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**EVALUATION OF UNIVERSITY WEBSITES TARGETING ENGLISH
SPEAKING USERS: A COMPARATIVE ANALYSIS OF SELECTED SITES
IN DEVELOPED AND DEVELOPING COUNTRIES**

R.W. Ongus¹, T. D. Kemparaju² and C.M. Nyamboga³

^{1,2}Department of Library and Information Science,
Jnana Bharathi Campus, Bangalore University,
Bangalore 560 056, Karnataka State, INDIA

³Egerton University Library, P. O. Box 536, Njoro, KENYA
e-mail: ¹raymondongus@yahoo.co.uk; ²tdkv2000@rediffmail.com;
³constantinebu@yahoo.com

ABSTRACT

The rapid development and increasingly popular usage of the Internet through the World Wide Web (WWW) have offered information professionals a very lucrative opportunity to assert themselves as information gatekeepers and gateways. Through systematic evaluation procedures on information resources such as websites, proper guidance may be offered to targeted end users in order to facilitate much more efficient retrieval of information and hopefully, better utilization of the same. This paper looks at several selected university websites designed in English, all of which were subjected to a uniform set of criteria for the purposes of evaluating the website design and content coverage. Following its classification into developing and developed countries of origin, the data collected was comparatively analysed and subsequent inferences together with recommendations proffered in line with the set objectives.

Keywords: University Website; Website Evaluation; Developed Countries; Developing Countries

INTRODUCTION

Libraries all over the world are charged with fundamental responsibilities that constitute their *raison d'être* within their respective user communities. The tasks include selection, acquisition, processing, dissemination, maintenance, evaluation, promotion and preservation of information resource materials in a variety of formats. All this is expected to be proactively carried out as per the specific information needs of the library clientele, to facilitate proper decision-making. Contemporary libraries maintain various combinations of recorded knowledge in their stock, including print-based, electronic and other emerging media. In

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conjunction with computer technology, libraries are increasingly being equipped with information infrastructure (or *infostructure*), which enables their users to rapidly access information from outside the libraries' "four walls". This mainly occurs by means of websites on the Internet.

Systematic evaluation of all information resources at regular intervals ensures the sustenance of desirable and internationally acceptable standards, in terms of timeliness of content, appropriateness, validity, relevance, accuracy and so on. Users can therefore be suitably guided to use information resources of highest quality and which are likely to be greatly beneficial. Thus, in the digital age, one can effectively declare that new roles are emerging for the librarian to serve in the global network environment. These roles comprise the following:

- information navigators;
- educators on information seeking skills;
- publishers of required information;
- intermediaries (end-user surrogates);
- information marketers;
- information organizers and disseminators;
- planners and policy makers; and finally, perhaps most importantly
- information evaluators

WHY EVALUATE WEBSITES?

A website as defined by Gray (2004), is a set of related pages of information that are meaningfully linked together electronically on the Internet. The general rule of thumb is to consider all electronic documents on the Web with addresses beginning with a unique hostname as belonging to one website. In order to locate and access a website, one needs to enter its file address or uniform resource locator (URL) into the appropriate space provided for by the browser. The URL is the standard for specifying an object on the Internet. Supposing one enters a hypothetical URL such as *http://www.assessingsites.com/info/education.html* in a given Web browser, no matter where in the world one may be or wherever that website may be hosted, the same page should pop up on the screen. What actually happens behind the scene is that the Internet browser divides the URL into four parts as follows:

- The protocol/ access method used (i.e. hypertext protocol (*http*))
- The server/ host name (e.g. *www.assessingsites.com*)
- The folder name (e.g. *info*)
- The file name and extension (e.g. *education.html*)

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In general, the two slashes in the URL after the colon indicate a machine name (Boutell, 1996). The information on the remote server is located and broken up into small packets. The packets are rapidly sent over the telecommunication medium, often using different routes and reassembled in a logical and meaningful sequence on the user's computer, according to the way the markup language instructs the Internet browser. Of course, there are more intricate technical details to this process of information transfer, but they fall beyond the scope and purpose of this paper.

Website evaluation is a necessary process to enable planners and developers to keep up with the increasingly diverse nature of sites that are posted on the Internet. It is also imperative to evaluate websites for the purposes of quality control, given the fact that anyone and any organization can publish anything on the Internet at any chosen time. Furthermore, most of the Internet resources are not reviewed or "filtered". In other words, unlike the more traditional information media (such as books, magazines and videos), which pass through an editor, the content of a Web page does not have to be approved by anyone before it is made public. Seldom is there a reviewing process conducted by peers or an authority, or checking by a publication or editor or selection by a librarian during collection development. Conversely, anyone is capable of selecting and using anything on the Internet. Unfortunately, in many cases gullible clients often believe: "If it is on the Internet, it must be true". This kind of view is typically accepted without checking the credibility of the websites consulted. That attitude does not necessarily portray sincerity, which is why a deliberate attempt to evaluate and classify website qualities is crucial. Just as the websites are dynamic in nature, their evaluation has to be a continuous process for effective results to be obtained.

OBJECTIVES OF THE STUDY

The main intention of this study is to evaluate and compare educational websites that are hosted in different parts of the world. The specific objectives of the study are stated as follows:

- (a) To compare the accessibility and user-friendliness of the respective Websites;
- (b) To determine whether the Websites indicate ownership and also whether they are regularly maintained;
- (c) To evaluate the quality of information content covered by the respective Websites;
- (d) To assess the quality of citations in the Websites in terms of availability of bibliographies and/or useful links to other related sites;

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- (e) To investigate whether Web design quality affects the quality of Web content among the selected site;
- (f) To establish ways in which university Websites from developing countries differ from those of the developing world.

This study was strictly confined to university websites, indicative of the background of the paper's authors. Other types of educational websites were excluded due to constraints of time and costs associated with the work involved. English Language was focused on because it is the language in which all the authors are mutually well versed and hence could effectively work with. Although English Language is claimed to carry the majority (approximately 60%) of websites on the Internet, it was a limiting factor because many websites in other languages had to be overlooked in order to carry out the investigation.

METHODOLOGY

In total, it is estimated that websites of universities worldwide possibly amount to 7,000. However in this study, a total of 318 university websites in English Language were purposively selected for the study. They were drawn from 119 countries around the world. Both public as well as private universities were considered equally in the sampling frame. After selection, the Websites were classified into seven (7) homogenous groups pertaining to the following regions: Africa, Asia, Europe, Latin America/Caribbean, Middle East, North America and Oceania.

In the 1960s to the early 1970s, both the United Nations Organization (UN) as well as the Organization for Economic Cooperation and Development (OECD) established that some countries were not quite up to the mark in terms of economic development (Hacche, 1970; Todaro, 1994). For the purpose of this paper, the loosest possible delineation was employed in defining the aforementioned regions. The developing world was taken to collectively mean Africa, Asia, Middle East and Latin America/Caribbean, whereas the developed world was collectively taken to mean Europe, North America and Oceania. The university websites used in this survey, were located by means of search engines and databases of university websites, identified by the following URLs:

- a) Google (<http://www.google.com>)
- b) Universities Worldwide (<http://univ.cc/>)
- c) World Colleges and Universities
(<http://www.usc.edu/dept/overseas/ipww.html>)

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The principal tools used for the capturing of data from the websites were checklists and rating scales to capture data in paired ways. Karen McLachlan developed the website evaluation form in 1996, as a means of introducing the World Wide Web to novice users (McLachlan, 2002). The same evaluation was adapted for this research because of its suitability in the context of this particular study. The evaluation components are categorized as follows:

- a) Checklist for evaluating the quality of attributes comprising the website's design, namely:
- Downloading speed
 - Homepage design
 - Ease of navigation
 - Use of multimedia
 - Browser compatibility
 - Manner of presentation
 - Maintenance
 - Availability of further information

Based on the number of "Yes" (1 mark) and "No" (0 mark) answers to each of the web design attributes, the websites were rated according to the following schema:

(24 –16 Marks) – Very well designed website, easy to use

(15 –11 Marks) – Website design needs to be improved but site is usable

(10 – 0 Marks) – Poorly designed website, difficult to use

- b) Checklist for evaluating the quality of attributes comprising the website's contents, namely:

- Efficiency of the website
- Information providers
- Information currency
- Information quality

Similarly, based on the number of "Yes" (1 mark) and "No" (0 mark) answers to each of the web content attributes, the websites were further rated according to the following schema:

(24 –16 Marks) – Very useful website for users' information needs

(15 – 11 Marks) – Website worth bookmarking for future reference

(10 – 0 Marks) – Website not worth coming back to

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DATA ANALYSIS

The analysis involved the application of both descriptive and inferential statistics. The data revealed that the websites were used by the respective parent institutions as dynamic promotional tools, accessible by a large population of users at any given time. The targeted audience comprises students, university staff, researchers, alumni, corporations and parents.

This study therefore attempts to assess how well the university websites were designed and it also proceeded to examine how well the corresponding contents were presented to the targeted end-users. In all cases, comparisons were made between developing countries and developed countries. Table 1 presents the general comparison of web design for the selected university websites in the regions under study in terms of downloading time and aesthetic values. The data indicates that only a small proportion (27.36%) of the university websites considered could download within the cut-off time of 20 seconds, using a standard 56Kbps modem. Apparently, the average downloading time of websites in developed countries was generally closer to the ideal timing. Further, the data is indicative of the fact that the poorly designed websites were not as commonly incident as the very well designed and the barely functional ones, combined. This was found to be more strongly evident in the developed than in the developing countries.

Table 2 compares the detailed design aspects of the selected university websites. The data indicates that the majority of the universities' websites did not employ multimedia/graphics appropriately for optimum results. Moreover, most of the websites were found to be inadequately maintained, particularly those in the developing countries. The sites in the developing countries could also do with better links for further information. Otherwise, the rest of the investigated aspects pertaining to the website design appeared to be above average, with the developed countries posting higher percentages in most areas.

Table 1: General Comparison of Web Design for Selected University Websites in the Regions Under Study

	Africa	Asia	Europe	Latin America & Caribbean	Middle East	North America	Oceania	Total no. of observations in developing countries (& corresponding percentages)	Total no of observations in developed countries (& corresponding percentages)	Grand total no of observations (& corresponding percentages)
No. of countries represented in the study	24	21	29	19	14	3	9	78	41	119
No. of university Websites selected	42	46	55	31	40	48	56	159 (100%)	159 (100%)	318 (100%)
Average time (in Seconds) for Websites to fully download using 56Kbps modem	46.45	56.37	37.38	34.77	52.28	37.88	35.36	48.51 (Avg. time)	36.81 (Avg. time)	42.66 (Avg. time)
No. of Websites downloading in the given cut-off time (20 seconds)	11	12	12	13	3	13	23	39 (24.5%)	48 (30.2%)	87 (27.4%)
Very well designed Websites	20	21	34	11	17	39	45	69 (43.4%)	118 (74.2%)	187 (58.8%)
Websites needing improvement but are usable for now	14	16	14	14	18	4	10	62 (39%)	28 (17.6%)	90 (28.3%)
Poorly designed Websites	8	9	7	6	5	5	1	28 (17.6%)	13 (8.2%)	41 (12.9%)

Table 2: Comparison of Detailed Design Aspects of Selected University Websites in the Regions Under Study

	Africa	Asia	Europe	Latin America & Caribbean	Middle East	North America	Oceania	Total No. of observations in Developing Countries (& corresponding percentages)	Total No. of observations in Developed Countries (& corresponding percentages)	Grand Total No. of observations (& corresponding percentages)
Websites with good homepage design (At least 4 out of 6 Pts)	29	36	45	22	28	41	43	115 (72.3%)	129 (81.1%)	244 (76.7%)
Websites with good navigation mechanisms (At least 3 out of 5 Pts)	20	28	36	15	29	44	47	92 (57.9%)	127 (79.9%)	219 (68.9%)
Websites with good use of multimedia (2 out of 2 Pts)	18	15	23	13	16	29	24	62 (39%)	76 (47.8%)	138 (43.4%)
Websites with browser compatibility (1 out of 1 Pt)	35	40	52	30	35	45	53	140 (88.1%)	150 (94.3%)	290 (91.2%)
Websites with good manner of presentation (At least 3 out of 5 Pts)	27	28	41	23	29	41	53	107 (67.3%)	135 (84.9%)	242 (76.1%)
Websites with good maintenance (2 out of 2 Pts)	7	5	14	7	4	18	23	23 (14.5%)	55 (34.6%)	78 (24.5%)
Websites with good links for further information (2 out of 2 Pts)	21	17	39	15	13	39	36	66 (41.5%)	114 (71.7%)	180 (56.6%)

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In terms of content qualities for the university websites under study, the findings in Table 3 indicates that the very unhelpful websites are not as commonly incident as the very useful ones and the ones worth bookmarking, combined. This situation was more remarkable in the developed countries than in the developing ones. On comparing percentages, it was found that the developed countries appeared to have a greater proportion of useful websites than the developing countries. Thus, there were much fewer websites not worth visiting in the developed countries than in the developing countries. Table 4 presents the web contents aspects of the selected university websites. Although the data depicts web content development traits that are generally above average, a large majority of the websites particularly in the developing countries did not appear to contain current information. The websites in the developed countries surveyed posted relatively higher percentages for virtually all the web content attributes under study.

Table 3: General Comparison of Web Content Qualities for the Selected University Websites in the Regions Under Study

	Africa	Asia	Europe	Latin America & Caribbean	Middle East	North America	Oceania	Total no. of observations in developing countries (& corresponding percentages)	Total no. of observations in developed countries (& corresponding percentages)	Grand total no. of observations (& corresponding percentages)
No. of countries represented in study	24	21	29	19	14	3	9	78	41	119
No. of university Websites selected	42	46	55	31	40	48	56	159 (100%)	159 (100%)	318 (100%)
Very useful Websites	16	16	24	13	12	35	37	57 (35.8%)	96 (60.4%)	153 (48.1%)
Websites worth book marking for future reference	18	16	19	10	13	7	15	57 (35.8%)	41 (25.8%)	98 (30.8%)
Websites not worth revisiting	8	14	12	8	15	6	7	45 (28.3%)	25 (15.7%)	70 (22.0%)

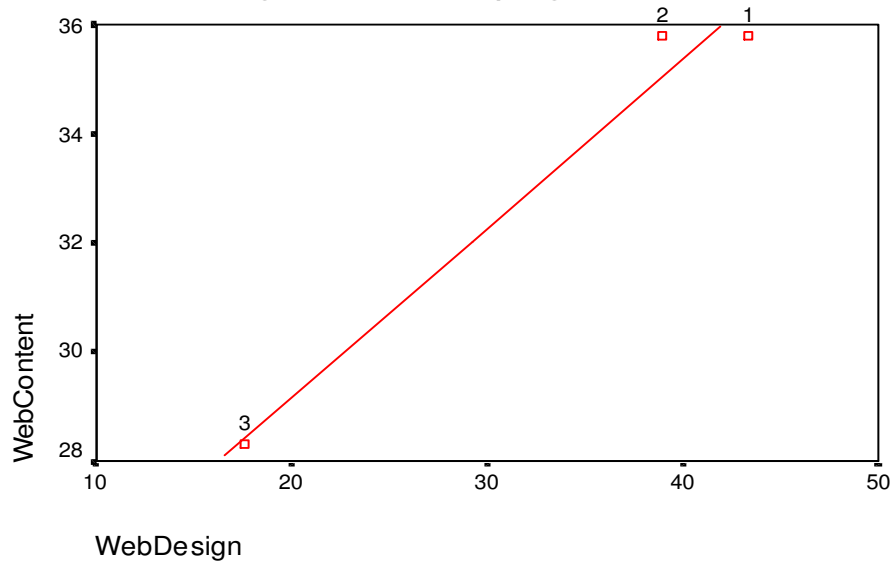
Table 4: Comparison of Particular Web Content Aspects of Selected University Websites in the Regions Under Study

	Africa	Asia	Europe	Latin America & Caribbean	Middle East	North America	Oceania	Total no. of observations in developing countries (& corresponding percentages)	Total no. of observations in developed countries (& corresponding percentages)	Grand total no. of observations (& corresponding percentages)
Websites with good efficiency (At least 1 out of 2 Pts)	37	41	48	28	31	45	52	137 (86.2%)	145 (91.2%)	282 (88.7%)
Websites with good information providers (At least 3 out of 5 Pts)	28	26	30	17	21	32	35	92 (57.9%)	97 (61.0%)	189 (59.4%)
Websites with good information currency (At least 3 out of 4 Pts)	13	9	18	10	8	28	38	40 (25.2%)	84 (52.8%)	124 (38.9%)
Websites with good information quality (7 out of 11 Pts)	33	32	42	22	22	43	49	109 (68.6%)	134 (84.3%)	243 (76.4%)

A scatter plot of web design percentages against web content percentages observed in both the developed and developing countries were established. The results indicated a very high positive association between web design quality and web content quality for the websites considered in this study. Figure 1 and 2 present the findings.

The plot of Web Design vs Web Content

Percentages - (Developing Countries)



Legend

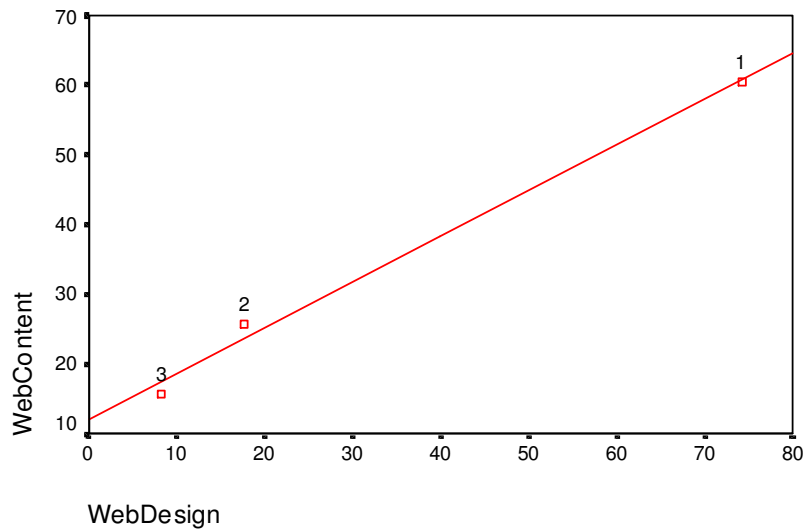
	Percentage of Websites with given type of design quality	Percentage of Websites with type of content quality
V. Good (1)	43.4%	35.8%
Medium (2)	39.0%	35.8%
Poor (3)	17.6%	28.3%

NOTE:

Karl Pearson's product moment coefficient of correlation 'r' from the above data was calculated, and established to be 0.988. This indicated a very high positive association between Web design quality and Web content quality for the Websites considered in this study. Further, by conducting a 2-tailed, paired samples t test with $\alpha = 0.025$ (95% confidence interval) and 2 degrees of freedom, the calculated t statistic was found to be 0.06. This value is less than the conventional critical value of 4.303. This implied that the positive relationship between Web design and Web content was statistically insignificant.

Figure 1: A Scatter Plot of Web Design Percentages Against Web Content Percentages Observed in the Developing Countries.

The plot of Web Design vs Web Content Percentages (Developed Countries)



Legend

	Percentage of Websites with given type of design quality	Percentage of Websites with type of content quality
V. Good (1)	74.2%	60.4%
Medium (2)	17.6%	25.8%
Poor (3)	8.2%	15.7%

NOTE: Karl Pearson's product moment coefficient of correlation 'r' from the above data was calculated, and established to be 0.996. This indicated a very high positive association between Web design quality and Web content quality for the Websites considered in this study. By conducting a 2-tailed, paired samples t test with $\alpha = 0.025$ (95% confidence interval) and 2 degrees of freedom, the calculated t statistic was found to be -0.88. This value is less than the critical value of 4.303. This implied that the positive relationship observed between Web design and Web content was also statistically insignificant.

Figure 2: A Scatter Plot of Web Design Percentages Against Web Content Percentages Observed in the Developed Countries

DISCUSSION

From the study it is apparent that the quality of university website design does not universally have a meaningful effect on web content quality, even though the two seemed to be strongly correlated in this study. It is advisable, therefore, for users to prudently use the websites and where necessary, consult well-trained librarians and

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other knowledgeable information professionals. University website designs in developing and developed countries should adhere to globally accepted norms of website construction, in order to achieve optimum results. The W3C (<http://www.w3.org>) has long advocated for the design of sites for maximum accessibility. With this in perspective, the following points are recommended:

- a) Speed should be emphasized on, by invoking minimal design techniques. Designers should concentrate on the quality of the message being conveyed rather than unnecessarily overloading a site with flashy multimedia effects. Graphics can be saved for the subsequent pages, which can be opened after having committed oneself to the website. Home pages should be kept simple yet as welcoming as possible.
- b) Web designers should employ established website design norms preferably after thorough acquaintance with the Web and graphic user interface (GUI) conventions. The positions and actions of links and buttons should not be changed unnecessarily because if consistency is maintained, the user has to learn it only once.
- c) Web designers should conduct proper research of facts, update the website content regularly and have the updating date and authors' details clearly displayed for the purposes of authentication.
- d) Web designers should minimize mouse travel around the screen and keystrokes to be entered because it would give users unnecessary work. Successive buttons and/or hyperlinks should be conspicuously availed close by. Moreover, it is advisable to provide multiple ways of doing the same thing.
- e) Users should always be informed of what is happening within the website in order to reduce disorientation. They should be provided with a mechanism of informing them where they are, how they can proceed to another page, how to go back to where they previously were, how to save, how to print, and how to seek for help.
- f) University website designers and content developers should ensure that they research about the most suitable and useful external links to be availed to the website visitors. This would help to expand the limits of the website so that users would easily be able to access reliable information that is of value outside the given boundaries.
- g) Information professionals within universities should be adequately trained in website design techniques and Web content development/management. This is the only way they would be able to soundly advise the designers of their university websites to generate the best products within the accessible budget.
- h) The top-level managers of universities particularly those in the developing countries need to be sensitized on the importance of the websites. In this

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manner, enough funds would be allotted for setting up and properly maintaining the sites at much more regular intervals, while adhering to internationally acceptable standards.

Following this study, it is suggested that the following areas of interest be investigated at a higher level:

- a) Whether similar results are manifested when studying university websites in alternative languages other than English Language.
- b) Whether similar results are evident in websites of other spheres of modern life other than the tertiary education sector.
- c) Whether the quality of university websites has any relationship with the quantity of funds allocated by their respective parent institutions.

CONCLUSION

The study has attempted to demonstrate the application of a prototype website evaluation process, which information professionals may employ. Perhaps with certain modifications, this procedure may be applicable to varied circumstances. Information professionals empowered with the basic systematic skills of objectively distinguishing the quality of information services would be a real asset to the Internet user. The clientele would be the beneficiaries in that they would be able to access the websites that best satisfy individual as well as corporate information needs. The authors opine that if the ensuing information is appropriately used and assimilated, then such clients would have a competitive edge over those without access to such value-added services.

REFERENCES

- Boutell, Thomas. 1996. *World Wide Web FAQ: What is a URL?* Available at: <http://www.unimelb.edu.au/public/www-faq/url.htm>
- Gray, Matthew K. 2004. *Websites, hostnames and IP addresses, Oh My.* Available at: <http://www.mit.edu/people/mkgray/net>
- Hacche, John. 1970. *Economics of money and income.* London: Heinemann Educational Books Ltd, 342-343.
- McLachlan, Karen. 2002. *Adventures of cyberbee: Web evaluation.* Available at: <http://www.cyberbee.com/guides.html>
- Todaro, Michael P. 1994. *Economic development.* 5th ed. New York: Longman, 28-31.
- W3C. 1994 – 2004. *W3C (World Wide Web Consortium): Leading the Web to full potential...* Available at: <http://www.w3.org>