

## **INVESTIGATING MULTI-LINGUISTIC INFORMATION IN UNIVERSITY LIBRARIES' WEB PAGES**

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The native language of users is an important factor when considering the effectiveness of university library Web pages. In this study, we investigated Japanese and English Web pages of Japanese university libraries. To gather data, we made a checklist based on Novljan & Zumer (2004). For analysis, after making up the posted rate, we carried out cluster analysis using Canberra distance and the Ward method. Use of the checklist revealed that items related to the functions of an electronic library ("list of e-journals" and "list of databases") and items related to library promotion ("map," "transportation" and "history of the library") occurred frequently on university library Web pages, while those requiring frequent updates ("guidance," "what's new," "list of new books" and "list of new journals") occurred relatively infrequently. The tendency for items that are burdensome to update to occur less frequently was also observed on English pages. Cluster analysis supported these findings. It can be said that the English pages of Japanese university libraries are adequately structured for students abroad or users outside universities, but inadequate when it comes to collection services or new services like digital archive. The problem of updating Web pages in other languages points to issues relating to staff in libraries.

### **1) Introduction**

The purpose of this paper is to investigate and evaluate the multilingual information on the Web pages of university libraries in Japan. Today, Web pages are becoming increasingly important, and Web-based services are available in a growing number of places, wherever the necessary network infrastructure has been put in place. In libraries, it is now possible to offer Web-based services in addition to traditional services. At the most abstract level, university libraries can be thought of as offering two kinds of functional service: 1) study support for students, and 2) research support for both

students and teachers. These services are often targeted at both native and non-native users, both of whom have the right to enjoy an equal level of service. Our investigation of the multilingual information provided by Japanese university library Web pages can help throw light on the utility of these pages for study and research, particularly for non-native users. It can also show university librarians how other university libraries have approached the issue of multilingual Web page construction, and how they can improve their own library's Web pages.

Previous studies have addressed issues related to this research. Novljan & Zumer (2004) and Hokkai & Matsui (2000) investigated the Web sites of public libraries in Slovenia and Japan, respectively. These two studies differ methodologically. Novljan & Zumer collected data by asking the administrators of public library Web sites to complete a questionnaire, while Hokkai & Matsui used a checklist to record the information provided by public library Web sites. The former study therefore focused on the perspective of administrators, and the latter on the perspective of users. Our study is concerned with the perspective of users, but because Novljan & Zumer presented well-structured guidelines in their study that set out the various items that should be included in public library Web sites, we adopted these as a basic checklist for evaluating Japanese university library Web pages, revised to reflect the viewpoint of users of university libraries (as described in detail below). In another study, Wakabayasi (1998) compared Japanese and U.S. university libraries using the questionnaire method. Overall, however, there are very few studies dealing with the Web pages of university libraries. Further, there are no studies dealing with the question of how well these pages serve the needs of non-native users, which we aim to address in our research. Ideally, these pages should provide content in users' native language, or, if this is not feasible, in English, given the predominance of this language in academic discourse.

## **2) Methodology**

As noted above, the checklist for evaluation that we adopted in this study is based on the guidelines set out in Novljan & Zumer (2004), who identified the structure of the Web sites of Slovenian public libraries from information elicited via a questionnaire. The top level of the Web site structure they recommend has four categories: general information; collections and information resources; services; and other. Each category is further divided into various items.

We changed some of these items to make the checklist more applicable to university library Web sites. After revision, our checklist consisted of four categories further divided into various items, as follows: 1) access ("location of the library," "transportation," "map," "phone number," "email address," "opening hours," "library holidays"); 2) services ("entry procedure," "lending," "prohibited conduct," "floor guide," "copy services," "reference services," "Inter-Library Loans (ILL)," "what's new," "guidance"); 3) collections ("Online Public Access Catalog" "list of new books," "list of newspapers," "list of new journals," "list of e-journals," "list of databases," "links page," "university research products," "digital archive"); and 4) other ("links to departmental libraries," "history of the library," "site map," "links to pages in other language(s)," "links to the main university site," "other languages"). We used this checklist to collect binary data on all university libraries in Japan in 2007 (a total of 716 universities). The list of colleges and universities was obtained from "Science Information Infrastructure Statistics of Colleges and Universities" (Information Division of Research Promotion Bureau of Ministry of Education, Culture, Sports, Science and Technology, 2006).

The criteria for judging whether or not a particular site included particular items may seem arbitrary. Section 3 includes information about the criteria used for making such judgments, an overview of the results of our investigation, and a discussion of the relation between Japanese and English pages (based on an examination of items that remained in Japanese even on English pages). In Section 4, we focus on individual library Web pages by carrying out cluster analysis. We thus throw light on the various aspects of university library Web pages from both a macro and a micro perspective.

## **3) Overview of the result of survey**

Of the 716 university libraries, 637 have their own Web sites (88%). Of these 637, 148 have English pages (23%). We omitted the following from our evaluation: pages containing nothing but an Online

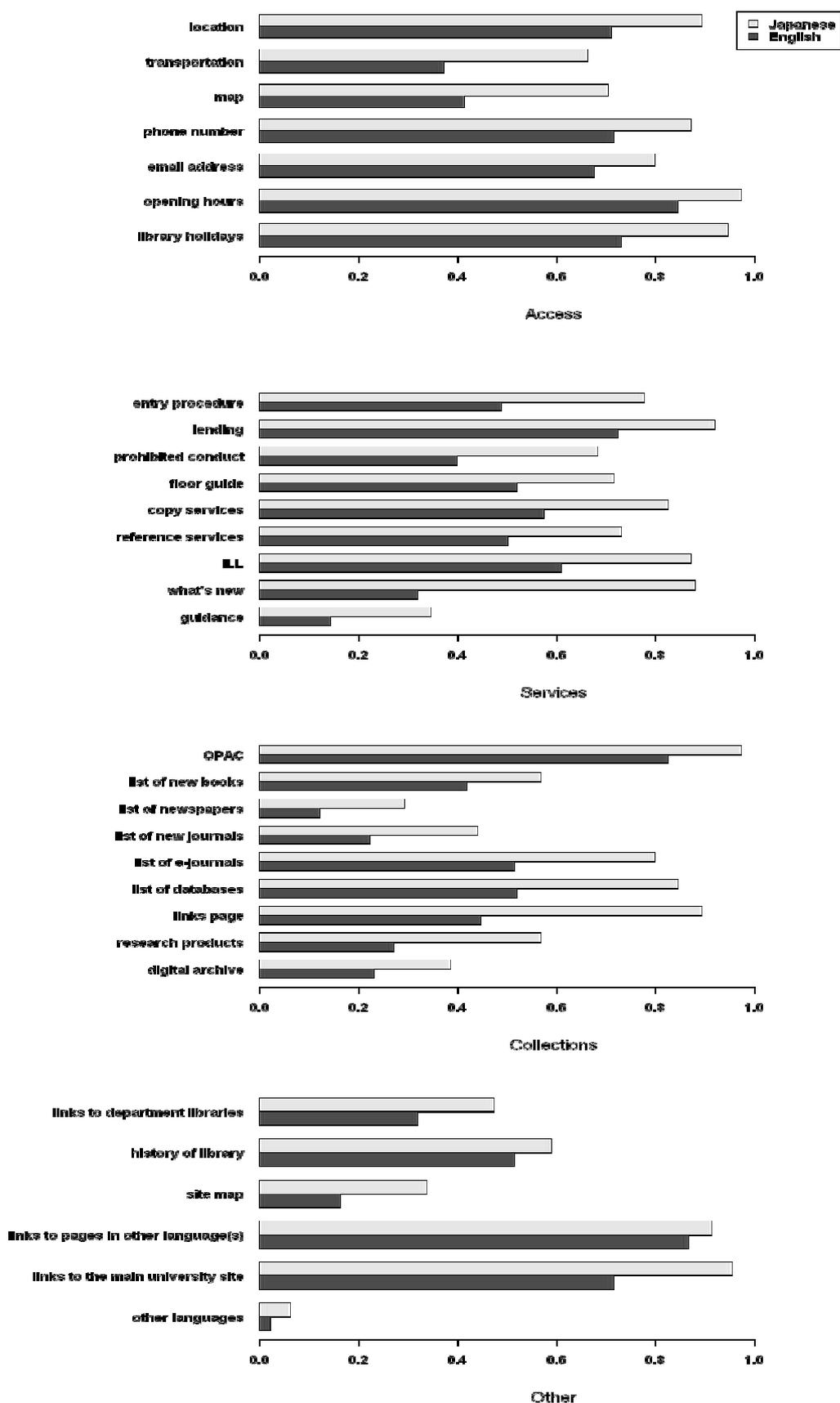


Figure 1. Rate of occurrence of each item, in Japanese and English

Public Access Catalog; library user guides in Japanese or English on the main university site, but with no independent library pages; pages that were under construction; and dead links. Today, the number of overseas students in Japanese universities is around 110,000, 90% of whom are from Asian countries. However, only 13 university libraries had pages in languages other than Japanese or English (Chinese, Korean, etc.). Because they were so few in number, these 13 pages are not included in the following overview of results in this section or in the quantitative analysis in Section 4. Figure 1 shows the results of our survey of 148 sites. A discussion of the items in the four different categories follows.

### ***Access***

This category contains seven items. The criterion used for judging whether the items “location of the library,” “phone number,” “email address,” “opening hours,” and “library holidays” occurred was whether or not there was a written description of these items. Each item that was counted as an English page item was written in English. The items “transportation” and “map” were usually posted on the Web pages as optical figures. We checked the written characters in these optical figures in order to identify in which language information on these items was provided.

These items occurred at a rate of 60% to 90% in the Japanese pages, and seem to be the most important for libraries. Additionally, these items are less troublesome than others for librarians to deal with, as once added to a library Web page they rarely need to be updated. The lowest percentage was for the items “transportation” and “map” (60%). One reason for this may be that these items are possibly included on the university’s main page, and are therefore omitted from the library’s Web pages. Similar tendencies to the Japanese pages can be observed on the English pages. While all items occurred at a lower rate on English pages than on Japanese pages, this was particularly marked for the items “transportation” and “map.”

### ***Services***

This category contains nine items. It was not possible for us to check all the pages relating to some items, such as “reference services” and “ILL,” as access to these services is limited to students of the university to which the library belongs. In such cases, we counted a service as being available in Japanese and/or English according to the information provided on the top page. Furthermore, the item “reference services” could relate to two different things: a simple description of reference services in the actual library, or online reference services. The difference between these two cases will be important in the future, but for our current purpose of conducting a basic study of university library Web pages, we counted both as one item. The items “entry procedure,” “lending,” “prohibited conduct,” “copy services” and “guidance” were counted if there were relevant descriptions of these items. Also, item that includes application from the Web page is counted one as item that includes only description counted one. For the item “floor guide” we counted both visual floor plans and written descriptions. The item “what’s new” was counted regardless of its frequency of update, and regardless of whether or not there was a link or frame. Sometimes content relating to the item “guidance” was included in the “what’s new” page or frame; such cases were not counted as “guidance” in order to prevent oversight and duplication. Each item was counted on the English pages if it was described in English.

The items “entry procedure,” “lending,” “prohibited conduct,” “floor guide,” “copy services,” “reference services,” and “ILL,” which remain basically unchanged over time, generally occurred at a high rate. The item “what’s new,” however, which may be troublesome to update, occurred at a low rate, as did “guidance,” despite its importance for libraries’ study-support functions. There are two likely reasons for this. The first is the difficulty of updating these kinds of items. The second is the cultural difference between Japanese university libraries and libraries in liberal arts colleges in the U.S. and other countries with similar educational traditions. Education for library use is conceivably less focused for many libraries in Japanese universities than in liberal arts colleges. Compared to the Japanese pages, most items occurred on the English pages 20-30% less frequently, and the rate of occurrence of the item “what’s new” was even lower.

### ***Collections***

This category contains nine items. The item "Online Public Access Catalog" was counted only when the service could actually be accessed; simple descriptions of the service were not counted. For this item to be counted as occurring in English, the language interface for searching needed to be available in English, but search results did not have to be translated into English. The five items concerned with library materials ("list of new books," "list of newspapers," "list of new journals," "list of e-journals" and "list of databases") were counted as occurring in Japanese when such pages or links to such pages existed in Japanese, but they were counted as occurring in English even if only the column title of a list (e.g. "title of books" or "volume") was written in English, due to the fact that translating titles of books and magazines is sometimes difficult. The items "links page" and "digital archive" were counted if written in the respective language. The latter includes optical data of materials and description of materials. Not necessary both elements are needed to be count. The item "university research products" was held to include Bulletins of universities or repository. The Bulletin itself or deposited one is not to be translated in the case of counting as English page's element.

On the Japanese pages, the items "Online Public Access Catalog," "list of e-journals," "list of databases," and "links page" occurred at a relatively high rate. The first three of these items are, needless to say, very important for university libraries in terms of providing quality service to users, and the links page is important for the Web site itself. The items "list of new books" and "university research products" also occurred at a high rate, despite the necessity of frequently updating these items. However, the remaining three items in this category, "list of newspapers," "list of new journals," and "digital archive," occurred at a relatively low rate. These items are important for providing materially based services. In the English pages, same tendency was observed. The item 'links page' is low rate comparatively. Rather than troublesomeness of update, the meaning of translation of this item may not be certain for librarians.

### ***Other***

This category contains six items. Because we investigated the main library of each university, the item "link to departmental libraries" was added. The item "history of the library" includes a description of the library's mission and chronology of its activities to date. The item "site map" describes the overall structure of the library Web site; it was counted as an English page element if each component of the site was labeled in English. The item "links to the main university site" covers links to the main Web site of the university to which the library belongs (links to other universities are covered by the item "links page" in the collections category). The final two items, "links to pages in other languages" and "other languages," are links to languages other than Japanese. Former one is whether there is link that jumps to another language other than Japanese or not. In the latter one, if the page included many languages (e.g. some sites that have English page and Korean page), we counted one.

The items "links to the main university site" and "links to pages in other languages" occurred at a high rate. The other four items occurred at a low rate. Some libraries do not have departmental libraries, so the item "link to departmental libraries" may score at less than 50%. The items "history of the library" and "site map" are important. The former helps users to understand the library's mission and to understand what the library's strengths are, while the latter helps users navigate the site and find the information and services they need. In the English page, the item "site map" occurred at quite a low rate compared to Japanese pages.

### ***Relationship between Japanese and English content***

Not all the items on Japanese pages have English equivalents on English pages. That is, even on independent English pages, there are sometimes items written in Japanese. Here, we investigate this content from the perspective of users. The item that more than 10% of libraries have posted in Japanese on English pages is "digital archive", followed by "guidance," "university research products," "list of newspapers," "links page," "what's new," "links to departmental libraries," and "list of new books." Many of these items fall into the collection category. The item "digital archive" tends to be

posted with pictures of archived materials, along with explanatory comments in Japanese. Pictures may be thought to be an effective way of clarifying the content of the archive, but it would be more helpful for users if explanatory comments in English were also added. The items “university research products,” “list of newspapers” and “links page” may be written in Japanese because the contents (bulletins, names of newspapers, other institutions, etc.) are difficult or troublesome to translate comprehensively. Among items in the service category, “guidance” and “what’s new” are most frequently represented in Japanese. This is no doubt due to the burden involved in updating these items, but, given the role of these items as a window between libraries and users, they should be improved, in order to promote full use of the library.

#### 4) Cluster analysis

In the previous section, we investigated the tendencies of all university library Web pages. In this section, we focus on individual pages. Considering the difference in the degree of similarity between the items in corresponding Japanese and English pages, we can compare the Japanese page with the English page. After we tried standard clustering methods, we chose Canberra distance and the Ward method on the basis of the following two criteria: not be chained and giving meaningful explanation. Clusters of Japanese and English are as follows (Figures 2 & 3).

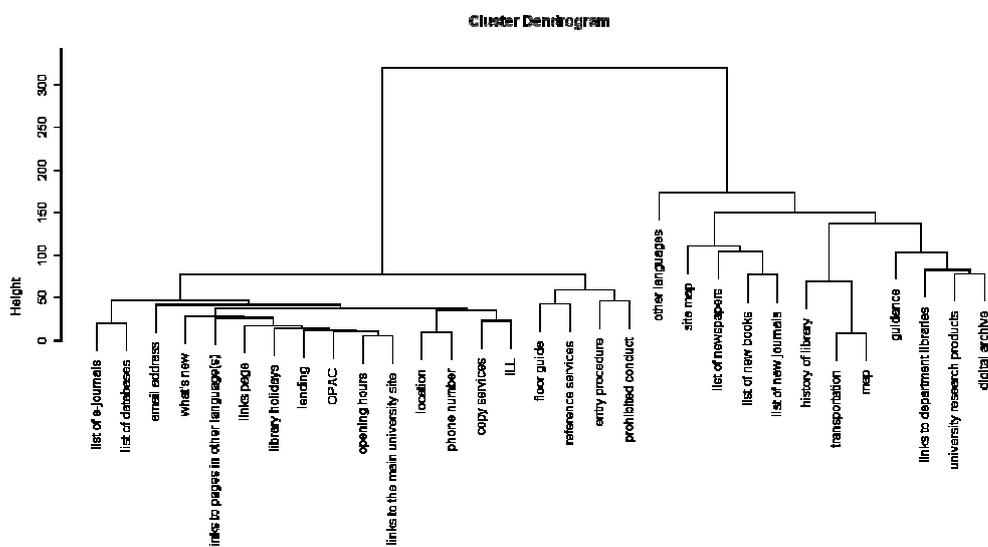


Figure 2. Dendrogram constructed using cluster analysis (Japanese)

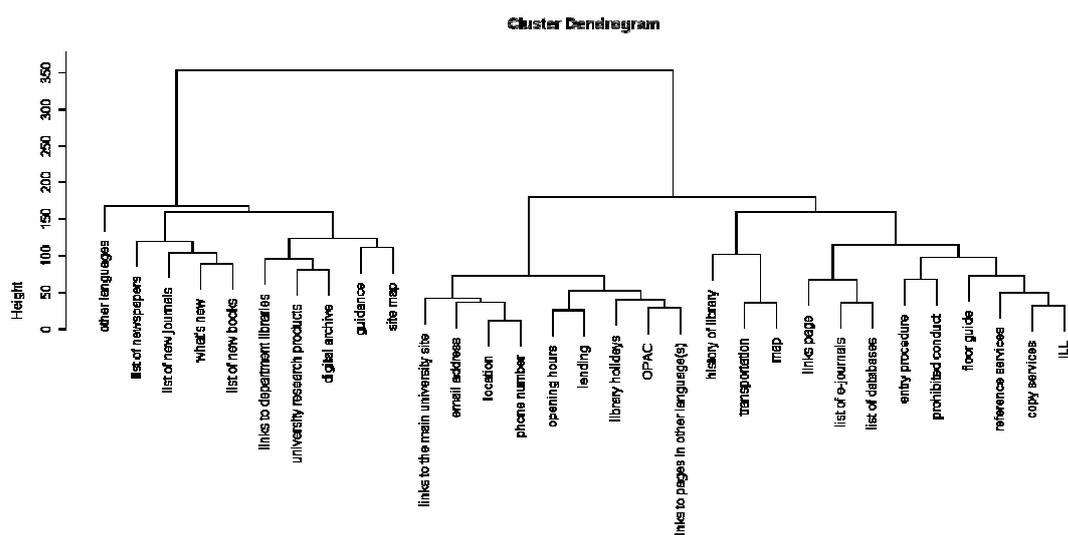


Figure 3. Dendrogram constructed using cluster analysis (English)

### *Characteristic of clusters of Japanese and English pages*

The Japanese dendrogram is clustered into two. In the left-hand cluster, items are posted at a high rate, and are close to each other. The other cluster is made up of low-rate items and items mainly from the collection category. The items “map” and “transportation” that are usually posted as optical data are close to each other, and “history of the library” is close to “map” and “transportation.” These three items are similar in the point that they has characteristic of promotion or guidance for people outside the university. The English dendrogram is also clustered into two. In the center of the right-hand cluster, “lending,” “opening hours” and “Online Public Access Catalog” are close to each other. These three items are included at a high rate (more than 90%). The other items in this cluster are mainly those belonging to the access category.

### *Comments about particular categories*

#### *Access*

Among the items in the access category, “map” and “transportation” make independent clusters in both the Japanese and English pages, and both items are close to “history of the library” (in the category other). English pages have a role as a window not only for non-native students resident in Japan, but also for non-native researchers residing in Japan and abroad. Considering cluster including these 3 items, university libraries may suppose users outside university.

#### *Services*

Items in the service category made a cluster on the right-hand side of the English dendrogram, but the items “guidance” and “what’s new” stand apart from that cluster. “What’s new” is close to such items as “list of new books” and “list of new journals” (in the collection category) that may need frequent updates.

### *Collections*

Among the items in the collection category, “list of e-journals,” “list of databases” and “links page” are in the same cluster. Considering the posted rate of “list of e-journals” and “list of databases” is approximately 50%, in libraries that focus on electronic services, these three items may be supposed to be necessary in set.

## **5) Implications of findings**

### *Study support and research support via the Web pages*

In terms of study support and research support, items such as “guidance,” “reference services” and “ILL,” and all the items in the collection category are important. Our results show that such major functions as “Online Public Access Catalog,” “reference services,” “ILL” and “list of databases” are adequate, but “guidance,” “list of newspapers” and “list of new journals” are insufficient. These are items that librarians and Web page administrators should aim to improve.

### *Troublesomeness to update*

The low rate of some items, such as items requiring optical data and items requiring frequent updates, is a reflection of the burden involved in updating them. Items requiring optical data also require translation of captions, which increases the cost of Web page administration.

### *Web pages as a means of promoting a library vs. improving its ease of use*

Some items such as “location” and “map” occur on both Japanese and English pages with high frequency, as basic information about the libraries. As a means of promoting a library these items are very important, but our results indicate that it is difficult for non-Japanese speakers to use Japanese university library Web pages as a tool for accessing actual library services, except for the “Online Public Access Catalog.” For example, current information, such as that included in “list of new books,” is an important resource for students to enable them to access recent research, Perspective of useful Web page is more important for administrator.

## **6) Conclusion**

From the results of our investigation, we conclude that the English Web pages of Japanese university libraries are adequately structured for students abroad or users outside the university in some respects (judging from the high rate of “map” and “location,” and the proximity of “map,” “transportation” and “history of the library” in the cluster). However, at present, the function of sending new service (such as ‘digital archive’) of university library is not sufficient. In addition, items relating to the traditional material organization of libraries (such as “list of newspapers” and “list of new journals”) are insufficient, despite the importance of these items in informing users about the content of a library’s collection in a systematic manner. In this regard, adequate study support and research support via university library Web pages is not realized at the English Web page level. However, as the result of cluster analysis shows, a few functions, such as the provision of electronic information (“list of e-journals” and “list of databases”), are systematically constructed via Web pages. With regard to the question of updating Web pages, the burden this can impose on libraries should not be underestimated. Libraries may find it difficult to update English Web pages due to a shortage of expert human resources (or to be outsourced to not well trained staff), or a lack of IT skills.

Insufficiency of Web pages of university libraries are not just a problem of IT skill. It is so relevant to university library service that the construction of those is one of expertise of librarian. So far, expanding service contents in the English pages is indicated as most important assignment. And also, skilled staff to update Web page should be improved.

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