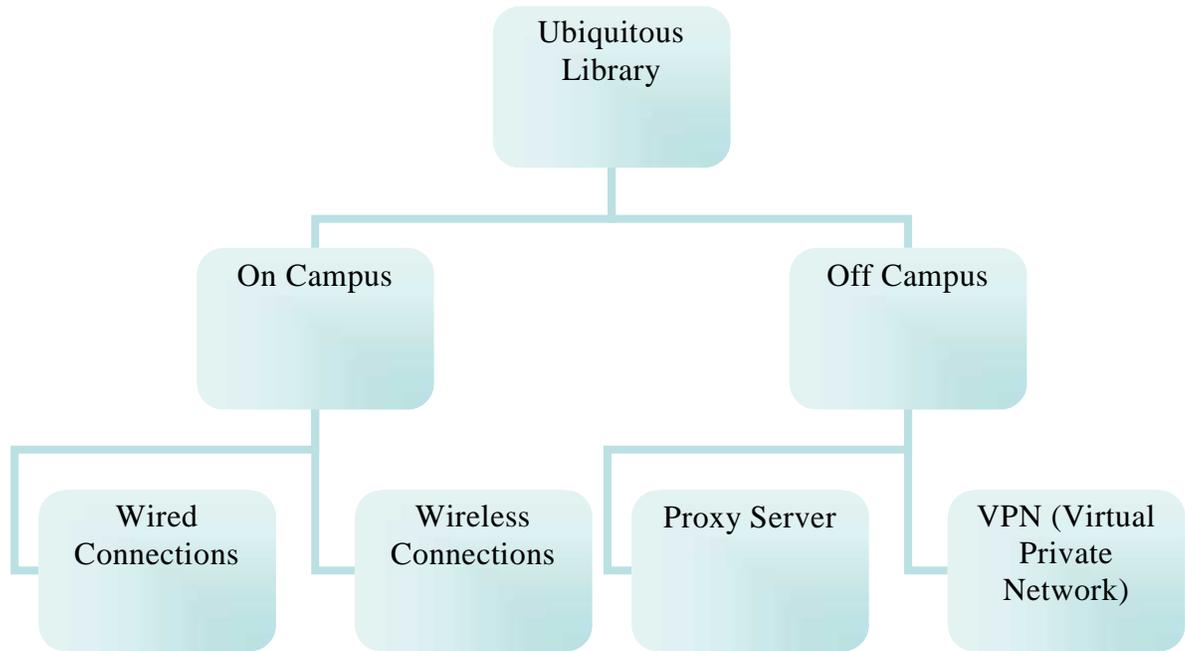
**Wireless connections:** Wireless devices connected through logging in to the proxy server



**Off-campus**

**Proxy Server:** Using E-mail ID and password user can login through remote access from library website.

**VPN (Virtual Private Network):** An alternative method to accessing e-resources remotely.



**Ubiquitous Public Libraries – Best practices**



**7. ATM Library in China <sup>4</sup>**

24 hour self service library in China. Beijing has recently seen an increasing number of so-called ATM libraries -- the 24-hour self-service machines which allow people to borrow and return books without the help of librarians. Anyone who wants

to borrow books from the ATM library only needs to swipe their second-generation Identity Card and put down 100 yuan in cash deposit collateral. They can borrow a maximum of five books each time and return these four weeks later or extend the borrowing period by two weeks.

## 8. U-Pustaka portal in Malaysia <sup>5</sup>

The Malaysian Ubiquitous Library or u-Pustaka has added another award to its achievement by been selected by the editorial team of FutureGov, as the ‘Winner’ in the Technology Leadership category for the Inaugural FutureGov Awards Malaysia 2013. The objective of u-Pustaka is to provide physical and digital access to knowledge resources at anytime, from anywhere to anyone and “putting a library in every home”. Since its launching on 31 March 2011, public response to the project has been encouraging and as at 28 February 2013, 326,196 people have already registered as u-Pustaka members. The portal has been visited by 211,430 users from 104 countries from as far as the United States, Australia, the United Kingdom, Germany, Russia, Brazil and Saudi Arabia while there have been 11,000 transactions involving books borrowed via inter-lending. The statistical numbers are expected to increase with many more publicity, promotional activities and other awareness programmes scheduled in the pipeline.

Ubiquitous Library Consortium provides library membership to the people of Malaysia with access to services and knowledge resources available from its consortium of libraries.

**u-Members** (Malaysians only) Membership is obtained by completing a u-Member Sign-Up form from anywhere via the u-Pustaka Portal or at any u-Pustaka Consortium counter stations. MyID shall be used for u-Member registration.

### Categories of Membership:

#### 1. Children:

Children membership enable children from age 1 day to 11+ years to access and interact with the children’s dashboard.



2. **Youth:** Youth membership enable youth from age 12 to 18 years to access and interact with the youth's dashboard.
3. **Adults:** Adults membership enable adults from age 19 and above to access and interact with the adult's dashboard, discussion forum, e-Reviews and many more.  
u-Members Facilities: u-Members are allowed to borrow, return, renew and place reservation for books that are available in the u-Pustaka Consortium at anytime and from anywhere. u-Members are allowed to access all the u-Pustaka services in the u-Pustaka Portal.
4. **Online Members (for All) :** Online members are required to register at u-Member sign-up form anywhere via the u-pustaka portal.

### 9. Ubiquitous Academic Libraries – Best practices:

- 24\*7 access at anytime, anywhere to anyone
- Online reference services
- As a Apomediary, offering the internet information seek by the library user
- Interconnected library resources and federated search facilities
- Using Library space for collaboration with other students or group discussions.
- Link with Social networking sites like facebook , Twitter account

The academic library can become a place for experiences. The future isn't simply about digitizing our collections, but rather, it is about providing, encouraging, and staging new types of learning encounters

–from *Marketing Today's Academic Library*, ALA Editions.

### **Bookless library opened by new US University**



Shelfless ...

Florida Polytechnic University's new library. Photograph: Rocket Science Photography

There are no dusty bookshelves or piles of textbooks in the library of Florida's newest university. Welcoming its first students this week, Florida Polytechnic University's new library houses not a single physical book. "The ability to read, absorb, manage and search digital documents and conduct digital research are skills of growing importance in industry," she said, with the new digital-only library "designed to help students become better technology users and learners" Director of libraries Kathryn Miller, 2014 .

### **Ubiquitous Library – Reference Section**

#### **Face-to-face Reference ⇨ Virtual reference through Skype, FB and Twitter**

(Barbara Beaton,2012) A recent survey reports that approximately 20 libraries offer reference or other services via Skype (Miles). Many of these libraries are in smaller institutions, but a handful of somewhat larger institutions (UNC at Greensboro, Madison Area Technical College, Framingham State University, St. Edwards University, South eastern Oklahoma State University) now incorporate Skype into their suite of reference services. Of the 186 libraries participating in this survey, most (88%) began to use Skype for reference services within the past two years and report a small number of questions, indicating that this technology is still in the exploration and growth phase of its use to enhance reference services

#### **10. Advantages of Skype as a reference tool include:**

- Bringing visual and nonverbal cues back to virtual reference
- Information Managing simultaneously – send links, pdf files, articles or jing videos via IM while video chatting, and
- Co-browsing – sharing screens with patrons

Video conferencing tools such as Skype offer librarians the ability to “visually demonstrate the teaching moments of the transaction and to consider the needs of users who simply learn better visually.” (Steiner) In addition, video conferencing enables a service interaction which more closely emulates an in-person interaction, which both research and our own informal polling of incoming freshman show to be by far the preferred method of communicating with librarians (Chow and Croxton).

#### **11. Social Network as learning network – Facebook**

Face Book group study (Baylor,2014) College Students Grouped together on Facebook do Better than other students who not using Facebook group study .<sup>9</sup>

Using Social networks in useful ways. Using Blogs, facebook ,Twitter in effective manner. Online youth civic engagement is a noteworthy development, and there have been successful institutional and individual initiatives aimed at empowering youth and providing them with online means to voice their opinions and concerns in society (Montgomery, Gottlieb-Robles & Larson, 2004).

Library Reference service through Face book enhance more collaboration among participative students community.

## **12. Social Network as learning network – Twitter**

The vast majority of libraries (of all types) using Twitter continue to use it as a communications and public relations mechanism – tweeting about resources, services, events and/or community information. While a handful of libraries accept reference questions via Twitter, it is more common for libraries to offer SMS or ‘text a librarian’ services.

The Johns Hopkins University Sheridan Libraries offers Twitter as a medium for receiving inquiries and note on their blog: “Since @mselibrary has been on Twitter, we’ve noticed an uptick in reference questions tweeted to us. Our mission is to communicate with our students, faculty, and staff in whatever means they prefer so if you’re on Twitter, please tweet us or send us a direct message with your reference question, in fact, send us any question at all that you have about the library!” (Sheridan Libraries).<sup>10</sup>

## **13. Features of Ubiquitous Library ( Brain Mathews, 2014)**

- Technology will be ubiquitous and will function in a more seamless interaction between humans and machines; physical and virtual spaces will be more responsive.
- The research library can and will increasingly unbundle itself from a predominantly service role to a single home institution.
- Shifting from stocks to flows-from courses to information on demand
- Shifting from content to context-from generalized to specific and contingent<sup>8</sup>

### **13.1. Librarians role in Ubiquitous environment**

- Librarians role is shift from collection development process toward managing licenses for digital books.
- Creating awareness about availability of e-resources is the main goal in ubiquitous environment.
- Digital rights management and giving digital information literacy.

### **13.2. Difference between Cloud library and Ubiquitous library<sup>6</sup>**

Cloud computing is a model for enabling ubiquitous library.

**Amazon a best example of Ubiquitous lending**

**Amazon Kindle cloud reader is a best example to follow in Academic libraries**

## **SIGN-IN & EXPLORE**

- Sign in to Kindle Cloud Reader
- Explore Kindle Cloud Reader

## **BUY, DOWNLOAD & SEND**

- Buy and Download to Kindle Cloud Reader
- Deliver to Kindle Cloud Reader

## **READ BOOKS**

- Read Books

## LEARN MORE

- Kindle Cloud Reader Legal Notices
- Amazon Kindle Terms, Warranties, and Libraries too can follow this model of Amazon ubiquitous e-lending

### Google Glass in Libraries

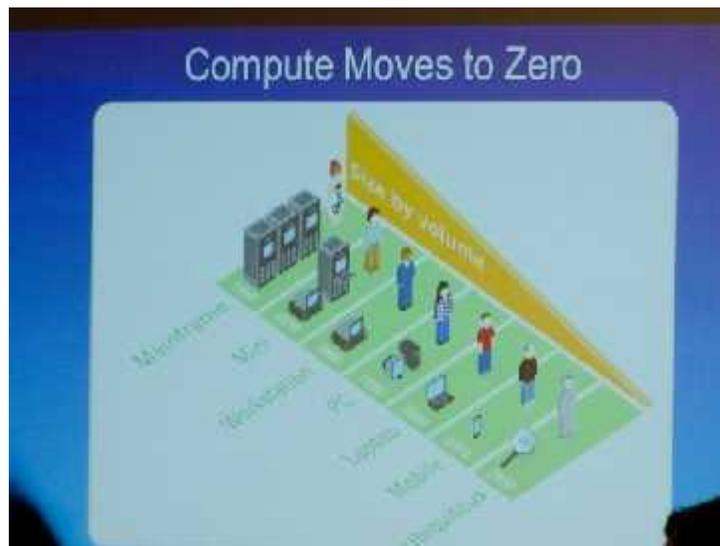
Mothers used to read books through glass whereas children read books through Google glass.



Google Glass is a wearable computer structured like a pair of glasses. There is a small digital display in front of the right eye, and a touchpad built into the frame. Using a combination of a visual, timeline-like interface and voice commands, Google Glass allows users to explore the Internet, use a variety of Glass-specific apps, take photos and video, check e-mail, make video calls, and more.<sup>19</sup>

Google Glass enhance Ubiquitous library space and it is Eco-friendly with space minimization. In Ubiquitous library Google glass is a new paradigm.

## Conclusion



(Shubashree Desikan,2014) Teenager’s picture in comic books in the 1980s used to come with a long handle-an ear-ornament of a telephone, attached to a longwire. Today a caricature of a typical teens comes with the Ubiquitous tablet or SMART phone and conversations happen over Facebook or Twitter<sup>7</sup>. In this SMART era Ubiquitous library is the only solution for the sustainability of the library. **“Bad libraries only build collections. Good libraries build services. Great libraries build communities.”**

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