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Message From Vice Chairman- GNIMS

On behalf of Guru Nanak Institute of Management studies (GNIMS), I extend my good wishes to all.

In a short span of time “GNIMS” has witnessed significant growth in terms of offering quality education in the areas of business and management. Our library is considered to be one of the best in the city with rich collection of thousands of reference books, monographs, journals and e – resources to facilitate quality education for our students and alumni.

The theme for the December 2014 issue is “**E-Resources for Effective Library Management**”. This issue will guide the users on how to access the electronic resources. E-learning means the use of technology to enable the user groups to learn about the resources and services available, both online and off-line, anytime and anywhere, through training, induction, workshops, delivery of just-in-time information and guidance from experts. Hence, it is an approach to facilitate and enhance the learning through computer and communications technology.

It gives me great pleasure to release Vol.2, Issue.2, and December 2014 of “**International Journal of library Science**” published by GNIMS. It is our endeavor to provide a platform to researchers who are involved in research work across diverse disciplines.

S. Gurinder Singh Bawa
Vice Chairman
Guru Nanak Institute of Management Studies



Message From Director -GNIMS

I am extremely glad to share that Volume 2, Issue No- 2, December 2014 of “**International E-Journal of Library Sciences**” - a bi-annual International ISSN (2319992X) numbered e-journal of the Guru Nanak Institute of Management Studies (**GNIMS**) is dedicated to Library Science and Management.

The theme for the December 2014 issue is “**E-Resources for Effective Library Management**”. E-Resources, Internet databases, electronic products, virtual libraries, clickable collections, e-Libraries, Internet resources, e- materials. E-Resources are one of the products of Information and communication technologies.

I wish the library team of GNIMS all the best in their endeavors and hope this Journal caters to the growing needs of the librarians the world over to share their research work and knowledge. I am sure that this Journal will be of a great help to library professionals, academicians, educational institutions and people in general. I invite from scholars with their research papers and articles for publication in the Journal.

Dr. Bigyan P. Verma M.Com, MBA, MBE, Ph.D

Director



Message from Associate Editor-GNIMS

It is indeed an honor to be an Associate Editor for Vol.2, Issue.1, and December 2014 of International Journal of Library Science of Guru Nanak Institute of Management Studies (GNIMS). The Journal is continuing to grow - thanks to the continuing support from Research Scholars, authors and well wishers.

The theme for the December 2014 issue is **“E-Resources for Effective Library Management”**. The revolution in information and E-Resources is registering significant changes everywhere and have been playing substantial role in library and information systems ever since its inception. The advancement of E-Resources during recent years has given libraries a powerful new resource to support learning and research with availability of both forms of journals in the library.

This issue contains a panorama of articles and research papers relevant to the theme, which we hope are useful to the readers. We thank the authors for their valuable contributions.

We welcome your valuable suggestions and comments that would help us to improve our Journal.

Kuljeet G. Kahlon
Associate Editor

Application of Semantic Web In Modern Library And Information Services

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Abstract:

Semantic web is an extension of current web. It is about common formats for integration and combination of data drawn from diverse sources, where as the original web mainly concentrated on the interchange of documents. The semantic web is a mesh of information linked up in such a way as to be easily process able by machines, on a global scale. This is an efficient way of representing data on the world wide web, or as a globally linked database. This paper also discusses about related works on semantic web, semantic web layers, languages on the web, application of semantic web in library services, opportunities and challenges and concludes that the support of learning objectives based on a dynamic invocation of semantic web service process model follows an innovative approach and is distinctive to the current state of the art in this area. The functions redefined in the context of the semantic web, may improve and accelerate semantic web development.

Keywords: UML, XML, RDF, RDF Schema, OIL, DAML, OWL

Introduction:

The Semantic Web is an extension of the current web and not its replacement. It is a Web of data. When Sir Timothy John Berners-Lee invented World Wide Web in 1980, his project based on the concept of hypertext, to facilitate sharing and updating information among researchers. There are lots

of data used every day, and it is not part of the web. The Semantic Web is about two things. It is about common formats for integration and combination of data drawn from diverse sources, where as the original Web mainly concentrated on the interchange of documents. It is about language for recording how the data relates to real world objects. That allows a person, or a machine, to start

off in one database, and then move through an unending set of databases which are connected not by wires but by being about the same thing. The Semantic Web is a mesh of information linked up in such a way as to be easily process able by machines, on a global scale. This is an efficient way of representing data on the World Wide Web, or as a globally linked database. The Semantic Web is not about links between web pages. The Semantic Web describes the relationships between things (like A is a part of B and Y is a member of Z) and the properties of things (like size, weight, age, and price). The Semantic Web is focused on machines. The Web requires a human operator, using computer systems to perform the tasks required to find, search and aggregate its information. It's impossible for a computer to do these tasks without human guidance because Web pages are specifically designed for human readers. The Semantic Web is a project that aims to change that by presenting Web page data in such a way that it is understood by computers, enabling machines to do the searching, aggregating and combining of the Web's information – without a human operator.

The Semantic Web can be seen as a distributed data objects framework, and therefore can be validly seen as an Object

Oriented Framework. It is also quite valid to use a Unified Markup Language (UML) diagram to express a Semantic Web graph. Both the Semantic Web and Object Oriented Programming have:

- (i) Classes
- (ii) Attributes (also known as Relationships)
- (iii) Instances

Furthering this, Linked Data also introduces Dereference able URI, which provides Data-by-Reference which find in Object Oriented Programming and Object Oriented Databases in the form of Object Identifiers.

2 Definitions:

2.1 Semantic Web on the Web:

The Web of data with meaning in the sense that a computer programme can learn enough about what the data means to process it.

2.2 Semantic Web:

Tim Berners-Lee has described the semantic web as a component of Web 3.0. Semantic Web technologies can be used in a variety of application areas; for example: in data integration, whereby data in various locations and various formats can be integrated in one, seamless application; in resource discovery

and classification to provide better, domain specific search engine capabilities; in cataloguing for describing the content and content relationships available at a particular Web site, page, or digital library; by intelligent software agents to facilitate knowledge sharing and exchange; in content rating; in describing collections of pages that represent a single logical “document”; for describing intellectual property rights of Web pages (see, eg, the Creative Commons), and in many others.

3 Related Works on Semantic Web :

The Semantic Web was introduced by Tim Berners-Lee as a conceptual model of a web that makes the contents available read and used by human and intelligently by machines (Poonada & Sharda, 2007). He introduced the Semantic Web for the first time in one of his speeches in 1998 (Berners-Lee, 1998). In 1999, Berners-Lee introduced his vision in the IWWW Conference about the future architecture of the Web describing the benefits of the Semantic Web (Berners-Lee, 1999). In 2000, he described the Semantic Web architecture in one of his talks in Washington DC and this version was version one (Berners-Lee, 2000). This version was described again in 2001 in the Scientific American Magazine in cooperation with

James Handler and Ora Lassila (Poonada & Sharda, 2007). The work of Tim Berners-Lee was the spark and the first step toward the Semantic Web. It opens the door for other researchers to work with this architecture. Fensel is one of the main contributors in the Semantic Web field. In 2000, he discussed the Semantic Web and the languages associated with its architecture (Fensel, 2000), while in 2002, he introduced with his colleagues the problems and directions facing the layering of the Semantic Web and how Semantic Web languages can be organized in the Semantic Web tower (Patel-Schneider, 2002). In the same year, Fensel describes OIL (Ontology Interface layer/Ontology Interchange language) and its relation to OWL (Web Ontology Language) and the future capabilities of OWL (Fensel, 2002). Fensel was not the only scientist who made great efforts in this area, but there are many researches who also participated in this domain, such as Ian Horrocks and Patel-Schneider. In 2005, Ian Horrocks described the different proposals for extending the Semantic Web architecture with rules (Horrocks et.al., 2005), while working in cooperation with Patel-Schneider in studies in studies focusing on the representation of the Semantic Web and related languages such as OIL and DAML+OIL (DAML=The DARPA

Agent Markup Language) (Horrocks and Patel-Schneider, 2003). Gerber also provides an evaluation method for evaluating the Semantic Web architecture from the software engineering point of view (Gerber et.al., 2006). Ding Ying, described the functionality and the relation between XML (eXtensible Markup Language) and RDF (Resource Description Framework) in the Semantic Web architecture, while the relation between RDFS (Resource Description Framework Schema) and OWL is described by others like Jeff Z. Pan. Studying these researches and others helps in making a strong foundation for studying different visions of Berners-Lee which are presented in 2000, 2003, 2005 and 2006. But still there is a difficulty as to the fact that there are a lot of details in the Semantic Web which are not written and not mentioned in literature. Gerber faced these problems in his work (Gerber et.al., 2007).

4 Semantic Web Layers

The Semantic Web principles are implemented in the layers of Web technologies and standards. The layers are presented in Figure 1.

4.1 Layer 1: URI (Unified Resource Identifiers) and Unicode

Unicode is considered as the universal standard encoding system (Burlson, 2007) for computer character representation (Mathews, 2005). Web pages can use a variety of character encoding such as ASCII Latin-1 or Unicode. Most encoding systems represent only few languages while Unicode represents all languages (Davis, 2008) such as Arabic, English and Chinese. URI provides a simple and extensible way for identifying resources. A resource can be anything that has an identity such as a website, a document, an image and a person (Berners-Lee, 2006).

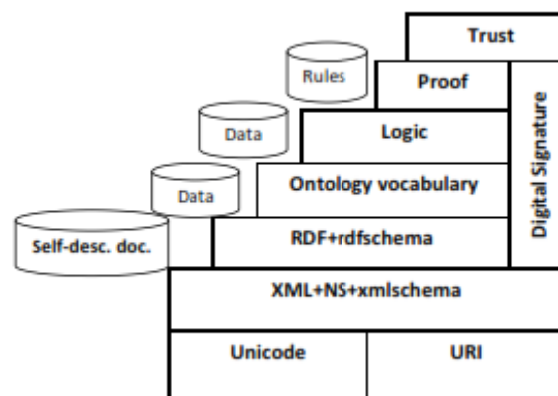


Fig 1: The Semantic Web layers

Functions of Layer 1

It provides a baseline for representing characters and a unique way for identifying objects in the Semantic Web and between

different layers and associated and associated languages in the Semantic Web architecture.

4.2 Layer 2: XML, XML Schema and Namespaces

Layer 2 consists of XML, XML Schema and Namespaces. XML is a language used to represent data in a structural way. It describes what is in the document, not what the documents looks like, while XML Schema provides grammars for legal XML documents (Patel-Schneider and Fensel, 2002). On the other hand, Namespaces allows the combination of different vocabularies.

Functions of Layer 2

XML, XML Schema and Namespaces, which are the components of layer 2, aim to be a baseline for structuring data on the web but without semantics. It is a mechanism used to describe data in a way that can be understood by the upper layers and can be interoperable.

4.3 Layer 3: RDF and RDF Schema

Layer 3 consists of the RDF and RDF (S). RDF is a way for representing exchanging and reusing of metadata (Buraga and Ciobanu, 2002). RDF uses URI to identify web resources and uses a graph model for the purpose of describing the relationship between different resources (Mathews, 2005).

This is the layer where we can give types to resources and links RDF Schema is a simple modeling language introducing classes of resources, properties and relations between them.

Functions of Layer 3

The function of layer 3 is to provide metadata to upper technologies placed on the layers on the top of layer 3, in which that metadata can be exchanged and reused between these technologies or between these technologies and other applications.

4.4 Layer 4: Ontology Vocabulary

Ontology is considered the backbone for the Semantic Web architecture provides a machine process able semantics and a sharable domain which can facilitate communication between people and different applications.

Functions of Layer 4

The main function of layer 4 is the provision of semantics which produces a web of meaning (Berners-Lee, 2003). Using ontologies helps machines process meaning and facilitate sharing of information. The Ontology layer supports the evolution of vocabularies as it can define relations between the different concepts.

4.5 Layer 5: Logic

There is no specific for the Logic layer in the Semantic Web, not only the Logic layer, but for Trust and Proof layers. There are attempts to reach to their full meaning, status and functions of these layers, because Tim burners-lee propositions and presentations did not describe these layers in details. The Logic layer enables the writing of rules. The Logic layer is placed above the ontology layer. It is supposed that information will be extracted from the web according to this logic.

Function of Layer 5

It is supposed to be used as a framework for making new interfaces and should have the necessary expressiveness needed for the implementation of the Semantic Web.

Layer 6: Proof

Proof is the layer placed above the Logic layer. It is assumed to be a language used in a manner that describes for agents why they should believe the results. This will be a useful Semantic Web service.

Function of Layer 6

This layer will be used for checking the validity of specific statement.

Layer 7: Trust

A lot of efforts have been exerted to reach the trusted web, but this is very complicated and difficult task and has not become a reality. Trust has many meanings in the Semantic Web. Trust is the final layer in the Semantic Web architecture. It depends on the source of information as well as the policies available on the information source which can prevent unwanted applications or user from access to these sources.

Function of Layer 7

It is supposed to provide a mechanism for trust and confidence between information sources and parities. The Vertical layer: Digital Signature.

Digital Signature is the only vertical layer in the Semantic Web architecture. It begins from layer 3 and ends at layer 6. Digital Signature is a step towards a web of trust. By using of XML digital signature, any digital information can be signed (Cloran, 2005). There are specific elements in XML syntax used for this process such as Signed Info, Reference and Digest Value.

Function of the Digital Signature

XML Signature can be applied to the content of resources and, by this way; every resource can be identified. It also facilitates mapping between ontologisms (Berners-Lee, 2006)

5 Languages on the Web

An important requirement for machine-process able information is structure in data. There are several ways to structure data: databases, for example, use tables with attributes as structuring mechanism. The main structuring technique that is used on the Web is document markup (Ying et.al., 2002). This means that certain sequences of characters in a document contain information indicating the role of the document's content. The markup describes the document's data layout and logical structure and makes the information self-describing, in a sense. The markup often takes the form of words between pointy brackets, called tags – for example, <title> or <h1>.

A markup language is a specification of the markup-tags that may used, how they may combined, and what their meaning is. However, HTML only provides rendering information about the content, which is often not sufficient for the advanced automated services that are foreseen on the Semantic Web. Applications will need specialized markup that specifies the role of parts of the content that are relevant for them. For example, for a price comparison application on the Web, it is useful if all prices are

annotated with a tag such as <price>. It is necessary to specify the meaning of the tags.

5.1 XML

The eXtensible Markup Language (XML) is a meta-language that meets the need to define application specific markup tags. XML is a mechanism for representing other languages in a standardized way. In other words, XML only provides a data format for structured documents, without specifying an actual vocabulary. A Document Type Definition (DTD) or an XML Schema might be used to specify this vocabulary and to define the allowed combinations of tags. A language that is defined in XML is called an XML application. XML does not imply a specific interpretation of the data. The only legitimate interpretation is that XML code contains named entities with sub-entities and values; that is, every XML document forms an ordered, labeled tree.

5.2 RDF and RDF Schema

XML is a standard mechanism to structure data, the RDF is a mechanism to tell something about data, i.e., to give meaning to it. As its name indicates, it is not a language but a model for representing data, i.e., to give meaning to it. As its name indicates, it is not a language but a model for representing data

about “things on the Web.” This type of data about data is called meta data. The “things” are resources in RDF vocabulary (Ying, 2002). Resources are all things that have an identifier on the Web, ranging from specific, identifiable parts of a document to things like persons or companies. Basically, the RDF data model is quite simple. It consists of statements about resources, encoded as object-attribute-value triples. The objects are resources and the values are resources or strings. RDF Schema is a simple type system for RDF. It provides a mechanism to define domain-specific properties and classes of resources to which you can apply those properties. The basic modeling primitives in RDF Schema are class definitions and subclass-of statements (which together allow the definition of class hierarchies), property definitions and subproperty-of statements (to build property hierarchies), domain and range statements (to restrict the possible combinations of properties and classes), and type statements (to declare a resource as an instance of a specific class). Together, RDF and RDF Schema provide a simple knowledge representation mechanism for web resources.

5.3 Ontologies

Ontologies are an essential backbone technology because they interweave formal semantics understandable by a computer with real world semantic understandable to humans. Ontologies were developed in Artificial Intelligence to facilitate knowledge sharing and reuse. More recently, the notion of ontology is also becoming widespread in fields such as intelligent information integration, cooperative information systems, information retrieval, electronic commerce, and knowledge management (Ying, 2002). The reason ontologies are becoming so popular due to what they promise: a shared and common understanding of some domain that can be communicated between people and application systems.

Ontology is a formal, explicit specification of a shared conceptualization. A ‘conceptualization’ refers to an abstract model of some phenomenon in the world which identifies the relevant concepts of that phenomenon. ‘Explicit’ means that the type of concepts used and the constraints on their use are explicitly defined. ‘Formal’ refers to the fact that the ontology should be machine understandable. Hereby different degrees of formality are possible. Large ontologies like WordNet11 provide a thesaurus for over 100,000 terms explained in natural language. On the other end of the spectrum is CYC, that

provides formal axiom ting theories for many aspect of common sense knowledge. ‘Shared’ reflects the notion that an ontology captures consensual knowledge, that is, it is not restricted to some individual, but accepted by a group.

RDF Schema is quite simple compared to full-fledged knowledge representation languages. To be able to specify the meaning of data more precisely, richer languages are necessary. OIL is such an enhanced language.

5.3.1 OIL

It can be regarded as an Ontology infrastructure for the Sematic Web. It is based on concepts developed in Description Logic (DL) and frame-based systems and is compatible with RDFS. It was developed by Dieter Fensel, Frank van Harmelen (Vrije Universiteit, Amsterdam) and Ian Horrocks (University of Manchester).

OIL is the result of an initiative to integrate intuitive modeling primitives, Web-languages, and formal semantics into one language. One of the central design ideas in OIL is its onion model shown in Fig.2.

Effective and efficient work with the semantic web must be supported by advanced tools enabling the full power of this technology. In particular, we need the following elements:

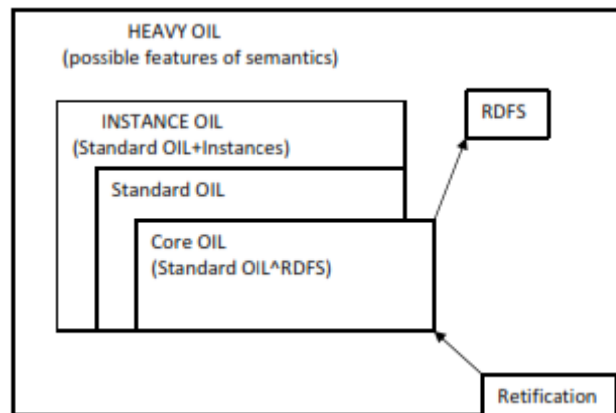


Fig 2: The Onion Model to Control Complexity

- Editors and semi-automatic construction to build new ontologies, Annotation tools to link unstructured and semi-structured information sources with meta data.
- Reasoning Service: Instance and Schema Inferences enable advanced query answering service, support ontology creation and help to map between different terminologies.
- Reusing and Merging Ontologies: Ontology library systems and Ontology Environments help to create new ontologies by reusing existing ones.

Other Semantic Web languages are discussed below:

5.3.2 DAML

It is an agent markup language developed by the DARPA for the semantic web. The DAML programme has generated the DAML+OIL markup language. The submission of the DAML+OIL language to the World Wide Web consortium (W3C) captures the work done by DAML contractors and the EU/U.S. Joint Committee on Markup Languages. This submission was the starting point for the language to be developed by W3C's web ontology working group, WebOnt.

5.3.3 DAML+OIL

It is a successor language to DAML and OIL that combines features of both. In turn, it was superseded by OWL. It is the central research and development organization for the Dept. of Defense. The DAML program ended in early 2006.

5.3.4 OWL

It is a family of knowledge representation languages for authoring ontologies, and is endorsed by the W3C. This family of languages is based on two (largely, but not entirely, compatible) semantics: OWL DL and OWL Lite semantics are based on Description Logics, which have attractive and well-understood computational properties, while OWL Full uses a novel semantic model

intended to provide compatibility with RDF Schema. OWL ontologies are most commonly serialized using RDF/XML syntax. OWL is considered one of the fundamental technologies underpinning the Semantic Web, and has attracted both academic and commercial interest.

5.3.5 WSML (Web Service Modeling Language)

It is a formal language that provides a syntax and semantics for the Web Service Modeling Ontology (WSMO). It provides means to formally describe the WSMO elements as Ontologies, Semantic Web services, Goals, and Mediators. The WSML is based on the logical formalisms as Description Logic, First-order Logic and Logic Programming.

Language Variants of WSML

1. WSML Core, defined as an intersection of the Description Logic and Horn Logic. Supports modeling classes, attributes, binary relations and instances.
2. WSML-DL, extension of the WSML Core, fully captures the Description Logic.
3. WSML-Flight, extension of the WSML Core, provides features as

meta-modeling, constraints and non-monotonic negation.

4. WSML-Rule, extension of the WSML-Flight, provides Logic Programming capabilities.
5. WSML-Full, an unification of the WSML-DL and ESML-Rule

5.3.6 WSDL-S (Web Service Description Language-Semantic)

It is a standard operates at the synthetic level and lacks the semantic expressivity needed to represent the requirements and capabilities of Web Services. Semantics can improve software reuse and discovery, significantly facilitate composition of Web services and enable integration of legacy applications as part of business process integration.

5.3.7 SAWSDL (Semantic Annotations for Web Services Description Language)

SAWSDL defines how to add semantic annotations to various parts of a WSDL document such as input and output message structures, interfaces and operations. The extension attributes defined in this specification fit within the WSDL and XML Schema Structures extensively frameworks.

6 Application of Semantic Web in Library Services :

The primary functions of the library have been changed due to the development and application of Information and Communication Technology in the field of Library and Information Science. The third generation of the Web has provided a great opportunity to transform these functions such as collection, cataloguing, reference and circulation to the Semantic Web. The following elaborations will no doubt make us to understand how semantic web is useful for the day to day functions of the library.

6.1 Collection Development

A huge collection with perfect organization makes the strength of the library a remarkable one. Only keeping of the resources in an organized manner is not sufficient if the patrons of the library will not be provided the effective services. The formation of well designed Collection policies helps and encourages the professionals to develop a good attitude towards strengthening collection in the library. Collection development can help libraries with administrative activities by including procedures for acquisitions, gifts, weeding, replacing lost items, and collection evaluation. The World Wide Web is the treasure house of resources which helps the students, teachers, researchers and scientists to get their required information at their

desktop, if the professionals make good effort to collect the same and organized in a well develop manner to disseminate for the patrons. The library professionals as well as information managers should follow the collection development policies and modify them as per the need of the time. The professionals and the information mangers should bear the constraints to meet the queries of the patrons with great patience and enthusiasm.

6.2 Cataloguing

The cataloguing is the only way to make the patrons aware about the documents. Charles A. Cutter's (1904) objectives for a library catalogue, printed in the 4th edition of his Rules for a Dictionary Catalogue are among the most influential statements impacting cataloguing. C. A. Cutter has made his concept of cataloguing so visionary universal that even in the present era of web. It is still applicable to library activities in the modern time of current cataloguing activities. In the present era, the cataloguing of the electronics resources has been guided by the principles and policies guided by many metadata schemes. A number of metadata schemas have been developed to represent the bibliographical and full text resources. The efforts of the software engineers as well as

professionals make the resources available in a defined format across the web which provides new dimensions to the patrons. The semantic web helps the library professionals to work with the enabling technologies, such as XML, REF and OWL. A semantic representation policy would help secure a robust framework for effective Semantic Web operations. There are many examples cataloguing policies that document and detail principles and objectives, and could serve as a model for developing useful policies for the Semantic Web.

6.3 Reference Service

Traditionally, the reference services have been provided inside the library. Modern digital era has changed the dimension of reference service which can be provided anytime anywhere in the world. The goal of reference is to provide the library community with effective information services. Reference services include personal interaction; dissemination of documentation and outreach activities. In the digital era, Reference services have broadly categorized into asynchronous, synchronous and collaborative network services. Asynchronous includes e-mail, web forms, askAservice, online pathfinders and synchronous service includes text based chat, video conferencing, digital

reference robots, and real time reference. The standardization of metadata is the most important factor for the successful adaptability of Semantic Web. The Semantic Web algorithms help to provide services to the users at their end. Resources in the Web with standard metadata formats provide the researchers ample opportunity to achieve their goal. The third generation of the web is going to provide ample opportunities to the patrons which are possible through the application of semantic web with help of metadata schemas.

6.4 Circulation

The most important primary function of the library is the Circulation which enhances the dignity of the library. Mere collection and organization are not enough if the document or the information is not perfectly dissemination to the patrons. Users often want access to the same collection materials, of which there may be limited copies, or rare materials that are fragile. Circulation policies generally state fines and procedures for late returns, lost and damaged items, and other problems associated with delinquent use. There are many materials in the library which can not be allowed to take from the library as per the rule of the Circulation policies. Digital resources overcome the problems and constrains of the circulation to a great extent.

The patrons are getting their required resources at their desktop in right time. The semantic web provides ample opportunities to the patrons to use the resources of the library at anytime. A policy might involve an application procedure, where an agent would be given an access code. Agent status could then be verified via an identification number of digital signature. A policy might include a procedure for informing agents of new resources and semantic data updates, given the potential impact on ongoing, or previously conducted operations. It also helps to locate resources, recommending library purchase, fine policy and use of resources. The semantic web makes it possible to use the resources with due process which meet the need of the users across the web.

7 Opportunities

Opportunities bring the researchers and patrons to solve many problems of the old and new which open the future path with no barriers for progress and development. Semantic Web has no exception to provide many opportunities such as Web-services, agent-based distributed computing, semantics-based web search engines and semantics based digital libraries.

7.1 Web Services

Web services are the most important interactive dynamic services which provide a great opportunity to explore the treasure house of resources on the Semantic Web. It enables patrons to locate, select, employ, compose and monitor web-services automatically. Driving the development of markup and agent technology are the automation tasks that semantic markup of Web services will enable – in particular, service discovery, execution, and composition and interoperation.

7.1.1 Automatic Web Service Discovery

Automatic Web service discovery involves automatically locating Web services that provide a particular service and that adhere to requested properties. Currently, a human must perform this task, first using a search engine to find a service and then either reading the Web page associated with that service or executing the service to see whether it adheres to the requested properties. With semantic markup of services, we can specify the information necessary for Web service discovery as discovery as computer-interpretable semantic markup at the service Web sites, and a service registry or (ontology-enhanced) search engine can automatically locate appropriate services.

7.1.2 Automatic Web Service Invocation

Currently most Web services require human's intervention during their execution. For example, to buy a book at <http://www.amazon.com/>, the website requires a user to fill out a form, and then click a button to execute the service. Usually, multiple interactions between a user and a Web service are needed to complete the execution of that Web service. The capability of automatic web service invocations on behalf of a user, who only needs to tell the agent to “go to Amazon and buy a book titled The Semantic Web with no more than \$50”, the agent will interact with the Web service with appropriate input data via computer interpretable APIs.

7.1.3 Automatic Web Service Composition and Interoperation

Automatic Web service composition and interoperation involves the automatic selection, composition, and interoperation of appropriate Web services to perform some task, given a high-level description of the task's objective. Currently, if some task requires a composition of Web services that must interoperate, then the user must select the Web services, manually specify the composition, ensure that any software for interoperation is custom-created, and provide the input at choice points (for example,

selecting a flight from among several options). With semantic markup of Web services, the information necessary to select, compose, and respond to services is encoded at the service Web sites. We can write software to manipulate this markup, together with a specification of the task's objectives, to achieve the task automatically. Service composition and interoperation leverage automation discovery and execution.

7.1.4 Automatic Web Service Execution Monitoring

Automatic Web service execution involves a computer programme or agent automatically executing an identified Web service. To execute a particular service on today's web, such as buying an airline ticket, a user generally must go to the Web site offering that service, fill out a form, and click a button to execute the service. Alternatively, the user might send an http request directly to the service URL with the appropriate parameters encoded. Either case requires a human to understand what information is required to execute the service and to interpret the information the service returns. Semantic markup of Web services provides a declarative, computer-interpretable API for executing services. The markup tells the agent what input is necessary, what information will

be returned, and how to execute and potentially interact with the service automatically.

7.2 Agent based Distributed Computing Paradigm

The ontology has predominant role to describe various web resources in a structured, logical and semantic way so that the agents retrieve the required information with minimum navigation. The semantic web has a web of distributed knowledge which is published with the guidance of ontology like DAML Service. When agents are equipped with intelligence and mobility, the conventional client/server computing paradigm might be replaced by an agent-based distributed computing paradigm, in which agents can migrate from one site to another, carrying their codes, data, running states (including internal beliefs), and intelligence (specified by the users), and fulfil their missions autonomously and intelligently..

7.3 Semantic based Web Search Engines

Search engines are among the most useful resources on the Web and currently there are two types of search engines:

- Large scale robot-based search engines. These systems rely on robots to retrieve Web pages and store them in a centralized database. The advantage of this mechanism is that it increases recall since robots can almost retrieve all web pages on the Web, while the disadvantage is the precision (the proportion of retrieved documents that are actually relevant) of the search result might be low.
- Small scale reviewer based search engines. A category hierarchy is created and each category is described by a set of keywords. Reviewers will review each web page (submitted by web page authors) and associate it with appropriate categories. The advantage is that precision is increased, but the disadvantage is that recall might be low since it is impossible to review and include every single relevant web page on the Web.

7.4 Semantics based Digital Libraries

Digital multimedia data in various formats has increased tremendously in recent years on the Internet. These emerging applications for multimedia

digital libraries require interdisciplinary research in the areas of image processing, computer vision, information retrieval and database management. Recently, ontology begins to be used in the context of digital libraries. For example, ScholOnto is an ontology based digital library that supports scholarly interpretation and discourse, and ARION another ontology based digital library that supports search and navigation of geospatial data sets and environment applications.

We believe that various digital libraries will become another major web resource of the Semantic Web. The challenges here are: (1) The development of efficient and effective classification and indexing mechanism for each type of digital library, and (2) The semantic interoperability between digital libraries of similar types and between digital libraries of similar types and between a digital library and the Semantic Web.

8 Challenges

New opportunities impose new challenges. In the following, we focus our discussion on the following

challenges that we are facing now: the development of the formal semantics of Semantic Web languages, and the development of trust and proof models.

8.1 The Development of Ontology

It is well recognized within the Semantic Web community that ontology will play an essential role into the development of the Semantic Web. Various efforts have been devoted to the research of different aspects of ontology, including ontology representation language, ontology development. Ontology learning approaches and ontology library systems, which manage, adapt, and standardize ontology.

8.2 Management

The main purpose of ontology is to enable knowledge sharing and re-use, hence a typical ontology library system supports open storage and organization, identification and versioning. Open storage and organization address how ontology are stored and organized in a library system to facilitate access and management of ontology. Identification associates each ontology with a unique identifier. Versioning is an important feature since ontology evolves over time and a versioning mechanism can ensure the consistency of different versions of ontology.

8.3 Adaption

Since ontology evolves over time, how to extend and update existing ontology is an important issue. This includes the searching, editing and reasoning of ontology is an ontology library system.

8.4 Standardization

Integration and interoperability is always the concern of any open system. This is especially the concern of the Semantic Web, an open system that has to be scalable at the Internet level. Currently, a number of ontology representation languages have been proposed and various ontology library systems have been built. Since the Semantic Web is still at its early stage, it might be too early to enforce any standardization. Each representation language can grow on its own and the one or a few ones who win will become the de facto standards.

9 Conclusion

Other approach – the support of learning objectives based on a dynamic invocation of Semantic Web Service process model – follows an innovative approach and is distinctive to the current state of the art in this area. The functions, redefined in the context of the Semantic Web, may improve and accelerate Semantic Web development.

Development, implementation, and evaluation of Semantic Web policies, understanding these functions, is required if we are to determine the true impact of library functions on Semantic Web development.

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Information Seeking Behavior of Students in University Libraries

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Abstract :

Information seeking behavior is the complex pattern of actions and interactions which people engage in, when seeking information of whatever kind and for whatever purpose. Early references to information-seeking behavior would be referring to scientists' use of formal and informal communication channels and with a predominantly quantitative flavour. It would typically be referring to the different proportion of scientists' consulting with colleagues, using journals or books, employing abstracting services, receiving preprints or reprints, attending conferences, and their associated preferences in terms of channel. The current ambit of information atmosphere is rich, characterized by an explosion of information sources and providers, a multiplicity of methods for accessing information, and a redundancy of content from multiple sources. International Encyclopedia of Information and Library Science defines information seeking behaviour as "the complicated form of actions, which people slot in, when seeking information of whatever kind for whatever reason".

Keywords: Students Expectation, CRM

Introduction:

According to Wilson, "information seeking behavior results from the recognition of some need, perceived by the user". That behavior may take several forms; the user may make demands upon formal systems that are customarily defined as information systems,

such as libraries, on-line services, information centres; or upon systems which may perform information function such as estate agents' offices or car sales agencies that give current information of their field viz., prices and models etc. The user also seeks information

from other people which is otherwise called 'information exchange'. According to him the word 'exchange' is intended to draw attention to the element of reciprocity, recognized by Sociologists and Social Psychologists as a fundamental aspect of human interaction. In the process failure may be experienced with system as well as when seeking information from others. Use of information according to him is evaluation to discover its relationship to the user's need.

The study of information seeking behaviour can stand on its own as an area of applied research where the motive for the investigation is pragmatically related to system design and development. A different motivation is involved if we wish to understand why the information seeker behaves as he does. This is an area of basic research and, although the resulting knowledge may have practical applications, there is no necessity that it should.

Information Seeking Process

In order to satisfy the information needs, the user actively undergoes the information seeking process. The attempt of the user in obtaining the needed information is described as the information seeking behavior. According to Wilson, "information behavior may be defined as the more common field of

investigation, particularly concerned with the variety of methods people employ to discover". The word 'behavior' comprehends a number of components like attitude, approach, positive activity, information gathering, pattern of seeking information, psychological temperament, etc. The nature of information seeking behavior in information exchange process has been discussed by Wilson as under:-

Information Seeking Behavior

Implications

Girja Kumar has emphasized that the information seeking behaviour is mainly concerned with who needs what kind of information and for what reasons; how information is found, evaluated and used, and how these needs can be identified and satisfied. According to him the following process takes place in the information seeking behavior.

- a. Identifying objective
- b. Defining need
- c. Accessing information system
- d. Establishing sources of information
- e. Information acquisition
- f. Use of information
- g. Satisfaction/dissatisfaction

The information seeking behavior essentially refers to the strategies and actions undertaken to locate discrete knowledge elements. It is concerned with the integrative utilization of the three basic resources- (i) people (ii) information and (iii) system. It can be said that the behavior, which yields the highest information satisfaction, is the best.

Information use studies over the years have attempted to explain the information use phenomenon, to understand information use behavior and improve information use by manipulating essential conditions. Information seeking behavior results from the recognition of some need experienced by the user. This behavior may take several forms, e.g. user may make demands upon formal systems or upon systems which may perform information function in addition to a primary non-information function. Over the years there has been a change in the understanding of the user behavior.

More recently Wilson in his model of factors influencing the needs and information seeking behavior opines that the full range of human personal need such as physiological, affective and cognitive needs are at the root of motivation towards information seeking behavior.

Psychological Studies

Many studies in the past have stressed on the psychological aspect of the information seeking behaviour. Taylor has explored the information need from the angle of psychology of human behaviour, and has identified four levels of information need as follows:-

1. Visceral need- An actual but unexpressed need for information.
2. Conscious need- An ill defined area of decision.
3. Formal need- An area of doubt which may be expressed in concrete terms.
4. Comprised need- A need translated in to what the resources and file can deliver.

Belkin has extended the psychological approach with the inquiry in to the reasons for seeking information and the development of the concept of an Anomalous State of Knowledge (ASK) which hypothesizes that information need arises from the recognized anomaly in the users' state of knowledge concerning some topic or situation and that, in general, the user is unable to specify precisely what is needed to resolve that anomaly. Information behavior is seen as related to some problem situation in the relationship between the user and user's of the world.

Practical Models

Wersig's concept of the problematic state depicts internal models of knowledge, beliefs, goals, environment, and situation as forming the basis of information need and information seeking behaviour. The best way to view information behaviour is to treat it as an aspect of human behaviour in general.

The study of individual information seeking behaviour will require some sort of representation of the psychological state of the user, in terms not just of knowledge or lack of it but also beliefs, aspirations, goals and so on.

Use Patterns

Information use patterns are paths pursued by the individuals in the attempt to resolve a need. A study of user traits, of the study environment, and of information provider's skills, is an important constituent of this new systematic approach. Ching-Chin Chen has remarked that the information seeking patterns of an individual information environment, which consists of:

1. Background and characteristics of the individual.
2. The nature and type of information need with which he/she is confronted.

3. The type and availability of information providers.
4. Information providers' capability of responding to a request.
5. Existence of barriers that serve to diminish or deter the effective linkage between information provider and seeker; and
6. The degree and satisfaction perceived by an individual with the ability of one or more information providers to respond to his/her information needs.

Influencing Factors

Many research studies evaluated the relation between human and their behaviour towards seeking information. There are several factors, which have significant affect on users' information seeking behaviour. These factors include the following:

1. His knowledge about the role of information unit,
2. Use of information products,
3. Services offered by various information units,
4. Accessibility to information units and products,
5. His status in the organization,
6. Socio-professional position,

7. His relation with people,
8. Competition in gaining access to information,

Some other factors which have significant affect on human information seeking behaviour are:

1. Payoffs and costs
2. Resource available
3. Update rates
4. Amount of information available
5. Diagnosticity of data
6. Distributional characteristics of data
7. Conflicts among sources

It may be emphasized that a correct appraisal of information seeking behaviour implies knowledge of:

1. The purpose for which information is required
2. Environment in which user operate
3. Users' skill in identifying information need and information providers' skill in providing information.
4. Channels and sources for tapping the information, and
5. Barriers to information.

Students' Information Seeking Behavior

In simple words information seeking behavior is the way in which the user goes about

seeking and obtaining information. Information seeking behavior is considered a multifarious, dynamic, social human behavior that needs a picture as rich as possible to truly understand the phenomenon, and even then, there will remain many questions answered. In the light of various studies, an important question raises that there is a big gap between students and their information's behaviour regarding information seeking. According to Hancock Beaulieu, the spreading of research findings in information behaviour of students has traditionally been reached at the summit that there must be a bridge to recover the gap between students and their information's behaviour.

Information needs and seeking behavior change from culture to culture and country to country. To understand the users' information seeking behavior, first step is to know his behavior towards information, through asking following questions:

1. How much does the user already know?
 2. How does he select his sources?
 3. How does he choose his information?
 4. How does he carry out a search for information?
 5. How does he formulate his queries?
- And so on.

Influencing Factors

Students' information seeking behavior is influenced by a number of factors such as:

1. Timeliness of information presented.
2. Awareness of the sources of information.
3. Ability to use information access tools.
4. Surrounding environment.
5. Cultural impact.
6. Self-evaluation and intuition etc.

Students' information seeking behavior is also affected by the education system and culture of Universities, Colleges, and libraries. Some researchers think that the most important factor is the education system, which has great effect on students' information seeking behaviour. In universities or colleges, students have different background and culture. They previously studied different disciplines and each student has different level of perception and mental ability that causes a great effect on information seeking environment. Another big source of information is the communication among students but due to having different disciplines and levels, they cannot exchange information effectively. At present, information gaining style of Universities or Colleges students' has no

more antique due to web environment. Students observably do not feel much comfortable with available resources, and this approach is a big hurdle in seeking knowledge and the students having such approach have no fame in practical life.

At present, modern digital libraries, interfaces and web database sources are the important factors contributing a major role to develop students' information seeking behaviour. Students want simple and common interfaces and they do not want to go to different databases with different search requirements and interfaces. Now, they simply want easier, quicker and simplest methods to use information resources or to search related information.

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Wireless Networks

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Abstract:

Wireless connectivity gives libraries the opportunities to introduce new services and extend current services to more users. Wireless connectivity is the preferred connectivity in computer networks. It involves connecting laptops, mobile libraries and even bridges to computer networks, without physical wire connections. Wireless connectivity means that individuals can potentially access the Internet, CD-ROM networks and office networks from anywhere and at any time. The lack of a physical connection means that users are able to roam or work wherever they wish and still have access to the computer network. This paper highlights the key elements in wireless connectivity and its potential for deployment in network of libraries.

Keywords:

Wireless LAN, Wireless Access Point, Wireless Network Interface Card.

Introduction :

A wireless network is like any other computer network. It connects computers to computer networks without physical wire connections. A wireless network can provide network access to computers, databases, the Internet and OPACs, both within and between buildings. So that organizations of all sizes

are installing and operating wireless networks, known as wireless local area networks (WLANs) or Wi-Fi networks. Low cost, ease of installation, flexibility — these are the basic benefits that are causing the widespread adoption of wireless technologies.

Wi-Fi Network:

WLANs provide the same connectivity to the resources that wired networks do. Instead of establishing a connection through a network cable, WLANs move data using radio frequency (RF) transmissions. Practically speaking, a wireless connection operates like an additional hub on the network (see Figure 1).

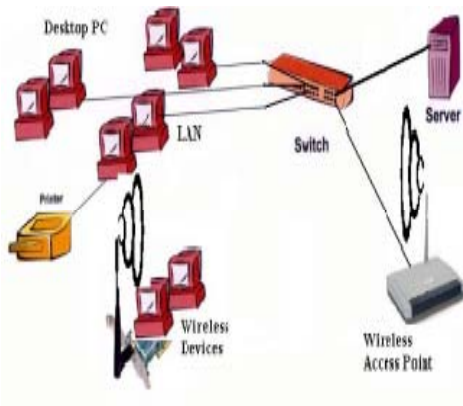


Figure 1: Wireless network functions just like other wired network segment

In place of a direct cable connection between the network and a client, wireless networks employ wireless access points (WAPs), which are physically connected to the network, and wireless network interface cards (NICs), which are installed in each client device. As shown in Figure 1, both WAPs and wireless NICs send and receive RF transmissions, collectively establishing the wireless link. WLANs generally operate at speeds similar to wired networks, although performance can

vary. Each WAP installed on a network broadcasts a signal that transmits in an omnidirectional pattern. Most commercially available models broadcast from a few dozen feet to over one mile or more. RF frequencies are relatively unimpeded by physical structures such as walls, ceilings, or windows, so the WAP signals can be picked up some distance away from the buildings in which they originate. A single WAP can handle traffic from any number of wireless client devices operating within its broadcast area.

A similar set-up can exist from buildings to vehicles; this allows computers on the vehicle to connect to the network via a transmitter in the laptop, to the receiver/aerial on the building. Such technology is used on mobile libraries and mobile hospital units. Wireless LANs offer many advantages over traditional wired networks, such as mobility, flexibility, scalability and speed, simplicity and reduced cost of installation. Wireless technology can also provide a simple solution when installing networks in listed buildings that cannot, for architectural reasons, have a physical network installed. In many US libraries wireless LANs have already proved very successful. Portage County Public Library in Wisconsin has had wireless access to the Internet since 1997. The William F. Laman Public Library opted for a wireless network - it cost much less than trying to overcome problems of

installing a traditional LAN because of the construction of the building. Both of these libraries allow users to access the library network from anywhere in the building.

How Do They Work

All wireless technologies use standard technology saddled over a wireless medium - airwaves. The major advantage of this type of technology is that there is no cable between network access points. Wireless networks require: a wireless access point, a wireless PC card, a wireless PC adaptor and a network connection for the access point. The important factor is that only the one.

Access point needs a network connection, rather than each computer as shown in the figure1. The limiting factor of wireless networking is the distance versus bandwidth issue, because the further the computer is from the access point the slower the speed of data rate transfer (megabits per second). Although wireless connection has the possibility of 11Mbps, 22Mbps, 54Mbps, this can be as low as 1Mbps as the distance increases.

Form the above paragraph wireless network requires at least one access point and one or more Wireless NIC for the library network. The number of NIC depends on the size and need of computers to connect through the wireless connectivity while the number of the

wireless access points depends on area that we want to cover.

Now a day wireless NICs and Access points comes in various range in terms of data transfer speed like 11Mbps, 22Mbps, and 54Mbps. For example D-Link® provides DWL-120 Wireless LAN adapter and DWL1700 Wireless Access Points which can operate on 11Mbps while DWL-520+ PCI Adapter and DWL 1000AP+ Access point can provide network speed of 22 Mbps Still new and new innovation is and new products from various companies are available in the market for higher speed in wireless network. Depending on the speed and cost factor one can use any of the wireless instruments for the library.

Wireless Networks And Libraries

Wireless connectivity gives libraries the opportunities to introduce new services and extend current services to more users. Richmond Libraries has installed wireless LANs in three branches, which includes wireless access points, installation, configuration, and PC cards. The wireless LAN complements the existing cabled LAN. This enables the local college to run IT awareness courses using laptops when the libraries are closed.

Wireless connectivity may be the cheapest way to network library buildings, especially

smaller local libraries. Such networks will provide flexibility in services, allowing users to sit where they wish when accessing the Internet or library OPAC. Users can either access the wireless LAN using their own PCs (having borrowed or purchased a wireless network card from the library), or libraries could loan out networked enabled laptops for use within the library. Wireless networking also provides the opportunities to offer access to library services in alternative locations.

Developing Services :

Installing wireless networks combined with WAP (wireless Access Protocol) enable Mobile libraries may provide current services, or introduce new and innovative services for the public to utilize through the wireless environment. Mobile messaging or SMS, for example, could be introduced for sending information to users. Collecting users' mobile phone numbers upon registration would allow library staff to send text messages regarding requested items, notify them of events, or issue reminders of overdue items. Some libraries are already developing WAP enabled library Web sites. Both Shropshire and Hampshire Libraries, for example, have developed WAP pages that contain basic library information.

Challenge Of Wireless Connectivity In The Library :

Wireless connectivity raises a number of challenge for libraries:

➤ Security :

A recent survey highlighted that 25% of organizations not using wireless LANs were held back by security concerns. No library wishes a user to walk into the building and gain access to the private staff network or circulation module of the library management system. Restrictions need to be made on who can access the network and from what access point or building. However, security provisions can be built into wireless LANs making them as secure as most standard LANs.

➤ Unauthorized Access

Unauthorized users accessing network through the WLAN/LAN are a major security concern. We have to provide some mechanism, which will, denies unauthorized users access or limits their access to public network segments such as the Internet.

➤ Unauthorized Devices :

Some devices, such as unauthorized laptops or PDAs, can leave you wide open to attack. We have to provide some mechanism to automatically discover any new devices on your network and immediately alerts to administrator.

➤ Costs :

Although running costs can be comparable to traditional wired networks, wireless transmission and reception equipment is generally much more expensive than the cost of comparable wired components. For Example the cost for DWL-520+ PCI Adapter and DWL 1000AP+ Access point of D-Link product is approximately Rs. 12000 and Rs. 18000 respectively while many other wireless instruments are available in the market but the cost differs depending on the requirements and manufacturing company.

➤ **Resources :**

Wireless networks may provide libraries with the opportunity to introduce new services and increased access to e-content on network. However, all these services need trained staff to develop and support them. With limited resources, development of such new services will need prioritizing alongside existing services.

➤ **Changing Technologies :**

Wireless technologies are constantly changing, which makes long-term planning difficult. For example, the take-up of WAP phones has been disappointing and the GPRS system may supersede it. Blue tooth looks like being a major influence in wireless networking and yet already has a challenger in Wi-Fi. Libraries therefore need to be flexible when planning their wireless services and keep abreast of the latest developments.

Conclusion:

The use of wireless connectivity in libraries offers the opportunity to provide the same standard of service to users regardless of location. Not only does a connection to the network and library management system benefit users, but staff can also manage stock and statistical information in a far more efficient way. In addition, wireless networking may offer libraries previously seen as too remote or expensive to network the opportunity for the same high-quality networked services as a central library. Unfortunately, there are many numbers of articles about libraries and wireless connectivity, but there is a wealth of information on wireless technology in general. But this paper provides real information for the library people to establish a new wireless network or to migrate from existing wired network to wireless network. There may be a vertical learning curve ahead of libraries who wish to make use of wireless connectivity, but the benefits of the services and, in particular, the increase in equality of service, will make the initial struggle worthwhile.

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Stimulating Reading Habits from Childhood: The Right way

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Abstract:

The paper discusses about the meaning of reading and why reading habits, zests for reading, love of reading; children's leisure time reading habits; girls/women and boys/men reading habits; and some recommendations to stimulate the reading habits.

Keywords: Reading, Reading Habits, Zest for Reading, Love of Reading, Leisure Time Reading, ICT, Internet Services,

Introduction:

Reading is one amongst other tools for self-development and learning, and it is important that we see books in a positive interplay with other media. The essence of the modern library concept is that libraries give access to information content, whatever the media. But I must maintain that reading and consequently books should still be given first priority in the library – and the challenge facing us is to persuade children and the young to share this point of view, because reading skills are imperative for our ability to develop, both as

people and in a professional sense. Besides, reading skills are absolutely essential for our educational advancement.

2 Zests for Reading and Love of Reading

From a philosophical point of view zest comes before love – so there might be a point in stressing the desire – the zest – rather than the love. Because the desire to read must be there – also for those who do not know a love of reading because they do not normally read.

So you want to focus on a zest for reading and stimulate children's interest in books by giving as many as possible access to books – in fact bring the book and the child closer together and hope that this meeting creates a love of reading.

In a more overall societal perspective it is also interesting that society has moved in the direction of focusing more and more on desire and joy. Even in institutional contexts the emphasis is on immediate experience.

And I think it right that the campaign Children and literature to a greater extent focuses on creating the right conditions rather than obtaining results. After all, the problem is not getting enough books produced, but inducing more children to read them. Even in the group of most avid readers – the 9-12 year olds – one in four hardly ever reads in his spare time. And we won't change that by banging them on their heads with the books and forcing them to read – no, we have to explain to them how they can get hold of more of the kind of stories they like being told by others – introducing the possibilities instead of pushing.

Campaigns by themselves are of course not enough – but the extra money available for supporting existing activities, can help create

a forum for the great enthusiast to get heard and meet the children who are entitled to the good story.

3 Children's Leisure-Time Reading

Boys read less than girls, 75% of all children read in their spare time at the age of 9-12, but when they reach the age of 15-16 the figures are quite the opposite: then only 25% read in their spare time. At school, on the other hand, the 15-16 year olds read much more, but they read what the adults want them to read. And many of the 15-16 year olds explain that they are already reading so much at school, and that their need for stories in their spare time is fulfilled through other media that they encounter to a lesser extent at school. And there is naturally also a limit to how many hours they can be poring over their books after many hours at school and three hours of homework.

A very important challenge is trying to hang on to some of those who are actually reading at the age of 9-12, but who later lose interest. Harry Potter is an example of how to maintain the reading interest of this group.

4 Girls and Women vs. Boys and Men Reading Habits

Another central challenge is the boys. Every survey shows that girls and women all over the world read more than boys and men. And perhaps there are some factors in society that emphasize this tendency. When asking the boys what is wrong, one main reason seems to be that there are not enough books with the kind of excitement, horror and splatter, they prefer.

Yes, both as regards literature and mediation – we can see that the boys are attracted to the media that provide role models – computer games and films.

Different corners that enable us to develop our own sensual identity before we meet the puberty. Perhaps that is why boys have to test their own sex identity through the books they choose to read.

5 Different Parameters to Increase the Reading Habits

5.1 Necessity of Seeking New Ways of Encouragement towards Reading Habits

Children and young people the competition from other media and activities is immensely strong, and boys in particular seem to drop books in favour of other pursuits. But however many stimulating games and other

media are developed, reading remains as important a culture-competency as ever. Perhaps even more so. We therefore have to seek new ways of encouraging children to read and in practice it will often be up to us to safeguard the book's firm position as part of a versatile media use.

5.2 Role of Library

The secret is therefore to make sure that the child's first meeting with the library becomes the introduction to a lifelong and enriching relationship. The methods for creating such a valuable first meeting are basically a question of integrating access to the library and its materials as simply as possible in children and other users' daily lives.

Kindergarten libraries are a good example of this: Here it is made very easy for harassed parents collecting their children to get picture books and books for reading aloud – and when bedtime comes, the books are just at hand. The kindergarten libraries are a success and the model can easily be transferred to other children's institutions and used in many other contexts, all of them helping to make children familiar with books from an early age. At the same time, new alliances are formed between the librarians and other professional groups who are given the chance

to make the best possible use of the library service in their work. Kindergarten libraries are not about the kindergarten having a pile of books available for the children to borrow – they are also an example of how librarian and teacher work together and stimulate children as well as their parents because they are well aware of the needs of both.

Good library portals on the Internet also demonstrate how the public libraries can incorporate the mediation of literature as a natural element in the daily environments of both children and adults. In Denmark, it is for example possible for anyone to search in the Danish libraries' materials on the website library.dk, order the materials to be collected – in some instances even having them delivered. So using the library becomes very easy. Integrated in the portal is an extremely popular children's inquiry service called Ask Olivia (that co-operates closely with Danish Radio) and the virtual children's library DotBot which also provides tips on what to read.

5.3 Strategy to Combine Internet Services with Book Reading

Once again the strategy is for an interplay between the media and letting them supplement each other. There is the risk

though of children using only the Internet services and discarding the books. The net strategy therefore has to be combined with outreach activity and co-operation with teachers and other players in children's daily lives.

5.4 The Personal Meeting of Authors and Illustrators in the Library

The possibility of meeting authors and illustrators personally at specially arranged events in the library can likewise open eyes as well as doors – particularly if the artist has really got something to say and knows how to get his message across and capture an audience. Or if he knows how to involve children in a creative writing and drawing process that helps to develop the child's understanding of the story and the picture. The reading campaign Children and literature features amongst other things regular visits to the library by the same author, and I am very hopeful about this particular activity because I feel it will inspire the children as well as the librarians and the teachers.

5.5 Personal Mediation of Librarian

Personal mediation will always play an important role. The librarian can and must

continue to play a very essential part in the stimulation of children's joy of reading.

5.6 Book Catalogues as Intermediaries

The catalogue is aimed primarily at children and young people, but also at adults in their role as intermediaries. Its intention is to make the act of reading more enjoyable by informing, in a pleasant manner, about the great variety of books published each year in the World. This is done by reviews and articles, often written by young people, who have something valid to impart on the subject of books and reading.

The catalogue can be ordered free of charge by pre-schools, schools, libraries and book dealers, where the general public can get their own personal copy.

5.7 ICT to Help Visual Handicap/Hearing Impaired or Children Unable to Read

The catalogue is continuously evolving. From its humble origins as a static PDF file on the Internet to this year's interactive version found at www.barnensbibliotek.se, enabling children to search for books, add their comments about them and read those of others. The information technology applied here also assists those children who have a

visual handicap enabling them to listen to book reviews, and for those with hearing impairments to take part with the aid of sign language.

A group consisting of four experts, each specialising in books for the youngest children through to young people and factual study books, select the books to be presented in text and on the cover. The texts are written with a specific category of readers in mind. This means that children who have not yet learned to read are still able to partake in a reading experience by hearing about the contents of a book.

5.8 Impact of Children's Literature

First of all there is the great immediate experience of children's literature. Those moments have a long-term effect on the child's future, but is something that we do not have any control over at all. At the same time the children's book is also a means of developing and achieving many things in society. Behind the children's books we find a lot of adults who write, publish, mediate and assess them – and work out objects clauses and reading lists in schools which make children read books that they would otherwise not be very interested in. So the books also provide children with experiences and tools

that are ruled by the wishes of the adults in relation to the children.

It is important to be aware of this duplicity that the children's book always exists in two universes – one where the child is mostly in charge and one where other people determine what books children read. And that the two functions may well intersect – organised experiences in a school context may prove to be quite as wonderful for the children as those they get when choosing their own books.

5.9 Catalytic Agents to Encourage a Love of Reading

We know that children's love of reading is encouraged by books in the home and being read to at home as well as being introduced to the library at an early age – in fact to learn that books are exciting already before they go to school – and later to have access to a good library that provides all the material they need. At school, the teachers who are themselves keen readers can pass on their love of reading and their particular enthusiasm. They do not only maintain that reading is a good thing, one feels that they like reading and talking about books.

5.10 Personal Contact

Generally speaking it creates a certain trust and inspiration if we feel that people who recommend a book or a restaurant really believe in what they are telling us. Children are also very dependent on guidance from others – and for three out of four children the most important influence when it comes to reading is their friends. Teachers, librarians and other influential groups are much lower down that ladder.

5.11 Influence of Serious Children Reader on Casual Children

Those children don't normally need much more than being continually inspired and informed. But we, as adults, must get used to looking at them as role models and making it even more tempting to read – things like book clubs, meetings with authors at the school etc. Because I believe that the way to get those who don't read to do so, is to focus on those who do – that is to create good role models that can show other children what a delight it can be to read – teaching by example is far more effective than trying to enforce an interest in reading.

5.12 Stimulating Pupils Reading Habits through the Teacher's Experience of Children's Reading habits

Apart from using the new anthologies and textbooks that may contain texts which children would read anyway by choice, we could also learn something from the way children talk to each other about books – they guide each other into reading a book that they themselves are enjoying at the moment, describing what kind of book it is and comparing it to something they have read before. In fact, a kind of quality and inter-textual criteria based on enthusiasm that can be included to great effect in a professional context.

Besides above recommendations the following recommendations can be useful to increase the reading habits:

- (i) Examination must not be based on suggestion basis;
- (ii) Insist on reading of syllabus oriented books as well as reference books and story books;
- (iii) Teachers and Librarians should encourage to use library;
- (iv) Photocopying of books/journals should be strictly prohibited to habitat the students with reading of books/journals;
- (v) Teachers must not provide suggestions before examination to encourage the students to read the

whole syllabus for depth knowledge;

- (vi) Organization of reading projects, talks/seminars to boost-up the students towards reading habits of books/journals;
- (vii) Involvement of more and more enthusiastic people in reading projects and those should be run continuously. An important pre-requisite is therefore that anyone involved in reading project is given the chance as far as possible to relinquish his/her ordinary duties;
- (viii) Reading projects are born and carried out by fiery souls, who have been graced with a richness of ideas, creativity, energy, courage and a great capacity for work;
- (ix) The project has to have a clearly formulated goal and a defined target group. If the project gets local anchorage, if the emphasis is on co-operation and networking and on there being time enough before, during and after the project;
- (x) The funding has to be sufficient to last to the very end;

- (xi) One has to decide which age group the project should be concerned about, as children of different ages have different reading abilities and the books they are interested in consequently vary a great deal. It is not enough to have a general idea of wanting to cater for children and young. When planning a reading project for children, one does not only has to think of how to get to the child – all the adults who are part of the child's everyday life must be included.
- (xii) Closeness to the child and positive awareness is essential to awaken the interest, a love of reading, to provide the books and give the child place and quiet to read, the chance to be influenced by its friends and support from the adults.

Reference: Own Experience

Changing Role Of Librarian In E-Resources Enviroment

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Abstract :-

Library plays an important role in supplementing class room teaching and it is the librarians who disseminate the precise information contained in the documents to its user in an efficient manner. Librarian is a professionally trained person responsible for the care of library and its contents, including the selection, processing and organization of resources and the delivery of information, instruction and loan service to meet the needs of its users.

Keyword: ICT, Virtual library, Access to e-resources

INTRODUCTION:-

In the digital environment, the role of the librarian is to manage and mediate access to information that exists only in digital form.

Crawford and Gorman (1995) have defined the role of the librarian today, To acquire, give access to, and safeguard Carriers of knowledge and information in all forms and to provide instruction and

assistance in the use of the collections to which their users have access.... (Libraries) are about the preservation, dissemination, and use of recorded knowledge in whatever form it may come.

LITERATURE REVIEW :

K. Nageswara Rao and KH Babu (2001) has concluded in the research paper “Role of Librarian in Internet and world wide web Environment” that the internet web environment and associated sophisticated tools have given the librarian a new dynamic role to play and serve the new information based society in better ways than hitherto. Because of the powerful features of web i.e distributed, heterogeneous, collaborative, multimedia, multi-protocol, hypermedia oriented architecture, worldwide, web has revolutionized the way people access information, and has opened up new possibilities in areas such as digital libraries, virtual libraries, scientific information retrieval and dissemination.

INFLIBNET (Information And Library Network` Centre, Ahmadabad) (2004) has summarized in the paper “ Impact of Internet on Library and information services” that the internet provides library users with a vast array if seemingly accurate information,

librarians will need to increasingly adopt the role of teacher or guide. Users will not only need to learn how to best access information, they will also need to be taught to critically evaluate internet resources to determine their validity. Library professions do, however, need to remain flexible and open to the potential the internet can have for the profession and for library users.

P.L.Sharma has mentioned in the research paper “Changing Role of Librarians in Digital Library Era and need of Professional skills, Efficiency & Competency” that The external resources are those materials that are not stored in the web server. External resources include online journals, online databases, online e-books etc. External resources are provided by different publishers - ASME, ACM, IEEE, Oxford University Press Journal (OUP) and many more are there. In the present technological/Internet era the professionals have to change themselves as the information profession is being changed. Now information specialists have to work as e-information resources in which various professional groups are expected to map strategies that leads to produce, manage, maintain and service the information.

Core Area Of Library To Improve

- **The collection development role :** - that provides the materials for research and Scholarship and involves, selection, acquisition, processing for access and control.
- **The information consultation role :** - that guide the student or faculty member toward the best materials to meet their information needs,
- **The instruction role:** - that helps develop students (and faculty) into information fluent citizens capable of long term continued self-education and effective and ethical use of information.
- **The archival role:** - of collection, preserving and carefully sharing the historical records of an institution and the people who have worked.
- **The incredibly important and underappreciated role :** - Of special collections in creating a unique intellectual focus and identity for an institution.
- **The role of library in providing:-** Not only spaces for group study or digital media creation and people who don't care a whit for an "information commons"

and don't need or want to work or study with others.

In the time of the digital Era and E-Resources every librarian should develop the following basic knowledge and skills to provide the best services to his users.

Knowledge & Skills:

Teleological facilities and resources (computer, online catalogues, websites, LANs file servers etc.) Knowledge resources (books, journals, i.e. resources, Internet, Financial resources (Budget) Human resources (Skills for manpower training)

Competencies That Required To Possess In LIS Professional:

Acceptance of change, Knowledge of user interaction with knowledge resources, Knowledge of user interaction with knowledge resources, Provide quality service,. Be adoptive, flexible and resistant,. Be resourceful, Posses excellent communication skills, constantly update personal knowledge base by keeping in touch with the latest development, Create awareness among the users, make them accept the changes, Be an information management strategist, etc.

Technical Knowledge Required:

Operating systems - Windows, UNIX, LINUX, Word processing, Graphics, Spread sheet & Presentations, Database Management Systems including the skills in Bibliographic Database Management Systems, General purpose programming, Networking, Web page Development and Content Management, Information Retrieval software for online, CD-ROM and Internet, Library software packages, acquaintances with Digital Library Tools.

SOME OTHER ROLES ARE AS:-

- To provide intellectual access to information in any format
- To evaluate available sources of information
- To organize and structure information
- To ensure the preservation of information and
- To provide specialized staff to offer instruction and assistance in interpreting resources and access to resources

With the advancements in electronic technology, it becomes very difficult for an individual to get the required information without wasting their time. It's the information managers, who

have to make the required information available to the individual without wasting his/her time. In the present scenario, the information professionals have to keep in mind the following points to keep pace with the modern trends, which are taking place due to advancement of technology, if they want to survive:

- Continuous updating
- To have a bird's eye view about the developments
- Developing strong professional terms in their respective libraries
- Arranging continuous education and training programs for users and staffs
- Accept the challenges being imposed due to advancement of technology and
- Arrange lectures/training programs from time to time

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How Free Online Journals Help To The Library Professional

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Abstract:

E-Resources, Internet databases, electronic products, virtual libraries, clickable collections, e-Libraries, Internet resources, e- materials. E-Resources are one of the products of Information and communication technologies. The revolution in information and E-Resources is registering significant changes everywhere and have been playing substantial role in library and information systems ever since its inception. The advancement of E-Resources during recent years has given libraries a powerful new resource to support learning and research with availability of both forms of journals in the library.

It has become necessary to evaluate effectiveness of E-Resources. Many E-Resources have hosted their own websites across the World Wide Web. This study highlights the importance of online Free E-Journals with their facilities and features. Last one decade has witnessed a great boom in scholarly E-Resources, which in addition to making great impact, has generated enormous debate among researchers and information professionals.

Keywords: E-Resources, E-Journals, Free E-Resources,

Introduction:

E-Resources are part of what we refer to as the “Invisible Web”. The Invisible Web is the information accessible to us through the Internet, but not freely available to everyone

on the World Wide Web, and not appearing on search engines like Google. The Invisible Web contains password-protected Web content available only to authorized users known as members or subscribers. Wwww has

propelled this vigorous growth that is not fit in traditional publishing format with the coming of the age of the E-Journals. The way of communication is changed now throughout the world. Use of E-Journals saw a big jump in the last half of the 1990s. Free online information sources and service can be accessed on internet without paying any subscription charges to the publishers and users do not need to have any membership in the organization. Users can access and download required information available on these sources in their computers and can use for their academic and research purpose only. The Internet, particularly with the World Wide Web, also provides a means of communicating with the public at large. Since the quasi miraculous emergence of the web in 1990s, there has been a continuous increase in the volume of scholarly resources in electronic form. These resources have provided a scope for researchers and authors in various subjects' fields and stimulated their research productivity and Library and Information Science is no exception to this. In India, authors in the LIS field have access to a very limited number of scholarly literatures, especially journal articles. Hence, there is an increasing trend to use Internet, the best alternative medium to search for scholarly literature and to use web resources to support

their research productivity. Libraries have witnessed a great metamorphosis in recent years both in their service literature Print medium are increasingly giving way to the electronic form of material. Use of Information Technology has marked a tremendous impact over the all functions and services catered by the traditional library and information professionals. Information sources in a given discipline are referred to as "Literature" that included all definitive sources of information. Electronic journals are also known as E-Journals, Electronic Serials and scholarly journals or intellectual magazines that can be accessed via Electronic Transmission. In practice, this means that they are usually published on the web, in a specialized form of electronic document, for purpose of providing materials for academic research and are formatted approximately like journal article in traditional printed journals.

Methodology:

Online Information sources and services have been identified using various search engines on Internet. The search is limited to only free online information sources. The words 'free online E-Resources in LIS' have been used as keywords for searching. The research study adopts a mixed methodology i.e. evaluative cum observation by going to the various search engines, there after browsing the actual

websites of E-Resources. A detailed observation, checking and ascertaining through self study whether the E-Resources are actually free or not after that the free E-Resources have been enlisted and structured in a tabular form by adopting Criteria of evaluation, Checkpoints of different authors prescribed for evaluation of Information Sources. The given mythologies of Louis Shores, Ranganathan and other such evaluation methods drawn from the Internet sources have been applied. Louis Shores has given a checklist for evaluation of web documents. Commonly these points are known as ASTAFS- Authority, Scope, Treatment, Arrangement, Format and Special Features. The data thus obtained have been used systematically, analyzed with appropriate interpretations.

Conclusion:

This study is confined to Free E-Journals in India and others country. Various evaluation methods have been proposed, but this study utilizes some of the useful checklists/criteria for evaluating information found on web. A major similarity found that almost E-Journals are concentrating towards digital library initiatives, technological, information service

developments and information networking issues contains a wide coverage of local library issues ranging from ongoing research day-to-day news from the work place etc. Out of several searched E-Journals it is found that all E-Journals available in full text form free of cost and can be received regularly without missing even a single issue. The most notable findings in the study are that it provides effective communication between user and online Free E-Journals.

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Library 2.0: Requirement of 21st Century web based library services

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Abstract:

The information needs by library users are more comprehensive and unlimited. The advancement of the technology in past several years has enabled libraries to create new services those did never exist before. This paper defines Library 2.0 as “the applications of interactive, collaborative and web-based technologies to web-based library services and collections,” and suggests the definition adopted by the library science community. It suggests that recent thinking and describing the changing the role of library in 21st century as Web 2.0 will have substantial implications for libraries, and recognizes that while these implications keep very close to the history and mission of libraries, they still necessity of a new paradigm for librarianship in recent era.

Keywords:

Web 2.0, Library 2.0, Blog, Wiki, Social Network, Web Technology, OPAC, Virtual Library, Digital Library, Internet, Information Communication

Introduction:

The advancement of technology in the past several years has enabled libraries to create new services those did never exist before. The information communication within the libraries find themselves is changing, probably faster than ever before. These changes offer great opportunities for libraries to reach out far beyond the boundaries of their buildings and web sites, and to engage with an increasingly literate body of information consumers. The automation of library operations, creation of web OPAC, digital repositories, downloadable files and providing virtual references through the library portals have been play a key role in raising standards of the library services in higher education as well as research and development in the country.

The term Library 2.0 was coined by 'Michael Casey' on his Blog 'Library Crunch'. He defines the term very broadly, arguing it applies beyond technological innovation and services. The application of Library 2.0 theory to aspects of librarianship reaching beyond Web 2.0 technology, adapting Web 2.0 applications. Libraries encourage user participation and feedback in the development of library services thereby they are frequently evaluated and updated to meet the changing

needs of the library users. Library 2.0 is a user centred virtual community. It is completely user centred and user driven. It is library for 21st century, rich in content, interactivity and social activity. In new web environment the user becomes a collaborator to the work of the library. The role of the user as an information seeker has been gradually changed as producer of new information. While Librarian 2.0 might act as a facilitator and provide support, he or she is not necessarily primarily responsible for the creation of the content. Users interact with and create resources with one another and with librarians. A library presence on the Web in Library 2.0 includes the presence of that library constituency and utilizes the same applications and technologies as its community.

The conceptual view of Library 2.0 that might be rather dependable, dream of the technological specifics for the next generation of electronic library services is at once both fraught with inevitable error and absolutely necessary. The details of how the applications so common to Web 2.0 will continue to evolve, and how libraries might utilize and leverage them for their patrons, are inherently hidden they are wholly about innovation. But the conceptual underpinning of a libraries web-presence and how it must evolve into a multi-media presence that

allows users to be present as well, both with the library or librarian and with one another, are clearly in the need of development. Libraries may do well to continue adopting the technology as it evolves, as it allows reference services in an online media to closely approximate the more traditional services of physical library. Library 2.0 is a loosely defined model for a modernized form of the library services it reflects a transition within library the way that library services are delivered to users. This includes online services like the use of OPAC systems and an increased the flow of information from the user back to the library. With Library 2.0, library services are constantly updated and re-evaluated to best serve for library users. Library 2.0 also attempts to harness of the library user in the design and implementation of library services by encouraging, feedback and participation. Proponents of this concept, sometimes referred to as Radical Trust expect that the Library 2.0 model for service will ultimately replace traditional service offerings that have characterized libraries for centuries.

2. Definition:

In very simple terms Library 2.0 means making your libraries space, virtual and physical, more interactive, collaborative, and driven by users need. When the concept of

Library 2.0 came, it was seen as a response to the increasing evolution of web technology, which was more interactive, social, and user determined. In 2005, one librarian described “Library 2.0 simply means making your library’s space (virtual and physical) more interactive, collaborative, and driven by community needs. The basic drive is to get people back into the library by making the library relevant to what they want and need in their daily lives to make the library a destination and not an afterthought”.

John Blyberg says “we cannot expect to retrofit our libraries with tomorrow’s technology. The true pursuit of Library 2.0 involves a thorough recalibration of process, policy, physical spaces, staffing, and technology so that any hand-offs in the patron’s library experience are truly seamless”.

So, we say that the Library 2.0 is a transformation in the way of library services are delivered to library users. It provides new tools to make the library space (both i.e. virtual and physical) more interactive, collaborative and driven by community needs. It encourages collaborative two-way social interactions between library staff and library customers. Library 2.0 requires user

participation and feedback in the development and maintenance of library services.

3. History:

Library 2.0 made its conference debut at Internet in October, 2005, when Michael Stephens of Saint Joseph County Public Library addressed the idea in relation to the typical library website. In September, 2006, article in Library Journal, entitled 'Library 2.0: Service for the next-generation library' begins by expressing the benefit of Library 2.0 to library administrators and taxpayers as providing "more efficient ways of delivering services to achieve greater returns on financial investments." The article continued by asserting that the much discussed Library 2.0 is important for librarians as it may radically change our customer service and interaction.

With Library 2.0, library services are frequently evaluated and updated to meet the changing needs of library users. Library 2.0 also calls for libraries to encourage user participation and feedback in the development and maintenance of library services. The active and empowered library user is a significant component of Library 2.0. With information and ideas flowing in both directions "**from the library to the user and from the user to the library**", library

services have the ability to evolve and improve on a constant and rapid basis.

4. Advantages of Library 2.0:

By adapting the Web 2.0 applications, libraries encourage user participation and feedback in the development of library services thereby they are frequently evaluated and updated to meet the changing needs of the library users. With information and ideas flowing between the library and users, the services will be improving rapidly. Now most of the useful information or data is available through various kinds of web resources at free of cost. The conventional channels of library system are inadequate for gathering such information and outreaching the user community. So, the information coming through computerization and digitization is limited to their host library or libraries on network, which needs to be supplemented with freshly generated information to take the library concept truly to the new generation. The advantages of Library 2.0 are mentioned below:

- **Low risk:** Library 2.0 document will not be there physically. It is browser based system, does not require big infrastructure like campus LAN, Servers, Cables or WiFi of our own and computer science or IT qualified experts.

- **Low cost:** Web 2.0 technology makes it possible to do a lot without licensing as well as maintenance. Thus it will not be a burden to the libraries many times.
- **Infrastructure:** Library 2.0 is associated with computers, internet connection etc. Its does not require any other infrastructure to gather information and provide the same to users. So, Library 2.0 environment can be established in existing infrastructure.

Tools and applications: Web 2.0 tools and applications are being developed in almost all regional language. So it is easy to adopt for develop Library 2.0

5. Technology and Library 2.0:

The Library 2.0 extends to the software and hardware that libraries use, including integrated library systems (ILS). Modifiable automation systems and catalogs are preferable to proprietary, closed systems. Some librarians are concerned that ILS vendors, in an attempt to capitalize on the changes brought about by Library 2.0, will design proprietary interfaces to link library catalog data with our users.

In other libraries, applying 2.0 is a question of awareness. “Ask yourself if your library is ready for this type of shift [in technology], because, overwhelmingly, the answer is no,” writes Jenny Levine of the Shifted Librarian

blog and the American Library Association. “Librarians just aren't thinking like this yet, and we need to change this. It's at the very core of the whole 'Library 2.0' discussion, and this is why it's so critical. If we keep our content locked up on our own web sites and don't get it out there for people to use as they want to use it, then our content will fall by the wayside”.

For many, a realistic start means embracing some inexpensive, even free new technologies. Libraries currently offering word processing may want to move away from locally installed and administered applications and instead point customers to such wonderful online tools as Writely and Write board, which both offer word processing applications that run in the web browser. These online tools offer valuable collaborative functions. Two writers can simultaneously work on Writely, crafting changes visible to the other writer, no matter their physical distance. Many other Microsoft Office–style applications exist online. Microsoft has recently announced online productivity tools to come from Microsoft Office Live.

6. Conclusion:

The use of Web 2.0 technologies and applications, along with others not here

mentioned and others not yet invented, will constitute a meaningful and substantive change in the history of libraries. Library 2.0 is a new way of providing library service through new web technologies, with emphasis on user-centered, change and interaction. Like Web 2.0, a full featured Library 2.0 OPAC gets better the more that users are involved in the process of interacting with the catalogue and sharing contents. The librarians have been working to retool library catalogues in order to make them more useful for patrons to find, organize, and interact with information in a way that has infinite potential for user customization. In the past the information flow was mostly one way from library to user. With new web technologies, information can be released to flow in every direction like library to user, user to library, library to library and user to user.

The best conception of Library 2.0 at this point in time would be a social network interface that the user designs. With the advent of Web 2.0 technologies and applications, the libraries collection will change, becoming more interactive and fully accessible. The library services will change, focusing more on the facilitation of information transfer and information literacy rather than providing controlled access to it. 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. Libraries moved collections and sparse services into the online environment, and Library 2.0 will move the full suite of library services into this electronic medium. The library has had a web-presence for many years, and with Library 2.0, its patrons will be joining it.

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Role of librarian in digital library

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Abstract:

The World Wide Web has made access to the Internet part of the structure of every day life. Millions of people all over the world search the web every day. Digital library are form of information technology in which social impact matters as much as technological advancement. In modern times, the library is constantly required to meet the challenges of information explosion. Digital library is a global virtual library. The main aim of digital library is to provide ready access to required information at a faster rate. The internet is playing a vital role in information source and service. In digital libraries, seeking and searching is very fast. Digital libraries are innovations, the implementation of which is nascent in the developing countries. Thus digital library is one of the hot topics in 21st century which changes the librarians and library professionals to update themselves in terms of guide the readers to the right destination without delay. The paper mainly focuses on the e learning, digital library process and global connection of the library.

Keywords:

Digital Library, Information Explosion, Digitization, Information Technology and Information Retrieval.

Introduction:

The technological revolution including Digital Library has influenced all aspect of life. We have observed advances in information technology and its applications. The novel technology manages to offer computer processing power, mass storage and easy access to high- speed network and retrieval devices which provide the ability to

create, manipulate, store and transfer mass information in digital form at low cost.

The networking environment, electronic publishing and resource sharing activities have brought about evolution of libraries into Digital Libraries. The tremendous use and collection and information dissemination. The library community was the first to find the

best application of the optical storage technology offered by the CD-ROM, which is highly useful and economical.

Library power derives primarily from the repository and custodial functions of libraries but today libraries main emphasis is on accessibility and use of records. Library is actually the “mind of society” and plays a vital role to help in transmission of knowledge of earlier generations to the later ones. The collections of Traditional Libraries or the other hand are mostly print media; manuscripts etc. that are deteriorating at a rapid rate, the collection information is not easy to locate and so does not easily reach to user. The activities of the Traditional Libraries are confined within the four walls of the boundary. Some significant problems with the paper library that argue the case for digitization are:

Space required for keeping paper documents;

Inflexible and convenient books/ card form of catalogue: •

Fixed Library timings as human agent is required to use paper library: •

One user can use a particular documents at a time; •

Increasing complexity with the growth of publication (Shah 2006). •

Definition

Digitization refers to the process of translating a piece of information such as a book, sound recording, picture or video, into bits. Bits are the fundamental units of information in computer systems. Turning information into these binary digits called digitization. This digitization process can be carried through a variety of existing technologies.

According to -Lesk (1997)

“Digital library 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 –Williams 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, become a digital library collection.

A digital library, is not confined to just digitized collection. It should be built according to principles that are not

necessarily the same as those employed for paper collection, and it should be evaluated according to different measures that are not yet totally clear and not defined perfectly.

There are many definition of a “digital library”. Terms such as “electronic library” and “virtual library” are often used synonymously. The elements that have been identified as common to those definitions are:

- The digital library is not a single entity;
- The digital library requires technology to link the resources of many;
- The linkages between the many digital libraries and information services are transparent to the end users;
- Universal access to digital libraries and information services is a goal of many digital libraries;
- Digital library collections are not limited to document surrogates; they extend to digital artifacts that cannot be represented or distributed in printed formats;
- To gain knowledge what constitutes digital library let us have a look into a few definitions of digital library

For a simple understanding we can conclude that digitization is the

process of converting print and similar forms to digital forms.

Digital Conversion process includes the following:

1. Documents: they include text, bibliographic or full text, photographs, diagrams, charts, maps, colour images etc. They exist either in print or non-print form, and also, as single unit or collections.
2. Data Capture: it includes manual data entry (word processing), optical character recognition (OCR) or imaging using scanners.
3. Data Processing: the text in the convertible document may require conversion of diacritics or special characters; images may need enhancement, amplification or compression. In many cases a simple conversion from print to digital is not enough.
4. Storage: the digitized information needs to be recorded in proper digital storage medium, which may be hard disk, magnetic tape, optical CD-ROM, or networks with workstation to access.
5. Indexing and Processing: Digitized documents need to be processed

using standards, protocols and indexing systems. Classification using library systems also hold much promise. Metadata application should be a major component of the digital information processing.

6. Retrieval/display: it is the process through which an array of technologies for browsing, displaying, and applying packages that ultimately helps in access.

Let us discuss briefly the digitalization process. :

1. Data Capture – Manual Data Entry

The basic way of transferring an image of a page (or the real page of text) into digital information is to feed the data manually. If an electronic version of the text is available to us, then the task is simple. However, in most digitization exercises, the original document is not in computer- accessible format, i.e., paper – or image-based. It is a well-known fact that the recent information production originates from computers in word or text or other file formats. Manually entered digital text has the advantage of greater accuracy than some types of data (directories, numerical datasets) not amenable to automated means of digitization. However,

manual data entry consumes time, manpower, money and other resources.

2. Data capture—The Scanning Process :

The scanning is a typical part of digitalization that requires hardware, the so-called scanners that can be used to take digital pictures of objects. Scanners can be simple desktop machines or very large and complex systems that process thousands of documents. The physical form of the object can have a great impact on the type of scanning equipment that can be used. Many of the current scanning systems have been designed for business applications where documents are often single sheets or within a small range of sizes, which makes them amenable for automatic scanning. The fragility, odd sizes, and bound volumes of some library materials pose greater difficulties for scanning technologies. They are high productive scanners that suit to library applications.

3. Optical Character Recognition (OCR)

Another simple digitization process is that of scanning printed pages to build a digital databases of text. This process used OCR (**Optical Character Recognition**) software that takes a picture of the page and then turns it into digital text, which can be edited or fully indexed. The OCR software recognizes the shapes of the letters of the alphabet and produces a file exactly the same as one produced by a word processor used to type in the same text. Feature recognition software performs an analogous process on a digitized image of an original picture or on a sound file from an original file. The process of digital conversion is not perfect. As a result, OCR accuracy is in the ranges from 95 to 98%. This means that between two and 5% of the conversion of pictures of words into text will be inaccurate. Even accuracy is difficult achieve always, the readability is assured in many instances. If textual accuracy is required, OCR processed texts must be manually and closely edited, increasing the expense of the digitization process considerably. If the text is inaccurate, then any indexes

that are built using the text will also be inaccurate. Thus, the digitalization cost goes high especially due to the manpower required to do.

4. **Preservation of digital information**

The Preservation of physical information surrogates (analog) is a relatively simple and straight forward task. The normal way of doing such a work involves the microfilming the physical content of the document and keeping it in the controlled environment free from moisture, dust, temperature, humidity etc., if proper storage and controlled conditions are maintained, the life of the microfilmed documents would be in centuries. Digital information preservation is a complex process. The stored digital information may deteriorate sharply owing to known reasons, and prone to corruption of data. Even the regular replication of digital information is ensured to avoid the loss, it is not practically ideal to access it. The digital information existence is possible only when the hardware and software is compatible with digital storage. The longer existence of digital information is determined by the operating system, computational

environments. The transfer of digital objects in to new environment do not ensure preservation as the primary preservation could be different.

A major step towards the digital preservation initiative could lie on the effective use of metadata to support preservation process. The technical aspects of digital preservation includes the consideration of resource type, file format, file size and encoding process. In the application of metadata to preservation includes the description of digital information using data structure, definition and record formats. The access features include name, version, configuration of required application, hardware, software and operating systems. The access environments should be specified so that the metadata can mention pointers to the location of preserved digital information.

5. Indexing

When the digital library invokes concept 'automatic', and all the processes automated, indexing of the digital information remains a challenge. The automatic indexing lies in the process of identifying the key terms or content-bearing terms in the

text and generate entries based on programmes. It is termed as free text or full text indexing. This process needs no human involvement and it is a programme-driven task based on frequency of text words. If the document has author-given index words, the process normally takes the words and index the content. When there is no human involvement and the information processing is naturally an intellectual process, indexing done would not simply be perfect. The standard subject headings, thesaurus or any other controlled vocabularies are not used and hence the reliance of such automatic indexing of digital collection is questionable.

Functional Components of a digital library

The function of digital library is to create, maintain, manage, access to and preservation of digital content. The information repositories are created by producing the information content in digital form or converting the print to digital form, stored in multimedia repositories, and made available through intranet or internet or from any server to the workstations.

To understand the digital library in an ideal way, let us discuss the major functional components of a digital library. They are-

- Conversion of print to digital and acquisition of digital media;
- Metadata creation, processing and description.
- Storing of digital resource in appropriate repository in a networked environment for hosting in intranet, extranet and internet.
- Creating a single user interface and gateway for the digital resources.
- Patron access through a browser or dedicated client.

It is however true that the above components are not mandatory for all digital delivery system nor these alone do not constitute a well- designed digital library.

Digital Library Services:

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

- Cataloguing database

- Current awareness bulletins
- Externally purchase database
- CD-ROM database
- Remote information services
- Internally Published Newsletters, Report and Journals
- Internet information Sources Mirroring & Cataloguing
- Email
- Bulletin board services
- Netnews Systems
- Audio and Video Communication
- Electronic Table of contents
- Electronic Document Delivery Services
- Electronic Theses and Dissertations
- Reference Service
- Central storage facilities for hosting digital collections and indexes
- Electronic Publishing

Role of Librarian In Digital Environment :

Though the digital environment is built as a system, which can be used by its ultimate end user directly from their desktop pc, the role of librarian cannot be overlooked. In digital environment also the librarian and information scientist will be needed for

packaging and repackaging of information, for electronic publishing, for reference purpose, to advise the user about the strategy to identify relevant electronic sources etc. thus the librarian will be more or less a hypertext engineer. In the new environment it will be very difficult for the librarian to decide what should be organized? How to give citation? How to organize the collection? Etc because the new environment will be really challenging one for the librarian to decide who are author who are publisher and who are user?. In the new environment anyone who has access to the network of digital libraries can be a publisher by merely posting messages to an online discussion group or by other means. A virtual environment is really open for all. In some cases, librarians have the opportunity to digitize unique material in their libraries' collections, which can then be made accessible to users of the World Wide Web at large. Some US libraries have done this with local history collections; see, for example, <http://www.orange.lioninc.org/local.htm>;

The future:

Integrated virtual libraries of the 21st century will provide integrated access to an increasing number of resources including existing library collections, archives, collections, scientific

databases, and multimedia presentations. The impact of digital libraries will perhaps be greatest in areas that lack the infrastructure of the developed world. Access to the worlds knowledge will soon be available to anyone with a phone line, eliminating the need for expensive and incomplete local collections. As a few institutions suggest solutions to the questions of format, content, and preservation of the information, digital libraries will become unbounded resources in the universe. The research in digital library is continued to attract the digital information reserchers that could lead us to a highly structured collections.

Conclusion:

Digital libraries are not going to replace the physical existence of document completely but no doubt to meet the present demand, to satisfy the non local user digitization must be introduced so that at least libraries becomes of hybrid nature. The initial cost of digitization is high but experiment shows that once digitization is introduced then the cost to manage this collection will be cheaper than that of any traditional library. Day by day the cost of digitization is decreasing, the online publication is increasing, the needs of user are shifting towards a different environment so it's needless to say that after one or two years

my library or your library will go to be digitized so it's the pick time to all informational and library professional that they geared themselves to take the challenge.

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