

EVALUATION OF ACADEMIC LIBRARY WEB SITES IN MALAYSIA

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ABSTRACT

This study evaluates the content and design of academic library Web sites in Malaysia and uses a mixed-method approach that combines both quantitative and qualitative analyses of academic library Web sites evaluation. A total of twelve library Web sites of public and private institutions of higher learning were selected for evaluation. The findings reveal that the academic libraries in Malaysia generally have set up well-designed and useful Web sites. A few academic library Web sites, however, have very simple and basic features. Overall, they fall short of expectations as virtual expressions of the quality levels of academic libraries.

Keywords: Web sites; Academic Libraries; Malaysia

INTRODUCTION

Although academic libraries have extensive experience in providing computer-based information services, a great deal of effort has been invested in transforming useful information and services into Web access. Academic libraries have dynamically created Web sites and improvements on the design and layout of the Web sites have been made progressively.

Since the users of academic library Web sites are primarily staff and students of institutions of higher learning, the libraries have to be careful to keep the content and design of their sites in line with their missions. It is clear that the main function of an academic library Web site is to provide access to research tools and full-text databases for education and research purposes. The users are allowed to access the library's electronic resources across the network in a manner that is independent of location or time.

A search through the literature has shown that at present, studies of academic library Web sites are either exclusively using quantitative analyses or qualitative methods. There is lack of a mixed-method approach for academic library Web sites evaluation and integration of the results. Furthermore, none of the evaluation methods surveyed academic library Web sites in Malaysia.

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Malaysia is a computer-literate and Internet-savvy country. In general, the academic community in the country has pioneered the establishment and use of the Internet. Additionally, Malaysian universities have been the leading institutions in the country in creating Web sites. As a result of these developments, academic libraries have been in a more privileged position to set up Web sites than other types of libraries. Their presence on the Web implies the desire of academic libraries in Malaysia to provide better and more services to their users. Although much resources have been committed to create and maintain academic library Web sites, there has been little effort in evaluating these sites.

This study brings attention to the content and design of academic library Web sites in Malaysia. A total of twelve library Web sites of public and private institutions of higher learning in Malaysia were selected for evaluation (Table 1).

Table 1: Library Web Sites of Public and Private Institutions of Higher Learning in Malaysia Used in the Study

Universities in Malaysia	Main Libraries	Library URLs
Universiti Malaya (UM)	UM Library	http://www.umlib.um.edu.my
Universiti Islam Antarabangsa (UIA)	International Islamic University Malaysia Library	http://lib.iiu.edu.my
Universiti Kebangsaan Malaysia (UKM)	Perpustakaan Tun Sri Lanang UKM	http://www.library.ukm.my
Universiti Putra Malaysia (UPM)	Universiti Putra Malaysia Library	http://lib.upm.edu.my
Universiti Sains Malaysia (USM)	USM Library	http://www.lib.usm.my
Universiti Teknologi Malaysia (UTM)	Perpustakaan Sultanah Zanariah Universiti Teknologi Malaysia	http://www.psz.utm.my
Universiti Utara Malaysia (UUM)	UUM Sultanah Bahiyah Library	http://www.lib.uum.edu.my
Universiti Malaysia Sabah (UMS)	Perpustakaan Universiti Malaysia Sabah	http://www.ums.edu.my/library
Multimedia University (MMU)	Multimedia University Library	http://library.unitele.edu.my
University Teknologi MARA (UiTM)	Perpustakaan Tun Abdul Razak	http://www.itm.edu.my/acactr/ptar
Universiti Malaysia Sarawak (UNIMAS)	Centre for Academic Information Services Universiti Malaysia Sarawak	http://www.unimas.my/html/cais.html
Universiti Tun Abdul Razak (UNITAR)	UNITAR Virtual Library	http://vlib.unitarklj1.edu.my

METHODOLOGY

Two different research instruments, quantitative and qualitative analyses, were used in the study. Qualitative analysis was employed as an observational technique carried out from December 1999 to February 2000. The content and design of the selected Web sites were analysed. A matrix was developed to reflect the features that might be found on an academic library Web site, based on literature. This matrix was then used to record the features present in each Web site. It was extended, as necessary, as new features were noted on Web pages accessed for the study.

Quantitative analysis method was used on the data gathered from a survey carried out from December 1999 to January 2000. Seventy-five Information professionals and 75 library users of selected Web sites were invited to participate in the survey based on simple random sampling. Participation was voluntary. Also, confidentiality was assured. In addition, all participants were informed about the eventual use of all the data collected.

Information professionals and library users of the selected sites were asked to rate the evaluation criteria. A total of 25 evaluation criteria were listed in a questionnaire form. The returned questionnaires were analysed using SPSS 9.0 for descriptive statistics and factor analysis.

ANALYSES AND FINDINGS

Qualitative Analysis

Twelve items were noted on the matrix for qualitative analysis done in February 2000. Since Web sites are dynamic in nature each item noted on the matrix was analysed within a day or so. Changes and new pages that appeared after the date of analysis were not included in the study.

a) General Information of the Library

Information about the library and services offered by the library were provided by all of the selected libraries. In some cases, this information was limited to a few paragraphs or to a list of library collection areas and services.

As expected, the name of the library was the most outstanding feature that appeared on the main page of all the library Web sites. Besides the name of the library, the most common feature of general information about the library was the library rules and regulations. Eleven (11) of the 12 Web sites had incorporated this feature. A number of libraries devoted many pages to introduction, hours of opening, membership, collections and services,

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branches, organisation and administration, and staff directory. However, only one library had included a message from the Chief Librarian.

All libraries also provided facilities for feedback but only three of them designed HTML forms for users to express their views, suggestions, and comments. Other libraries included facility for an automatic generation of e-mail message. Another common feature of general information was information on its parent institution through a link to the university homepage.

Logos, photographs, or sketches of the library were common features of all Web sites. Three of these sites had additional photographs of librarians. Other features such as aims, purpose, or mission statement of the library, library floor plan, and library news update or newsletter were not common features in the Web sites examined.

b) Library Online Public Access Catalogue (OPAC)

All, but one academic library Web site, had incorporated access to the library catalogue through the Internet. The one academic library that did not provide access to its OPAC through Internet was the library which had OPAC that can be accessed remotely through Campus Wide-Area Network. On the other hand, there was one library that provided not only online catalogue through both Web interface and telnet link, but also provided links to other library online catalogues.

Six (50%) of the libraries provided access to their OPACs through a Web interface such as WebPAC, GeoWeb, and VTLS Web Gateway. However, one of these libraries was unable to be accessed when examined for feature such as phrase search, combination search, and Boolean search. Another one of these Web sites restricted access to the university community and required the use of appropriate login names and passwords.

It is worth to note that three of the six libraries that provided access to their OPACs through a Web interface, also provided links to other library OPACs (within and outside the country).

c) Links to other Internet Resources

Nine (75%) library Web sites provided links to selected resources on the Internet. These resources included links to electronic journals, electronic books, electronic reference resources, electronic magazines, electronic newspapers, Malaysian Internet resources, Islamic resources, proceedings of conferences, local and international library and information resources, and Internet search engines.

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These links were done in a simple form as a plain list, with a short description or annotation for each link. However, some libraries had begun to organise resources for scholars according to subjects relevant to the courses offered and research undertaken at the university. For example, the subject on Malay studies was developed by one library to provide Malay bibliography and directory of Malay studies expertise.

Three libraries offered help to students and researchers in exploring, finding and organising phases of their project writing. To help students and researchers use Internet resources appropriately, they organised links to information on citing Internet resources and bibliography preparation.

Most of the links were accurate, reliable, up-to-date, relevant, and appropriate to the needs of users. However, it should be noted that in some libraries, the links were not checked regularly to ensure that they are still active.

d) Interactive Services

Five libraries offered interactive services to their users. The services include reference inquiries, loan status check and fines accrued, books renewal, charged books reservation, purchase suggestion, and interlibrary loan request.

One of these libraries provided both forms and email addresses for its interactive services. Moreover, users of two libraries obtained various services by simply filling up the relevant forms on the Web sites. One library provided “clickable” email addresses of reference librarians and acquisition librarians to library users. One library that did not provide forms or email addresses for interactive services, provided online renewal through its OPAC system.

e) Internal Electronic Database Services

In spite of the fact that many libraries had indicated in their general information that they produce a number of electronic databases for their users, only five of them provided access to internal electronic database services such as examination papers, thesis abstracts, university publications and public lectures through their Web pages. Two of these Web sites restricted the access only to the university community through the requirement of appropriate login names and passwords.

It is noted that most of the libraries had created their own bibliographic databases of thesis and dissertation, and special collections. These internal electronic databases of bibliographic information were integrated into the library's OPAC.

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f) External Electronic Database Services

Seven of the libraries had provided links to subscribed databases such as PubMed, ERIC, OVID, ProQuest Direct, EBSCOHost, Springer LINK, and UMI through their Web pages. Some of the services were restricted to the university community; they require the use of appropriate login names and passwords, for some databases.

It is noted that one library had links to Palmoilis and Sirimlink. Palmoilis and Sirimlink which are electronic database services created by research institutions in Malaysia, namely, Palm Oil Research Institute of Malaysia (PORIM) and SIRIM Berhad, (formerly known as the Standards and Industrial Research Institute of Malaysia), respectively.

In addition, some libraries provided access to electronic databases for browsing on a trial basis. The username and password of databases on trial were published on the Web pages making it possible for users to access the databases.

g) Languages Used in Web Site

Surprisingly, all but one of the academic library Web sites used English. A Bahasa Malaysia version was also available in a few of these Web sites. In addition, two Web sites were written in Bahasa Malaysia with a short English explanation.

h) Technical Services

None of the Web sites had developed Web pages specifically for technical service librarians to provide the information or on issues related to acquisitions, cataloguing, serials, and preservation. Two of the libraries provided links to library technical services created by foreign academic libraries. However, the links were integrated into the feature of Internet resources or electronic information.

i) Instructional Supports

One of the libraries provided instructional materials and teaching technique of a coursework called information literacy for its students. Other libraries did not develop Web pages specifically for lecturers to provide online instructional materials and teaching techniques. However, two of them provided information in support of teaching, learning, and research of the faculties concerned.

j) Other Important Features

Five libraries gave complete street address, telephone contact, fax number, and indication of when the page was last updated. Two main pages did not

identify the dates of their most recent updates, and one of them did not even provide street address and contact numbers. In other words, these important features were not embedded on the main page of this library.

It is noted that most of the main pages with the date of last update were updated sometime in the last 20 days before being examined for this study.

The Web pages of these Web sites were also examined for provision of “way out” of the page and the feature of last update. Three of the Web sites provided both “way out” and last update features on each of the Web pages. Another three of the Web sites provided “way out” feature only on each of the Web pages.

k) Loading Time of Images

All the first main pages with image files did not take more than 30 seconds to appear completely on the computer screen. For Web pages with image files, the loading time was less than 20 seconds.

l) Marketing Techniques

Generally, all Web sites, except one, gave proper titles (the words that appear in the frame at the top of the pages) for search engines. The one that did not give proper title to its main page writes the word “HOME” at the top of the page. None of the Web sites created a good meta tag description statement for search engines to get the most important content indexed. Therefore, the description statements that appeared in the search engines are the first 250 characters written by the libraries in their main pages. Some of the description statements are in mixed languages that would not be helpful to international users.

Quantitative Analysis

Of the 103 responses, 11 were eliminated because respondents did not answer the questionnaires; they had either retired, no longer at academic libraries, on leave from academic libraries, or graduated. Therefore, 92 usable questionnaires that represent at least 61 percent of the population are eventually returned.

a) Mean Ratings of Information Professionals and Library Users

The data in Table 2 indicate that information professionals and library users rated the same evaluation criterion that *the contents of Web sites are updated or refreshed on a regular basis* as the criterion of highest importance.

The second criterion that received the highest mean rating by information professionals, was *text should be written in a clear, concise manner*. This

criterion was rated tenth by users. On the other hand, *date of last update should always be present* was rated second highest in importance by library users and this criterion was rated fifth in importance among the information professionals.

Table 2: Top Ten Important Criteria as Perceived by Information Professionals and Library Users

Information Professionals			Users		
Criterion	Mean	SD	Criterion	Mean	SD
The contents of Web sites are updated or refreshed on a regular basis	4.56	0.73	The contents of Websites are updated or refreshed on a regular basis	4.59	0.64
Text should be written in a clear, concise manner	4.51	0.63	Date of last update should always be present	4.51	0.69
Notification on any changes in the address of the Web sites or Web pages	4.49	0.77	Link to the library's parent institution Web site	4.37	0.70
If there are charts or graphs containing statistical data, the charts and /or graphs are clearly labelled and easy to read	4.42	0.63	Links to relevant Internet resources	4.25	0.60
Date of last update should always be present	4.33	0.72	If there are charts or graphs containing statistical data, the charts and /or graphs are clearly labelled and easy to read	4.20	0.41
The Web sites have a logical and clear structure	4.33	0.64	Title of the Web site should be descriptive for search engines to get the most important content indexed	4.16	1.14
The information is free of grammatical, spelling, and other typographical errors	4.26	0.76	Link to the main page itself in each page of the Web site	4.14	0.98
Title of the Web site should be descriptive for search engines to get the most important content indexed	4.19	0.66	Downloading of single pages proportionately fast	4.14	0.91
Seamless access to all electronic databases of the library (such as OPAC, exam papers, and thesis abstracts)	4.16	0.72	The information is free of grammatical, spelling, and other typographical errors	4.13	0.76
The sources for any factual information are clearly listed so they can be verified in another source	4.16	0.69	Text should be written in a clear, concise manner. Notification on any changes in the address of the Web sites or Web pages	4.12	0.67

The study did observe differences between information professionals and users evaluation.

Criteria that information professionals rated as important are: (a) *Web sites have a logical and clear structure*, (b) *seamless access to all electronic databases of the library (such as OPAC, exam papers, and thesis abstracts)*, and (c) *sources for any factual information are clearly listed so they can be verified in another source*. These three criteria were the sixth, ninth, and tenth criteria of highest importance, respectively. However, they were excluded in the top ten highest mean ratings of the library users.

Similarly, library users rated the importance of four criteria, which also did not appear in the top ten highest mean ratings of the information professionals. They were: (a) *link to the library's parent institution Web site* (the criterion of third highest importance), (b) *links to relevant Internet resources* (fourth), (c) *link to the main page itself in each page of the Web site* (seventh), and (d) *downloading of single pages proportionately fast* (eighth).

b) Factor Analysis

The principal components analysis was used to extract factors followed by varimax orthogonal rotation method to maximise the variance explained by each factor. There were 8 factors with eigenvalues of 1.0 or greater. These 8 factors accounted for 74.92% of the variance in the set of 25 criteria.

Criteria having factor loading with a value at or above 0.30 were treated as being significant. A reasonable cut-off point would be 0.30, with loading below that figure being ignored in explanation of a factor (Child, 1970). The 0.30 cut-off point was also agreed by Comrey (1973). Comrey suggested that factor loading of 0.55 are good, those of 0.63 very good, and those of 0.71 excellent.

The 8 factors that emerged from the factor analysis were interpreted and labelled. Table 3 shows the results of the factor analysis for 25 criteria; indicators loading at 0.30 or higher, a commonly accepted measure of significance, have been included in the table.

DISCUSSION

Generally, the academic libraries in Malaysia have set up well-designed and useful Web sites. A few academic library Web sites, however, have very simple and basic features.

Table 3: Factor Analysis of Evaluation Criteria for Academic Web-sites in Malaysia

Structure	Factor loading	Eigen-value	Cum % of variance
Objectivity The information is provided as a public service, no password is required Link to the library's parent institution Web site Mean to provide contact/feedback to the library and its staff Technical service departments are embedded in the Web sites Seamless access to all electronic databases of the library (such as OPAC, exam papers, and thesis abstracts)	.730 .680 .658 .638 .524	6.46	25.86
Reliability of links and information Verification of links must take place on a regular basis Links to relevant Internet resources Link to the main page itself in each page of the Web site The sources for any factual information are clearly listed so they can be verified in another source Date of last update should always be present	.800 .779 .753 .567 .502	2.85	37.25
Authority and design control Librarians are assuming responsibility for creating and maintaining the Web sites The authors or Webmasters and their qualifications for creating and maintaining the Web sites are clearly stated The Web sites have a logical and clear structure The colours of background, graphics, fonts and types are suitable New sections of information should be highlighted	.833 .724 .612 .508 .380	2.36	46.69
Accountability for content Text should be written in a clear, concise manner Notification on any changes in the address of the Web sites or Web pages	.836 .737	1.99	54.63
Marketing Title of the Web site should be descriptive for search engines to get the most important content indexed Balance use of graphics and the palette of colours against the time required to displaying them Downloading of single pages proportionately fast	.912 .663 .607	1.53	60.76
Accuracy English version or short explanation in English for patrons to understand the content If there are charts or graphs containing statistical data, the charts and /or graphs are clearly labelled and easy to read The information is free of grammatical, spelling, and other typographical errors	.804 .484 .458	1.25	65.77
Currency The contents of Web sites are updated or refreshed on a regular basis	.843	1.16	70.39
Instructional support The instructional materials and teaching techniques of lecturers are incorporated into the Web sites	.903	1.13	74.92

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Some of the well-designed and useful Web sites cannot be accessed during the study due to the instability of their Web servers. This instability has resulted in difficulty to examine the Web sites at the same period for the items noted on the matrix and affected any generalisation of the findings of the study.

With regard to the provision of general basic information about the library on the Web sites, there does not seem to be much difference from what was reported in the literature review. Some of the general basic information cannot be found during the study due to the very common problems of Web navigation.

Provision of general basic information should not be the only major function of Web site as is the case in three academic libraries in Malaysia. As academic library Web sites are becoming an important navigational devices in the organisation of information, they should act as a source of information for teaching, research, and study for their universities staff and students (Stover, 1997).

The information professionals and library users have also indicated that the major function of Web site should go beyond general basic information. This indication is based on their questionnaire survey whereby they rated *the contents of Web sites are updated or refreshed on a regular basis* as the most important criterion for evaluating academic library Web sites in Malaysia.

The findings of the Online Public Access Catalogues (OPACs) show that six libraries have not provided OPAC of the library through a Web interface. Provision of OPACs should be seamless access as the information professionals and library users have regarded seamless access as very important criterion in their questionnaire survey.

Link to other Internet resources can be very useful to the library users. Therefore, those library Web sites that do not have links to other Internet resources should be encouraged to organise Internet resources for library users. The questionnaire survey has also shown that *links to relevant Internet resources* gained the means of 4.25 and 3.95 among the information professionals and library users, respectively.

Similar to UK academic library Web sites, dead links are also found in some of the academic library Web sites in Malaysia. These dead links should be minimised as the results of questionnaire survey regarded the verification of links as a very important criterion.

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Provision of interactive services is not common on academic library Web sites in Malaysia. These services should be widely developed for the convenience of library users. Library users will be encouraged to use the Web sites on an ongoing basis if they know that many services can be done through the Web site.

Academic library Web sites in Malaysia are also not aimed at providing internal information resources into the Internet. In addition to providing general basic information, emphasis in most cases is being put on accessing what is already available on the Internet rather than adding to the information content of the Internet. This emphasis is evidenced by provision of electronic database services largely focus on external electronic database.

Although Clyde (1996) has mentioned that an English version is virtually essential if the Web site is to be useful to the people who might visit it, the questionnaire survey has shown that this criterion in a very low ranking of importance compared to other criteria. This finding can be attributed to the large number of Malaysian academic library Web sites that are developed using English and also that most of the library users are bilingual.

Another criterion, *technical service departments are embedded in the Web sites*, is also ranked very low in terms of importance. Information professionals and library users have perceived the embedding of technical service department as one of the lowest important criterion. This perception can be attributed to the fact that technical services on the Internet seem to be intended for a narrower 'audience' and do not directly served the library users.

In analysing the provision of technical services, none of the academic library Web sites in Malaysia provide information or issues related to acquisitions, cataloguing, serial, and preservation. The absence of technical services information contrasts greatly with the academic library Web sites in America and Europe, where there is an abundance of information about the technical service departments in these libraries. A few good examples of technical service department on the Internet are the Princeton University Libraries Catalog Division Home Page at <http://infoshare1.princeton.edu/katmandu/cathome.html>, the University of California-San Diego (UCSD) Libraries Technical Processing Online Tools (TPOT) at <http://tpot.ucsd.edu>, and the Cornell University Library Technical Services Manual at <http://www.library.cornell.edu/tsmanual> (Harizan and Low, 1998).

Although Stover (1997) and Kroeker (1999) has advocated the need for academic library Web site to support teaching role of the university, provision of instructional materials and teaching techniques through collaboration with faculty, has not yet been embedded in academic library

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Web sites in Malaysia. The necessity of academic library Web sites in Malaysia to provide such instructional support is still in question as the information professionals perceive it as the lowest important criterion and the library users rate it as the third lowest important criterion.

One of a top ranking criteria, *date of last update should always be present*, is present in most of the main pages of academic library Web sites in Malaysia. However, they have failed to provide it in their information content. Only three libraries have incorporated date of last update into every Web page of their Web sites. All Web pages should have an indication of when the page is last updated since the information professionals and library users have regarded it as one of the most important criteria.

Title of the Web site should be descriptive for search engines to get the most important content indexed is also a criterion that is in the top ten ranking of both the information professional and library user groups. However, the findings on marketing techniques show that academic library Web sites in Malaysia have not attempted to create a good meta tag description statement for search engines. The libraries should include the keywords likely to be used by people searching for the Web page if they aim to increase the number of visitors to their Web sites.

Existing literature clearly discourages the creation of Web pages that are difficult to navigate. Most of the academic libraries in Malaysia have taken into consideration this Web page design principle when designing their Web pages. Thus, their Web pages with image files do not take a long time to load (to appear completely on the computer screen).

By identifying 8 underlying criteria evaluated of academic library Web sites in Malaysia, the eighth factor, “instructional support” can potentially be dropped, as most of the academic library Web sites have not incorporated instructional materials and teaching outlines of lecturers into the academic library Web sites.

CONCLUSION

This study confirms what other empirical studies found in other countries. Academic library Web sites in Malaysia are mainly providing general information of the library and their services. There is lack of information organisation in most of the Web sites. The stability of Web servers should be of the greatest challenge for academic library Web sites in Malaysia as they have to offer their information services around the clock.

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Based on the findings, academic library Web sites in Malaysia have not come up to expectations as virtual expressions of the quality levels of the academic libraries. There are very strong expectations of these Web sites because people would expect information professionals as one of several professions vying for leadership in the information age to organise and present information in a way that best fits the users attention and knowledge.

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