CHAPTER VII
MODEL
SUBJECT GATEWAY
The chapter deals with the provision of some views in designing a "Model Subject Gateway" after carefully analyzing various Web resource and their providers, emphasizing more on subject gateways.

"Subject Gateways" are now an alternative to Internet Search Engines such as Google, Alta Vista and to Directories like World Wide Web Virtual Library etc. The Web is quickly becoming the world’s fastest growing repository of data. But it is still very hard for people to locate high quality information amid the general pandemonium. The retrieval of resources from Web has been focused more often as users are lost in the cosmic and seamless ocean of resources on Web. The biggest drawback in the use of search engines is that the results are overwhelming, unmanageable, and full of irrelevant references and are often too prolific to meet user needs; and in the use of Web directories is that reliability of directories on human input. The best answer to solve such problems is Subject Gateway. Subject Gateways have come up with a promise to help users locate high quality and filtered information available via WWW. Koch (2000) opines on subject gateways, as internet services which support systematic resource discovery. These provide links to resources (documents, objects, sites or services), predominantly accessible via the WWW on a specific discipline.

Therefore, these are areas of information designed for a user, to discover relevant information for a given need as opined by Pitschmann (2001). Although, the engines and portals have received a great deal of attention in the bibliography, this is not the case with specialized gateways, in spite of their importance as a tool for searching for and retrieving information. (Robinson & Bawden 1999; Bawden & Robinson 2002). Various research projects on subject gateways have laid different objectives for their designing. Whether they be technical or general views for designing a subject gateway, like any other project, require the roles of each player to be well defined. However, after studying various subject gateways and the resources following views are generated for designing a model subject gateway that can costume the needs of users in a well defined manner:

- The key consideration in creating a Subject Gateway is that the website for it should be designed in such a way that users will be attracted to it. Dull or
bright backgrounds with lots of text, large images, and technological 'gimmicks' are off-putting to users. Poor design can also cause navigation problems. If pages are too crowded it can be very difficult for users to locate relevant resources. Good website designs should therefore, be clearly laid out without any large images, long chunks of text or unusable technology, and also coherently presented, with little alteration between different pages. The layout of its homepage should be pleasing to users also.

- These should be updated on daily basis in order to keep the users intact with the latest available resources in their interested fields. This will help in providing the users with the latest resources of their interest.

- The services provided by the Subject Gateways should be listed in an alphabetical order.

- Display of the latest or newly arrived resources should be incorporated in the main page of Subject Gateways.

- In order to have the best resources in the Subject Gateway the resources should be open to criticism in order to have the best in them. Input on the user’s side is very important as the resources will be critically evaluated not only by the gateway personnel but also by the people who are accessing them.

- Collaboration between Universities at National as well as International level will help in giving a wider and specific coverage to Subject Gateways in every respect. This will help in checking the duplication of resources in them at global level. Further, it will also help in reducing the cost incurred on dealing with resources in subject gateways. Building an International Network of Subject Gateways will help in bringing the best of their parent nations. Cross-Searching will be enhanced due to a networked process of gateways which will help in extraction of high quality Web resources around the world. A librarian or a subject expert can work for the betterment of a subject gateway in case of a networked subject gateway as he/she will bring the best of his/her nation on the gateway database. Records can be added, deleted or
modified remotely. Availing such services by gateways will boost the resources on them to a greater extent.

➢ Networked gateways with multilingual capabilities should be enhanced, so that more and more audience will be attracted to them. The resources available through gateways should be multilingual. This feature will help in meeting the information needs of each user in their desired language, thus giving them a more user friendly platform. Further, it would offer access to resources written in many different languages. It will also enable users to search for and retrieve resources using their preferred language via an interface written in their preferred language.

➢ Making the best usage of multilingual resources, translation services and tools should aid the subject gateway. The provision for translating the resources from the source language to the targeted one will help in removing the old traditional barrier in the communication process.

➢ People dealing with multilingual subject gateways should be well versed with the languages in which the resources are available in the gateway in order to enhance the services and give a better coverage to the resources for their proper utilization and to explore the problems faced by the users. To solve this problem, people with different language skills should be employed for the maintenance of multilingual subject gateways. A person with command over a particular language could be engaged at a place where that particular language is unknown for more exhaustive maintenance of resources. Staff with a multilingual knowledge could also be hired for giving a boon to multilingual Subject Gateways. A call for volunteer contributors can also be beneficial for elevating the standards of multilingual Subject Gateways. Acting as correspondents for Subject Gateways on volunteer basis will help in expanding the scope of such gateway. This activity will help in bringing the Subject Gateway to elevation.

➢ Due to the problem of inter-disciplinary nature of resources, retrieval of information becomes problematic. For that purpose researchers requires
some mechanism where they can execute a single cross-search of several subject gateways belonging to different disciplines and have a cumulated list of the results presented to them. However Dan, Welsh and Martin (1998) comment on developing of a Subject Gateway by usage of a Common indexing Protocol (CIP v3) for providing access to the data available in remote databases encompassing different disciplines.

- A bulletin board service for user discussions and regular e-mail updates and mailing lists should form an integral part of a Subject Gateway as it will keep the users aware of the latest trends in their respective fields. Users can share their views and discuss over various topics. Exchange of the ideas (a type of resource) between the well known personalities will enhance the services and resources of a Subject Gateway. Video conferencing and chatting should form an important component of the Subject Gateway as it will make the people using the Gateway to have a virtual interaction with different people around the world.

- Digital reference service should also be incorporated in the Subject Gateway.

- Proper training should be given to the people concerned with Subject Gateway especially cataloguers and classificationists as they are concerned with its fundamental units i.e. subject classification.

- The project staff of a Subject Gateway should check the quality of the suggested resources before addition, so that fully qualitative resources will be retrieved by the users. It should be noted however, that when we mean people we mean joint contributions of:
  - A subject specialist and
  - An information specialist

The subject specialist is the best judge of what should and should not be included in the Subject Gateway. He can help to select the best resources (and hence filter the not-so-important ones). The information specialist such as a Library Science professional, uses his knowledge of organizing information to put together the available Web resources on a specific subject.
Training manuals for the users should also form an integral part of the Subject Gateway as they will help to explore the best usage of the resources.

Paying the staff for doing extra work will lead to the better productivity of resources. It will tempt the staff to work with more dedication and will help in making the Gateway a reputed one. Social Science Information Gateway (SOSIG) has tried to solve the problem by paying their section editors to work half day extra per week, and this has led to better productivity. A wide number of well reputed subject gateways like Edinburg Engineering Virtual Library (EEVL) etc have followed such process. This has done miracles as a number of quality resources are becoming the part and parcel of the Subject Gateways and has also enhanced their services.

Weeding or editing of older resources should be usually done as it will help the users to remain in touch with the current resources thus saving them from stale information and further it will also decide when a resource has outlived its usefulness to the Gateway. In case the Gateway is overcrowded with out of date resources, it will create problems for users in locating the relevant information. So, weeding of the older resources should be done in order to save the users from musty information.

The design of Subject Gateway should be such that easy navigation should be possible, as easy navigation is imperative to a user friendly Gateway. Users should be able to move easily between the home page and the main sections. This will enhance the searching capabilities of users. Various search strategies like Boolean, truncation, proximity, keyword etc should form a part of the searching mechanism. Help pages should form an important part of the search interface design, as users need to know how to use all the search options provided. Help pages should also explain to the users what is actually being searched -the full text of a record or just particular fields-how the results are displayed, and also give advice on what to do if the search fails.

The people concerned with Subject Gateway should be well versed with the
knowledge of the sort of data that the gateway possess in advance of the end users query being processed. This is known as "forward knowledge" and it can be used to provide "query routing" from a single initial Gateway on to other gateways (in a networked system) that are likely to hold the relevant resources.

- Hyperlinking of footnotes and bibliographies across resources for instant access to other related titles should be made obligatory as this will help in linking to the resource and a much deeper study will be achieved.

- Resources should be designed in such a way that they could be accessible to all including the persons with disabilities. They should have multimedia capabilities like scrolling text, audio, video; etc. Special screen readers and speech recognition softwares like Soft14, Apple Speech Recognition, Interactive Voice Assistance, Philips Free Speech 2000, Voice Type 2 from IBM, Tx Reader, Windows Narrator etc., should be used so that persons with disabilities like blindness and lost limbs could utilize the best of Web through Gateway.

- The Subject Gateway should provide evidences which will help readers to judge authenticity of information in resources. Address of the resource providers like, whether it is a research institute; a university; a college; a government organization; etc. will authenticate the resource and will help in removing the vagueness of the resources. Other, elements like authority, scope, last updated etc, that authenticate a resource should also be incorporated.

- Evaluation of the behaviour of diverse user communities based on their knowledge base, age level, and particular needs should be monitored. This will help in adding the resources as per the user interest.

- A programmer is needed who may spend time during non peak periods for the maintenance and development of Subject Gateway. During peak hours this person may tackle up with various problems faced by users and have a better system improvement.
A faculty member from a library should supervise staff; draft policies; prepare budgets; collaborate with system maintenance and developers; and monitor workflow. This person would also be a liaison to faculty, staff, students, departments, and colleges to help them to become familiar with the processing, accessing, and archiving of Web resources in the Gateway. The faculty liaison from the library would also conduct workshops, write articles, participate in seminars and prepare handouts as well as collaborate with other universities and libraries.

Due to the problem of inter-disciplinary nature of resources retrieval of information becomes problematic. For that purpose researchers requires some mechanism where they can execute a single cross-search of several subject gateways belonging to different disciplines and have a cumulated list of the results presented to them. However Dan, Welsh and Martin (1998) comment on developing of a Subject Gateway, is the usage of a Common Indexing Protocol (CIP v3) for providing access to the data available in remote databases encompassing different disciplines.

The resources should be arranged as per the subjects or an alphabetical arrangement of the resources is also recommended. The Gateway should be provided with subject browsing trees. The users are more familiar with hierarchical arrangement and can understand it quickly. So, the browsing structure should be based on a library classification scheme, which provides a logical system of subject division.

Resources ranging from books, conference proceedings, reports, series, monographs, manuscripts, audio, videos, and trade publications etc to reference tools like dictionaries, encyclopedia, thesauri, glossaries and handbooks etc should also form an integral part of the Subject Gateway.

One of the tasks of Gateway staff should be publicising the Gateway to potential users. The Gateway managers should put lots of efforts in to publicity. Writing journal articles; sending announcements to relevant mailing lists or newsgroups; holding presentations at conferences attended by...
potential users; and hands-on workshops at universities for library and academic staff can help in publicising the Gateway to its potential users. Other publicity methods include press releases, leaflets, posters, letters to newspapers, on-line presentations, and encouraging subject-relevant organizations to link to the Gateway from their websites.

Furthermore, keeping the technical views in mind:

- It must be based on free software (Open Source Software), and therefore, would also be freely available (in case of paid gateway the objective may vary)
- It must use standard database technology to save and retrieve information
- It must comply with XML standards
- It must use standard resource description for information

The following technical guidelines should be set for working on the designing of a Subject Gateways:

- Non-declarative programming must be used (A type of programming, where emphasis is given on "what is to be achieved" rather "how it is to be achieved")
- It must be supported by a Relational Database Management System (RDBMS). (A type of database in which relations are multiplied and intersected with another relations i.e., tables are multiplied with one another to get a precise normalization)
- Advanced information display techniques must not be used (The advanced information display is a method of displaying data on the Web where information is automatically generated when a pointing device is moved over it)
- The information resource description structure must comply with the ISO¹ 15836 standard. (A standard by International Standard Organization for Information and Documentation the expanded name of this standard is *Dublin Core Metadata Standard*)

¹ ISO: International Standard Organisation
The technology chosen to implement for a subject gateway will be:

- A scripting language (say e.g., PHP\textsuperscript{2} Script Language (4.3.3RC1) and XHTML 1.0) for Graphical User Interface

- A powerful Backend RDBMS (Say e.g., MySQL\textsuperscript{3} Database Server Version 4.0.13)

- A Powerful Query language as Retrieval tool (Say e.g., SQL/92 (Structured Query Language, for the design of the search query)

Designing a Subject Gateway with above mentioned views will help in developing a better Information Retrieval System (IRS) to cater the needs of the users more efficiently. The Gateway designed with the mentioned views will play the role of a guide to quality information for the users.

\textsuperscript{2} Hypertext PreProcessor

\textsuperscript{3} Structured Query Language
REFERENCES


