International Training Course on Knowledge Management and Metadata

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The International Training Course on Knowledge Management and Metadata was organized by the Philippine Association of Academic and Research Libraries (PAARL) in cooperation with the University of the Philippines Diliman Libraries and the De La Salle University System Libraries. The objective of the course was to acquaint library and information professionals with the various aspects of knowledge management; and the current state of metadata and its expected long-term development. Conducted by Mr. Erik Juls, Executive Director, OCLC Institute and Dr. Hwa-Wei Lee, OCLC Distinguished Visiting Scholar, the three-day course received tremendous response with participation by 148 Filipino librarians and 2 foreign participants – I from Malaysia and another from Indonesia.

An introduction to knowledge management was given by Mr. Juls. Knowledge management has become increasingly important because of factors, such as the "shift from industrial to information based economies, the rise in occupations that create and use knowledge, the convergence of information and communication technologies and the emergence of new tools such as groupware and intranets". The goal of knowledge management in a corporate environment is "to deliver the intellectual capacity of the firm to the individual knowledge workers who make the day-to-day decisions that in aggregate determine the success or failure of a business" (Microsoft Knowledge Management White Paper, www.microsoft.com/dns/km/Kmpract.htm), while the goal of library knowledge management is "to deliver everything a knowledge worker needs to achieve his or her objective and where, when and how the user wishes" and at a cost he or she can afford".

The key knowledge areas in the library world are as follows:

i) knowledge about knowledge users, i.e. their information needs, use of resources, opinions of resources or services;

ii) knowledge about knowledge resources, i.e. their existence, availability, cost, collection and use;

iii) knowledge about efficient organization and access, i.e. subject analysis, classification and cataloguing; and

iv) knowledge about the library's collections and services.

Bearing in mind that sharing and using knowledge often do not come naturally and KM is expensive, libraries will need to understand the foundations of KM. These are "Stuff", which refers to knowledge things, such as text, pictures, videos,

recordings; "Technology" such as applied computing, networking, telecommunications and storage technologies; "People", such as those who create, maintain and use knowledge; and "Processes" of how knowledge is created, stored, accessed or used. These four factors have to be dealt for the key knowledge application areas that relate to customers, best practices; core competencies; and products and services, to develop knowledge management systems. Careful planning is essential for a knowledge management system to work well.

The sections on knowledge management applications, started with Mr. Jules highlighting examples from the corporate world knowledge, such as the identification of an enterprise's knowledge assets, i.e. its products, people, initiatives, facilities and concerns; creation and maintenance of personnel files with details of staff skills and competencies, projects, research areas, interests, personal contacts, and international experience; and Teltech's Knowledge Scope consisting of a thesaurus of over 30,000 technical terms and a list of experts associated with them. As an example of knowledge management in academia, Tuft University Health Sciences School with a repository of teaching and learning materials was cited. With the advent of technologies, such as personalization, search engines and directories, gateways and portals, intelligent agents, filtering systems, and push technologies, it is now possible and affordable for libraries to assume knowledge management roles. For example, libraries could provide integrated systems that link consumers, suppliers and producers of knowledge sources; and assume responsibilities for knowledge management of local sources, such as creation of databases of experts and ongoing research within

one's organization. Why should librarians assume knowledge management role? Librarians have the knowledge, training, tradition of service and identity, in dealing with knowledge sources. No others remotely qualify yet. Librarians should have a changed relationship with the creators of knowledge in their organization. They should take the opportunity to provide knowledge management assistance to these creators of knowledge by selecting and organizing an organization's knowledge resources and training users to access them. If librarians do not assume KM role, others will in respond to human being's need for information. In any case, if librarians do not assume KM role, what will libraries do?

In his session on "Role of libraries in knowledge management", Dr. Hwa-Wei Lee, reiterated that libraries do have a role in KM and KM is needed all the more now because of the exponential growth in human knowledge as a result of advancement of technology and the Internet; the realization of the importance of explicit and tacit knowledge to an organization; and the changing concept from "knowledge is power' to "knowledge sharing is power". As a learning organization, libraries should provide a leadership role in KM and unlike business organizations, whose KM goal is competitive advantage, a library's KM goal should be to expand access of knowledge to users and facilitate the creation of new knowledge. Dr Lee then suggested several achievable KM activities in libraries. Firstly in knowledge resources management, libraries could develop resource access strategies from printed to electronic and digital resources; change from *ownership* to *access* and from *just in case* to *just in time*, survey and analyze user needs; develop cooperative acquisition plans through networked consortium; create online catalogues to include both internal and external sources; develop means to capture tacit knowledge;

use web sites to serve as a portal for all sources of selective and relevant knowledge and information, whether explicit or tacit, whether on site or remote, and in all format, a good example of which is Arthur Andersen's KnowledgeSpace (http://www.KnowledgeSpace.com/spl ash); make available to all staff members through a library's intranet, a variety of internal documents, reports, minutes, statistical analyses, policies, manuals, best practices, lessons learned, news, etc; and inventory and make available expert knowledge of staff members. As for human resource management, an organizational culture of sharing knowledge and expertise should be cultivated by recognizing such efforts with appropriate rewards and incentives. Experienced staff should be encouraged to transfer knowledge to junior staff and this could be done by a mentoring system, having informal seminars, sharing lessons learned and maintaining intranet special interest groups and chatrooms. Resource sharing and networking is another area where KM application possibilities have been greatly enhanced with rapid developments in computer, telecommunication and networking technologies, as shown by two very good examples - Ohio Link (Ohio Library and Information Network) in resource sharing and the OCLC (Online Computer Library Center) in shared cataloguing. As for information technology, the latest technology should be used as an enabler to create well designed and operational knowledge management systems. Intranet or groupware technologies, such as Lotus Notes, could be used to support KM efforts in sharing internal knowledge. In the area of services, libraries must know their user first and information on this can be gathered from statistical analysis of user

registration data, circulation and interlibrary loan records, most frequently asked and reference questions, telephone and email queries, data of usage of electronic and digital resources and periodic user surveys. All user services should be tailored to suit individual user needs, such as selective dissemination of information and new publications alerts. Both information "push" and "pull" strategies must be used to provide personalized service. As for administration and organization, to facilitate the implementation of KM, the traditional mode of hierarchical and highly compartmented organizational structure should be reviewed and revised. To facilitate communication within an organization, more team-based working groups should be formed. Dr Lee concluded that KM should not be viewed as a way to control the process of knowledge creation. Rather, libraries should strive to be an enabler and facilitator by mobilizing efforts and resources.

An essential factor in knowledge management is to increase efficiency in knowledge use. With the vast amount of digital information becoming increasingly available as knowledge sources, bibliographic control of these resources to facilitate retrieval is of utmost important. Description of these web resources done consistently with metadata will facilitate resource discovery. Metadata has been defined as "data about data", "structured data about data", or "information about information". It serves two main functions: - resource discovery and resource description. It refers to either the tagging system that defines the set of fields and its contents or the contents of certain fields that act as descriptors for other resources. There are several tagging or mark up systems used to define structural properties of "documents" for later processing. SGML (Standardized General Markup Language) is used to control document formatting for publication, while HTML

(Hypertext Markup Language), an application of SGML, is used to control the display of Web pages. XML (Extensible Markup Language) is a next generation SGML. We were then introduced to Resource Description Framework model, which is an infrastructure that enables the encoding, exchange and reuse of metadata. The RDF model consists of three elements: -

i) resource, which is the item described, only one at a time;

ii) property type, that is, the characteristics or attributes which can be of any number; and

iii) value, the literal character string related to the attributes.

The need to improve resource discovery on the Web led to the consensus that there has to be core set of data elements to describe electronic resources. Resulting from a workshop convened by OCLC's Office of Research and the National Center for Supercomputing Applications, in Dublin, Ohio in March 1995 was the Dublin Core. The Core was intended to be a basic collection of 15 to a metada elements in three groups: -

i) Content: Title, Subject, Description, Source, Language, Relation (to another resource), Coverage;

ii) Intellectual Property: Creator, Publisher, Contributor, Rights;

iii) Instantiation: Date, Type, Format, Identifier.

In addition, an element can be refined or elaborated upon by qualifiers, which either refine the meaning of an element or identify an encoding code to be used. For example, the DC Format element has the refinement qualifiers of extent and medium and an encoding scheme for medium, IMT. All the elements of the Dublin Core are optional and repeatable. All elements are displayable in any order. Although originally developed in English, versions are being created in many other languages, including Norwegianand Japanese.

An issue relating to metadata application is who will create metadata – librarians, metadata specialists, subject-matter specialists or the resource creators. It was suggested that participants could try to create metadata for web resources that have been created by their organization. At least they would be in a position to contact the resource creator of any required information. When will metadata be created? There are two possibilities – when the resource is created, by the resource creator, or anytime after metadata the resource is created. Metadata could be created by using file editors or editing tools, such as OCLC's CORE (Cooperative Online Resource Catalog). Metadata created may be embedded in the resource, in a searchable database/index or both. When embedded in the resource, metadata can be in HTML, XML, RDF or other encoding standards. When metadata is stored in a searchable index or database, it will be in the manner as required by the specific database application, such as Oracle. Various architectures for metadata applications were also suggested. In planning metadata creation, one has to take into consideration resources available, user functionality, system components and integration, workflow, staffing, training and maintenance.

Having dealt with the elements of Dublin Core, Mr. Juls then explained how resource description for web resources could be created using OCLC's CORE, which provides web-based form for entry of metadata, based on the Dublin Core.

Related to resource description of web resource, is the issue of building subject bibliographies of these resources. Using OCLC's CORE such bibliographies or Pathfinders could be created and customized for institutional use to include reviewed and selected web resources, references to library materials, and non-electronic resources. Updating of resources in Pathfinders is quicker and easier as URLs can be maintained easily.

A hands-on session on resource description and pathfinder creation using OCLC's CORE was held on the morning of the third day at the Cyber Nook of the De La Salle University Library at Taft Avenue. This was followed by a question and answer session, during which participants were advised to start on small project on resource description to gain practical experience. Access to OCLC's CORE was given to participants for a ninety-day period. There are several available metadata creation softwares, other than CORE and participants were referred to the homepage of the World Wide Web Consortium (W3C) (http://www/w3.org). The problem of changing URLs was raised and it was explained that OCLC's persistent URL software allows the creation of PURLs over time by creating an association of PURL and the changed URL. This software is free software available from (http://purl.org/dc). A participant suggested that some form of consortia agreement should be negotiated for Philippines libraries to participate in OCLC's CORE at a reasonable fee.

The course was certainly eye opening. Not only were we enlightened on the several possibilities of knowledge management applications in the academic library context, but also it was stressed that librarians, with the training and tradition in organizing knowledge, ought to assume knowledge management role in their organization. Librarians should manage knowledge about their organizations just as they have managed their other resources. They should utilize organizational knowledge to improve services. Academic libraries should also employ knowledge management to expand the library's role in the university community by working with the academia who are the knowledge creators in collaborative efforts. The sessions on metadata were useful especially for many of us who need to learn how to describe the increasing number of web resources.

In addition, the lunch and tea breaks gave participants the opportunity to be acquainted with each other and the facilitators. The Filipino librarians were indeed very hospitable. We were well taken care during the evenings and the visits to the libraries of the Ateneo De Manila University Professional School, University of the Philippines Diliman, De La Salle University Dasmarinas, and the Centro Escolar University