Developing Library Knowledge Services by E-Learning

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ABSTRACT: This study focuses on how the role of libraries as information disseminator has changed. Physical walls of library for book-storage have turned into virtual collection. E-Learning is developed to apply information technology applications to education and is considered as tools of empowering knowledge. Library professionals need to understand e-Learning to provide effective distance library services, because learners are located anywhere, of any age and any gender. In library, knowledge production and consumption can be connected with circulation of knowledge by e-learning to form a knowledge service chain. This paper intends to introduce knowledge management and e-learning to redefine knowledge service of libraries. At the end, there are two examples to show the content of library paperless learning service models.

KEYWORDS: E-Learning Service, Web-based Education, Knowledge Managers, Virtual collection, Knowledge consumption, Paperless Learning

1 FOREWORD

Some have forecast that printed books will be totally replaced by electronic books by the year 2018[1]. This forecast suggests that the digital reading trend will usher in new ways of learning. As sources of digital information become more mature, diverse environments, net publishing, online libraries, eBooks, Web2.0 and knowledge management will become essential knowledge for libraries providing value added e-learning services. In general, data compression can be used for digital information. Storage capacities are also immense. Links can be made to other video, audio, photos and text to make its content richer and more diverse than print media. However, these changes to reading functions will no doubt provide new experiences for readers and change conventional knowledge formation processes.

2 DOCUMENTATION ANALYSIS

2.1 DIGITAL CONTENT AND NEW READING EXPERIENCE

The invention of printing makes fast dissemination possible for human knowledge, while the establishment of libraries allows knowledge to be accumulated, utilized and reproduced. The ways via which knowledge is disseminated have been greatly diversified by the emergence of digital content. With the launch of electronic book, the new carrier, not to be limited by static contents printed on paper, but with dynamic combination of internet and multimedia, has brought traditional reading experience with paper as well as mode of studying to a brand-new level and will revolutionize the process of knowledge formation that we are familiar with. Recent studies show that more than 93% of information is created in electronic formats and the development of digital content as well as its tremendous amount has attracted much attention[2]. Still, digital content together with the power of on-line searching and retrieval allow quick and easy access to collections among major libraries as convenient as they are next door even though they are located in far-flung realms.

Changes brought by digital content include the following. Firstly, the ways to compile and interpret knowledge are quite different from they used to be. Secondly, learning resources carried by digital media have caused many changes to library services when compared with those carried by traditional printed media. Traditional collections of libraries in paper formats

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will have to be provided to readers the way they are, word by word, line by line and chapter by chapter, without the possibility of being presented in other ways. Free from the limitation of paper format, customized presentation is now possible. The mint new reading experience provided to readers pave the way for digital learning.

2.2   E-LEARNING AND LIBRARIES

The E-Learning term covering the wide set of applications such as web based learning and computer based learning. It refers to learning and other supportive resources that are available through computer. E-Learning is developed to apply information technology applications to education and is considered as tools of empowering knowledge and skills [3]. However, recent development of the new generation of digital learning system has adopted a knowledge-based concept allowing multiple learners to share and exchange knowledge via various digital channels, making learning diffusion effective [4].

Tour Based on the trend of development described above, library is bound to be a pushing hand in promoting knowledge-based learning. In the environment of digital learning, the roles of libraries may include hi-tech facility providers, exchange hubs for digital content sharing, and promoters of digital learning. Digital content is the must-have for digital learning. Current knowledge-based digital content includes electronic periodicals, electronic books, and electronic encyclopedia. All are mainly provided through libraries [5]. As a library, the niche with innovative development in future green life would be to integrate resources and content of digital learning, conduct knowledge management, provide knowledge exchange channel, and ignite diversified knowledge power in a paper-free learning environment.

In e-Learning process the libraries will emerge as active bridge between the learners and information. Library professionals need to understand the concepts of e-Learning and to provide effective distance library services. Because learners are located anywhere, of any age and any gender [3].

2.3   E-LEARNING AND KNOWLEDGE MANAGERS

Knowledge is the vital capital for all development in the age of knowledge-based economy. Knowledge Management is very important to share the knowledge and retrieve it for effective use. With its long-term role of collecting, reserving and disseminating information conveyed by books and providing service to readers, libraries' new mission would be to extend information management to knowledge management and transform knowledge into productivity. Libraries shall perform the role of providing knowledge service, assisting readers in searching useful information, and converting it into useful knowledge [6]. Hence, librarians shall take on new responsibilities of mediating knowledge and guiding information, bridging people and information [7]. Library and information professional will have to be closely associated with the networks and also be contributing information to network or number of networks.

Application of e-Learning to the libraries will be treated by most of the libraries as a threat to them and their profession. But on the contrary it is not the end of the profession but widening the profession. Traditional knowledge organization techniques such as classification and cataloguing are no longer effective and useful for dissemination of information, on the other hand, the libraries are in track with latest development and applications of information technology skills are getting more importance, Hence it is need for the library and information professionals should reorient their skills [3].

3   DEFINING LIBRARY SERVICES FROM A DIGITAL LEARNING PERSPECTIVE

The Library professional services and knowledge management processes are similar. Work including acquisition, organization and circulation that use e-learning research content is very closely linked to knowledge management. The timely provision of digital study tools, knowledge and services at different knowledge management stages can promote e-learning activity development and enable knowledge conversion and creation thereby become a knowledge asset and competitive advantage for libraries[8].Thus it is seen that digital learning will become a useful instrument to libraries as long as the expertise of knowledge management can be brought into full play by organizing, rearranging, analyzing, and transforming collection resources into content of knowledge learning. With the employment of digital learning tools, a learning process with efficiency and easy access can be achieved featuring characteristic knowledge service. On the other hand, readers, after the acquisition of knowledge, proceed with knowledge transformation on their own to create new knowledge. The new knowledge is in turn disseminated by various carriers of books, periodicals and internet, and solicited by libraries for cyclic usage.

In library, knowledge production and consumption can be connected with circulation of knowledge by e-learning to form a knowledge service chain. The concept map is as described in Fig. 1. Professional library services must transform information into knowledge, develop e-content, strengthen knowledge service connections and be redefined as followings:
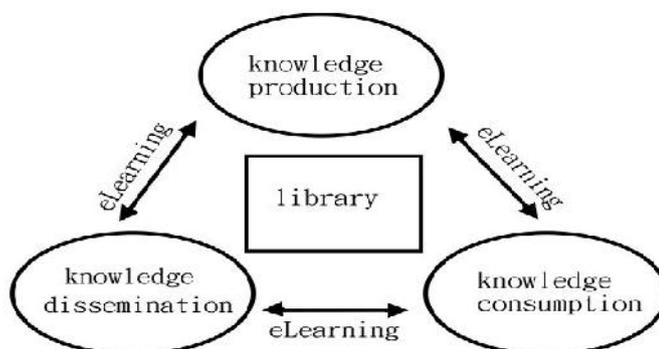
Fig. 1 knowledge service chain of library

3.1 DIGITAL SERVICE VALUE-ADDED KNOWLEDGE PRODUCTION ACCESSIBILITY

The Conventional publishing has a relatively high threshold but digital publishing has closed the gap between man and knowledge production. By means of the Internet, everyone can become a publisher and produce knowledge. For example, blogs are a kind of basic digital publishing. Anyone can regularly place content on the Internet in article format in chronological order. Texts and images can be combined together with software. Blogs can also be linked to other blogs to make learning easy and simple. With what is referred to as customized digital publishing, everyone can participate in the knowledge production process. Library services need to provide this type of knowledge production environment and pathway. By means of e-learning and internet transmission, readers can access the digital resources held at the library to convert and reproduce knowledge.

3.2 REGULATING THE SUPPLY AND DEMAND BALANCE OF KNOWLEDGE CONSUMPTION

In the past, the production and sale of knowledge was considered to be the main activity and occupation of libraries so knowledge collection, classification, retrieval and inquiry have always been the core work of libraries [9]. However, there was very little verification of whether service content corresponded to service demand. After everything is digitalized, readers can easily make use of internet sharing and learning to store and transmit knowledge in digital form. This will change knowledge consumption behavior and demand. Libraries need to take advantage of e-learning opportunities in order to become a knowledge center provider and carve out a place in the e-knowledge consumption market.

3.3 CREATING AN INNOVATION MODEL FOR KNOWLEDGE FLOW

From the viewpoint of e-learning, libraries provide an ideal channel for knowledge from upstream digital publishers to downstream knowledge learning communities. In the age of print-based publishing, the more complete source of information for readers was none other than libraries. With the rise of the Internet, users are able to define, provide and share internet platforms which have changed the nature of libraries. Since they are no longer centers of pure learning, library has become a place to facilitate community construction [10]. New reading spaces that emphasize visual aesthetics and digital functions shall become places where libraries can bring together readers and knowledge and promote knowledge flow service techniques. In addition, libraries can provide cross-media (text/image, sound, paper, and digital) and cross-discipline flow platforms that combine various types of publishing and various types of library service to create a brand new reading experience for readers which can inspire knowledge innovation and vitality.

4   PAPERLESS LEARNING SERVICE MODEL

In this digital information technology environment, libraries must learn how to actively transform themselves from a conventional library with physical paper-based collections to providers of paperless learning. Due to the wealth of animations, information and video viewing offered by digital content, e-learning systems and website interactive connections are effort-saving and serve as a major tool for digital services. The e-learning systems developed by libraries have adopted knowledge sharing as their central concept to spread knowledge to its fullest extent. The following two examples show the content of library digital service which are not only closely connected with e-learning, but also use on-line sharing and exchange of knowledge management to product infinite connections of knowledge.

4.1   KNOWLEDGE SERVICE PLATFORM —BY NATIONAL CENTRAL LIBRARY

With "E-Learning Daily, E-Harvest for life" as a slogan, National Central Library has recently launched a "Knowledge Service Platform" to promote its digitization achievements, allowing readers to experience brand-new reading pleasures from digitized knowledge of audio and video materials [11]. Providing novel and varied digital learning content in a handy manner, this paper-free service combines and re-organizes library's knowledge management expertise and collections with digital learning content to establish a knowledge platform for easy sharing and effective searching and retrieval. The new knowledge platform will not only replace the paper-consuming Xerox copies and time-consuming repeated inquiries but encourage knowledge production and consumption for effective learning. The services include the followings:

4.1.1   DIGITAL PUBLICATION PLATFORM

Combining collections and reading service, this is an E-Publication Platform System (EPS) to digitize library's collections, exhibiting depth and breadth of knowledge collecting service that allows readers to read and learn on-line.

4.1.2   MULTI-MEDIA AUDIO AND VISUAL INFORMATION SERVICE

Including Chinese Studies E- Classic Series Publication, Digital Audio Visual Archive System: DAVA, and Web Archive Taiwan：WAT, they are featuring dynamic and diversified characteristics of digital videos to achieve information free flow (as in Fig. 2).

Fig. 2 Web Archive Taiwan：WAT

4.1.3   NETTING BIBLIOGRAPHIC SERVICE

Including Discovery on Bibliography in Taiwan and Metalibrary Bibliographic System, and Knowledge Support Porta, it allows users of free connection with database in various fields, providing convenient distance learning and exhibiting library's service synergy of knowledge management and information structuring.

4.1.4   INNOVATIVE AND VALUE-ADDED KNOWLEDGE SERVICE

Including National Digital Library of Thesis and Dissertations in Taiwan, PerioPath: Index to Taiwan Periodical Literature System, The Publication of Government Information, and The NCL Chinese Rare Book Information Net, those services that facilitate and expedite electronic-based research, infusing more energy into knowledge transformation and creation, one of the best practices of library's knowledge service chain.

4.2   A SERVICE HUB FOR KNOWLEDGE EXCHANGE AND DISSEMINATION —BY NATIONAL SCIENCE AND TECHNOLOGY MUSEUM LIBRARY

A Knowledge service by National Science and Technology Museum (NSTM) library is introduced in this case. To achieve best operation with professionalism, NTSM has been conducting various activities of collection, research, exhibition, education, and maintaining a specialized library to satisfy internal research needs. Along with digitalization trends in recent years, our library has adopted an Institutional Repository project, which not only collects various resources for internal digital learning but also opens to external use based on the concept of knowledge dissemination. Knowledge re-organized by the library is open to point-to-point sharing and exchange through digital learning, increasing knowledge production and accessibility. Four different types of digital resources are available in on-line learning:

4.2.1   DIGITIZED LITERATURE COLLECTIONS

Valuable literature collections have been transformed into digitized formats to facilitate knowledge dissemination through internet. Including "Taiwan Technological Artifacts and Industrial Technologies," "Artifacts of Telecom Network Architecture in Taiwan," and "Industrial Heritage in Taiwan," digitized collection archives contain firsthand materials for studying and understanding Taiwan's cultural assets from an industrial perspective. All can be accessed through internet connection with NTSM providing valuable resources for digital learning (as in Fig. 3).

Fig. 3. Artifacts of Telecom Network Architecture in Taiwan

4.2.2   DIGITIZED EXHIBITION MATERIALS

These are abundant resources of museum's theme exhibition in digital audio and visual formats which can be accessed through internet connection without limitation of time and space. Among these resources, documentary videos of interviews with highly respected industrial veterans in the "Industrial History of Taiwan" feature systematic introductions. Digital content made from exhibit content integrated with exhibition highlights become digital learning content offered by the library. Printed exhibition brochures, beautiful yet expensive, have also been gradually replaced by digital publication to reduce paper consumption. The concept of digital learning is not only environmental friendly but incorporates with multi-media applications offering on-line, paper-free learning materials in the library.

4.2.3 DIGITIZED ACTIVITIES MATERIALS

The resources include teaching materials, teaching plans, highlights, video records of various activities, such as "Clothing and Textiles," "Open Sesame Science," and "LOHAS Energy Conservation House," and materials specially designed for digital learning, such as "A New World of Nanotechnology," "Biotech outlook" and "Moving & Shaking: Exploring Seismism." All materials can be downloaded and become teaching resources for teachers in elementary and junior schools. Feedbacks can also be sent on-line (as in Fig. 4).

Fig. 4 Digital Resources for Technology Education in NSTM

4.2.4 DIGITIZED RESEARCH RESULTS

These resources include papers academic journals, research reports, speeches and presentations. Scattered research files in different disciplines have been gradually collected in digital knowledge management system as self-archiving resources. Digital resources of three periodicals and thirty books are available in library reading room's learning website. Open access, chargeable perhaps, in the future have been planned so that on-line learning will also become available through library's digital service.

5 CONCLUSION

Because of the impact of digital media, the role of libraries as information disseminator has changed. In the past, knowledge was largely passed down through written records. In the digital age, it is common practice to record knowledge in digital format and use the Internet as a mobile study resource [12]. This creates a e-learning method that is available anywhere and anytime that has clear advantages over fixed site libraries that only offer services at certain times.

The advent of e-learning, however, does not mean libraries will lose their role as centers of learning. Libraries will make use of their knowledge management skills to plan adaptive digital service that provide intelligent learning capabilities to people. More importantly, library will specialize in knowledge services and fully develop e-learning modes centered on knowledge. No longer limited by physical space, libraries can be transformed limitless virtual digital information storehouses. Through e-learning, the knowledge accumulation and dissemination process can be combined with green living environments to reduce the costs of paper printing and storage as well as expanding the power of knowledge beyond the age of paper-based knowledge.

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