

Review of Web Presence of University Libraries of Sri Lanka

Abstract

Purpose

The paper discusses the findings of a study that analyze the content and design of university library websites of Sri Lanka and to highlight the points that need to be addressed in order to enhance the quality of the websites. Besides, this paper presents a simplified version of an evaluative instrument that was developed by the author.

Methodology

Websites of university libraries of Sri Lanka were assessed based on a 17-itemed evaluative instrument. The rating was carried out during the first week of April 2013 through manual inspections and based on the results generated by 3 automatic web tools namely; AChecker, W3C Markup Validation Service, Juicy Studio readability test tool

Findings

The findings revealed that the quantitative web presence of Sri Lankan university libraries is in an acceptable form. All 3 parameters - *availability of websites, size of sites, location of the link to the library site in the parent institutions websites* - that measure the quantitative web presence were found to be in high level. Out of the two qualitative aspects - *content richness and design accuracy* - of the website, the content richness was found to be at a fairly satisfactory level. Out of the 12 library websites tested, 7 sites reached the high level while 3 sites reached the medium level. However, design accuracy level of the websites was quite disappointing. Ten library sites remain in the low level while only two library sites, one each, managed to climb to the first level and the second level.

Practical implications

The evaluative instrument presented in this paper would be useful for library professionals in evaluating the current status of the library websites for institutional or research purposes.

Originality/value

The evaluative instrument presented in this paper is an original tool and the results generated based on the tool have added a new set of empirical data to the body of literature.

Keywords: Library website, Website evaluation studies, Content of library website, Design of library website

1. INTRODUCTION

The library website has brought loads of opportunities and some threats to today's librarians. Librarians have grabbed new developments of the web technologies from both hands and have introduced a wide-spectrum of interactive web-based library services such as virtual reference, mylibrary (*personalization tool that allows users to create their own interfaces by consolidating resources and services they prefer*), discovery interface

(latest upgrade of online public access catalogue), online submission of forms and e-resource portals etc. As a result, libraries are now offering 24/7 service that is enriched with very much advanced counterparts of traditional library services.

However, since the website is in public domain and can be viewed by people across the borders, librarians need to be extra careful of what they publish in their websites and how they appear to be. Designing and maintaining a site adhering to international standards needs certain commitment from the part of the library. Nevertheless, a properly planned maintenance schedule and a periodical re-designing scheme may simplify the process of maintaining a user centred website.

Standard of the website matters a lot in many ways, in building up the image of the library, demonstrate social responsibility and reduce legal liabilities. The two main parameters that determine the standard of a website are the content and design of the site. Both these aspects are equally important for a library website since they are to deliver the relevant resources, services and information to all users, in spite of their abilities and disabilities.

1.1 Content of the Website

Maintaining a comprehensive and up-to-date content is very crucial to achieve the objectives of the site. The main goal of library websites, particularly the websites of educational and research institutions, is to provide a rich and relevant source of resources and supporting services to facilitate teaching, learning and research activities. Basically, the content of a library website can be categorized in to 4 types namely; resources, services, links and information.

Resources include the subscribed and open access e-resources, digitized documents, compiled resource-products such as webographies on online publications etc. The service component is the most benefited area from the advancement of web technologies. Many traditional library services such as the card catalogue, reference service, selective dissemination of information (SDI), document delivery, interlibrary loan etc, have been

successfully converted to web formats and deliver via online-real-time and offline modes. The flexibility of these services has allowed the librarians to offer their users with time and place independent service that was only a dream a decade ago. The library website also acts as a navigational centre, which gives direct links to numerous sites and resources that visitors may need or find useful to visit while browsing the library site. Librarians can maximize the use of the library website by providing access to external links that their users frequently visit. The information is also a very vital component of a website that needs a lot of attention from the librarian. Information about the in-house services and printed collections; help guides and accessing details on online services and digital resources; about the library; opening hours; library news; messages from the librarian etc are very decisive for the success of the site. In other words, the library website should be designed as a one-stop shop, which allows users to access a complete coverage of products together with appropriate guidance and instructions.

1.2 Design of the Website

An aspect that most librarians seem to be neglecting is the design of the website. Non-technical librarians think that designing the site is beyond their capability and give the total responsibility to a web developer, most of the time a stranger to the library field. It is true that, its not essential for each and every librarian to learn the whole course of web designing. However, it is very useful if librarians are aware of the basic principles of web designing in order to guide their web developers. The good point is that it is actually easy for anyone from any educational background to learn the fundamental rules of web designing.

1.2.1 Web accessibility

Web accessibility, which basically addresses the web access for people with disabilities, is one of the main areas of concern in designing a website. There are several international guidelines such as Web Content Accessibility Guidelines (WCAG) 1.0^[1], WCAG 2.0, Section 508 of the Rehabilitation Act of 1973 of USA^[2]. In addition, there are guidelines that are specific for libraries such as International Federation of Library Associations (IFLA) checklist for access to libraries for persons with disabilities (Irvall and Nielsen,

2005) and Elsevier User Centred Design Group guidelines for library websites (Jasek, 2007).

If the website is free from accessibility errors, it brings a lot of values to the website. Several authors (Sloan, 2004; Foley, 2003; Kirkpatrick, 2003; Polanka and O’Gorman, 2001) have pointed out that accessible web design benefits not only the people with disabilities but also the web users as a whole. Besides, authors such as Golub and Lazic (2001) and Kirkpatrick (2003) stated that application of web accessibility guidelines helps optimizing the site for search engines; simplifying the maintenance process; displaying social responsibility; and reducing legal liabilities. Hence, it is essential for librarians to have a good understanding of principles of accessible web designing and be aware of how to meet them. One of the best tools is the WCAG guidelines developed by the Web Accessibility Initiative (WAI) of the Worldwide Web Consortium (W3C). Summary of WCAG 2.0 Guidelines is given in the Appendix A. The complete WCAG 2.0 can be downloaded from the URL <http://www.w3.org/TR/WCAG/>. The automatic web tools such as Wave Web accessibility evaluation tool (<http://wave.webaim.org>) and AChecker (<http://achecker.ca/checker>), make the life of web developers easier by generating results that highlights the errors on page together with useful comments.

1.2.2 HyperText Markup Language

HyperText Markup Language (HTML) is the main markup language for creating web pages and other information that can be displayed in a web browser (Wikipedia^[3]). Use of standard HTML codes ensures faster and better view of the website by most web browsers. HTML validation tools such as W3C Markup Validation Service^[4] and WDG HTML Validator^[5] check web documents against a formal standard, such as those published by the Worldwide Web Consortium (W3C) for HTML.

1.2.3 Readability

Readability of the website is a vital accessibility dimension, which measures the ability to understand the content of the site by the target user groups. Besides, it is a critical issue for people with cognitive learning problems.

1.3 Navigational Mechanism

Site should have a navigational mechanism that guides users to find required content elements with ease. Without a proper navigational mechanism, users may fail to locate the information or may waste a lot of valuable time in doing so. Besides, users may get lost while browsing the site, particularly if the site consists of many pages. All these factors may lead to user frustration and dissatisfaction. Consistent use of navigational elements such as site search engines; use of appropriate navigational aids such as “Bread Crumbs” (*return to top, next/previous page in lengthy documents*); absence of dead-end pages etc. might be very useful to overcome these issues.

2. RATIONALE BEHIND THE STUDY

The university libraries, which are empowered with highly qualified professional and para-professional staff, are the cream of the library sector of the country. Therefore, it is expected for them to be proactive and set role models, particularly in adapting of new technology and innovations. The fast growing field of web technology is one of them that have brought wonders to the librarianship in providing time and place independent service. With the increasing number of users from the net generation and rapid changes in the educational system of the country, going online is not an alternative but is becoming a must for the libraries of all kind. However, preparation of Sri Lankan librarians (*particularly, outside the university sector*) to face this challenge seems to be insufficient. In this regard, university librarians can render a valuable service in empowering the librarians, who are from less equipped institutions and non-technical backgrounds. Besides, university librarians may contribute immensely towards uplifting the standard of library websites of the country by setting examples through maintaining high standard user centred websites.

Under these circumstances, it is vital to gain a good understanding on strengths and weaknesses of the university library websites to help recognize the rectifying measures to raise the quality of the sites, in order to, set them as benchmarks. However, the studies that investigate the success of Sri Lankan university libraries in building up their web counterparts are rare in literature. This study aims at fulfilling this need by producing

empirical data and highlighting points that need to be addressed in order to enhance the quality of the websites. In addition, it is also hoped that findings of this study may persuade the librarians to revisit their library websites and carry out necessary corrections and modifications. Above all, the author wishes to open a new dialog on different concerns in designing and maintaining library websites among Sri Lankan library community.

3. OBJECTIVES OF THE STUDY

The study aims at realizing the following two objectives;

1. Determine the quantitative web presence of Sri Lankan university libraries in terms 3 parameters namely; availability of websites, size of sites and location of the link to the library site on the parent institution's websites.
2. Determine the qualitative web presence of Sri Lankan university libraries in terms of 2 parameters namely; content richness and design accuracy.

Content richness was measured in terms of 10 elements namely; e-resources, information about printed resources, web-based services, information about in-house services, useful external links, about the library, library rules, staff information, contact information, opening hours. While design accuracy was measured in terms of 7 features namely; WCAG 2.0 success criteria – Level A, standard HTML codes, readability, site search engine, length of the homepage, copyright statement, last date of update.

4. METHODOLOGY

4.1 Method/ Procedure

Websites of university libraries of Sri Lanka were assessed based on an evaluative instrument (see Appendix B). The researcher visited the library websites and rated them according to the assigned marking scheme. The rating was carried out during the first

week of April 2013 through manual inspection and was based on the results generated by automatic web tools described below.

4.2 Research Instruments

The following research instruments were used for data collection during this study.

4.2.1 Evaluative instrument

An evaluative instrument (*10 content elements and 7 design features*) was used as the benchmarking tool of assessing library websites. This 17 itemed evaluative instrument is a simplified version of a 140 itemed evaluative instrument (*60 content elements and 80 design features*) that was developed by the author through a 3-rounded Delphi study with participation of international panel of experts. The full version of evaluative tool can be downloaded from web link '<http://lib.ou.ac.lk/images/stories/libstaff/ei%20anusha2.doc>'.

4.3.1 Automatic web tools

Three automatic web tools have been used to measure the 3 aspects of web designing namely, WCAG 2.0 success criteria – Level A, Standard HTML codes, and Readability.

4.3.1.1 AChecker

AChecker is an open source accessibility evaluation tool available at <http://achecker.ca/checker>. This tool allows the user to evaluate a website against several established guidelines including 3 levels (A, AA, AAA) WCAG 2.0 separately.

4.3.1.2 W3C Markup Validation Service

W3C Markup Validation Service at <http://validator.w3.org> checks the markup validity of web documents in HTML, XHTML, SMIL, MathML etc. It can display the results in various options such as show source, show outline, list message sequentially etc.

4.3.1.3 Juicy Studio readability test tool

Juicy Studio readability test (<http://juicystudio.com/services/readability.php>) is capable of calculating the readability index score using the Gunning-Fog Index (GFI), which is a

rough measure of how many years of schooling it would take someone to understand the content. The lower the number, the more understandable the content is to visitors, where seventeen is considered as post-graduate level.

4.3 Population/ Sample

Population of this study is the libraries of national universities of Sri Lanka under the University Grant Commission (UGC). Out of the 15 universities listed in the UGC website (<http://www.ugc.ac.lk>), 14 of them possess library websites. The websites of the main libraries of those 14 libraries were taken as the sample.

The library websites of the ‘Rajarata University of Sri Lanka’ and ‘University of the Visual & Performing Arts’ had to be excluded from the evaluation process due to a technical difficulty in measuring the website using automatic tools. Hence, the total number of websites evaluated during the course of this study was 12.

5. FINDINGS

Key findings of the study are described below parallel to the objectives of the study.

5.1 Quantitative Web Presence of Libraries (*first objective*)

Out of 15 universities 14 of them own a library website. Seven websites are built as a part of their parent institutional website while 7 of them are maintaining their websites using separate templates. The striking factor is that 10 library websites, out of 12, consist of over 50 pages. In addition, out of those 10 sites, 3 sites comprise over 100 pages.

Further, the majority of Sri Lankan university libraries have managed to achieve an important position in their parent university homepages. Out of the 14 libraries, 6 libraries have a link to their homepage on the parent university homepage and 4 of them have the link in the first level. The links of the rest of the 4 libraries appear in the second or third level. In other words, all the libraries have a link in their parent university website, while majority of them appears either in the homepage or in the first level.

In brief, the quantitative presence of Sri Lankan university libraries in the cyberspace is quite impressive and reported a high status in all 3 parameters measured.

5.2 Qualitative Web Presence of Libraries (*second objective*)

The quality of websites was measured in terms of content richness and design accuracy.

5.2.1 Content richness of websites (*first parameter of the 2nd objective*)

The content richness of the websites was determined in terms of 10 elements and success level content was calculated in two parameters namely, element-wise and website-wise.

5.2.1.1 Success level content – element wise

Table 1 presents the success level content of the individual elements and Table 2 presents the success status of content elements in 3 groups.

Table 1: Success Level Content – element wise

Content Element	n	Success Level Content (n/N* x 100)
E-resources	42	70%
Information about printed resources	51	85%
Web-based services	39	65%
Information about in-house services	52	87%
Useful external links	34	57%
About the library	55	92%
Library rules	42	70%
Staff information	12	100%
Contact information	12	100%
Opening hours	11	92%

n – Total no of marks scored for the element by the tested libraries

N – Allocated marks for the element x total no of tested libraries

Table 2: Success Status of Content Elements

Success Status of Elements	Grouping Criteria	No. of Elements	%
High Status	Success Level Content above 80%	6	60
Medium Status	Success Level Content 60%-80%	3	30
Low Status	Success Level Content below 60%	1	10

Out of the 10 content elements measured, 6 elements have reached the high status while 3 elements are in the medium status. Out of the 6 high status elements, 2 elements - *Staff information and Contact information* – are available in all 12 tested library websites. ‘About the library’ and ‘Opening hours’ are the next most available content elements among the Sri Lankan University libraries. The ‘Useful external links’ is the least popular element.

5.2.1.2 Success level content – website wise

Table 3 presents the success level content of the individual libraries and Table 4 presents the content richness level of websites in 3 groups.

Table 3: Success Level Content – website wise

Participants	Content Score	Success Level Content (n/N*100)
Website1	34	89%
Website2	34	89%
Website3	33	87%
Website4	31	82%
Website5	34	89%
Website6	26	68%
Website7	29	76%
Website8	35	92%
Website9	31	82%
Website10	24	63%
Website11	22	58%
Website12	17	45%

n – Content score (total number of marks scored by the library)

N – Total number of allocated marks for the 10 elements (38)

Table 4: Content Richness Level of Websites

Content Richness Level of websites	Grouping Criteria	No. of Library Websites	%
High Level	Success Level Content above 80%	7	58
Medium Level	Success Level Content 60% - 80%	3	25
Low Level	Success Level Content below 60%	2	17

Seven libraries have reached the high content richness level and 3 have reached the medium level while 2 remained in the low level. The highest success level content value

reported by a library website is 92% while lowest value reported by a library is 45%. In a nutshell, the content richness level of the library websites is at a fairly satisfactory level.

5.2.2 Design accuracy of the website (second parameter of the 2nd objective)

Design accuracy of the websites was determined in term of 7 design features and success level design was calculated in two parameters namely, element-wise and website-wise.

5.2.2.1 Success level design – element wise

Table 5 presents the success level design of the individual design features and Table 6 presents the success status of design features in 3 groups.

Table 5: Success Level Design – design feature wise

Design Features	n	Success Level Design (n/N x 100)
WCAG 2.0 success criteria – Level A	-13	-36%
Standard HTML codes	-25	-69%
Readability	32	89%
Site search engine	6	50%
Copyright statement	11	92%
Length of the homepage	46	77%
Last date of update	15	25%

n – Total no of marks scored for the feature by the tested libraries

N – Allocated marks for the feature x total no of tested libraries

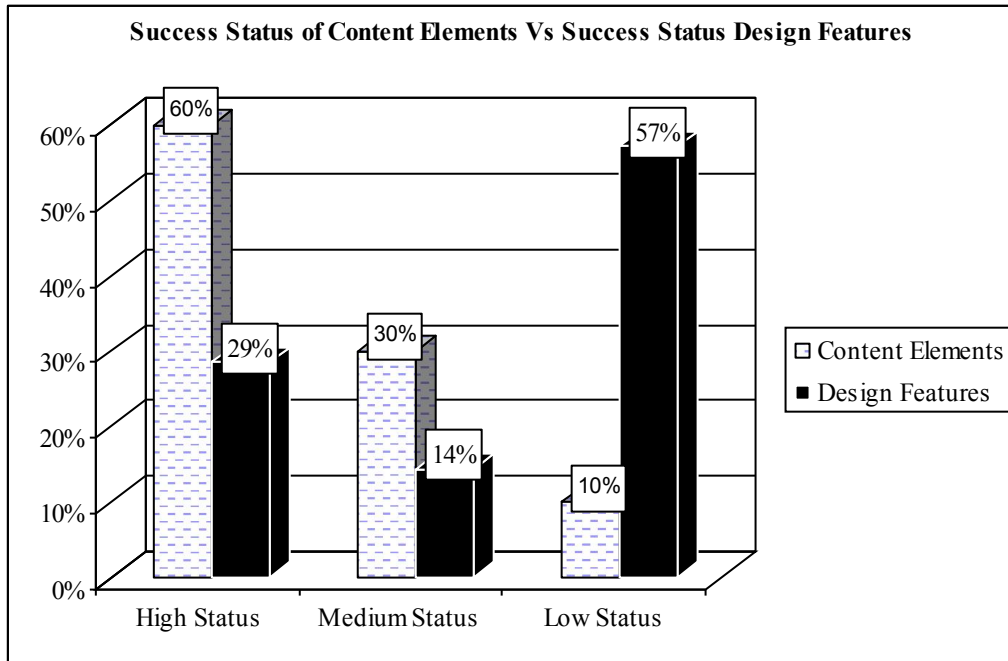
Table 6: Success Status of Design Features

Success Status of Features	Grouping Criteria	No. of Features	%
High Status	Success Level Design above 80%	2	29
Medium Status	Success Level Design 60%-80%	1	14
Low Status	Success Level Design below 60%	4	57

Contrast to the status of content elements, status of design features is quite low. The majority of features fall in to the category of ‘Low Status’ while only 2 features in the ‘High Status’. Besides, 2 features – ‘WCAG 2.0 success criteria’ and ‘Standard HTML codes’ reported minus values. ‘Last date of update’ (25%) is also at an unsatisfactory level. However, ‘Readability’ and ‘Copyright statement’ reported high success level design values.

Figure 1 illustrates the comparison between the success statuses of content elements and design features.

Figure 1



5.2.2.2 Success level design – website wise

Table 7 presents the success level design of the individual libraries and Table 8 presents the design accuracy level of websites in 3 groups. The results help to determine the 2nd objective, which is to determine the level of design accuracy of websites of Sri Lankan university libraries.

Table 7: Success Level Design – website wise

Library website	Design score	Success Level Design (n/N*100)
Website1	6	29%
Website2	1	5%
Website3	5	24%
Website4	6	29%
Website5	1	5%
Website6	4	19%
Website7	15	71%
Website8	19	90%

Website9	4	19%
Website10	4	19%
Website11	3	14%
Website12	4	19%

n – Design score (total number of marks scored by the library)

N – Total number of allocated marks for the 7 features (21)

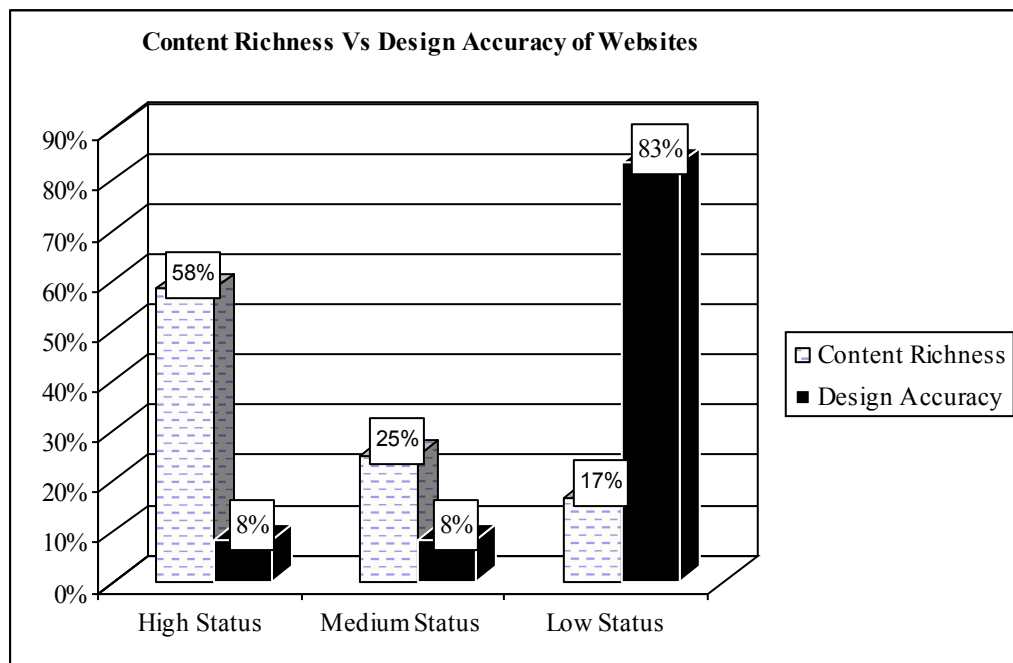
Table 8: Design Accuracy Level of Websites

Design Accuracy Level	Grouping Criteria	No. of Library Websites	
High Level	Success Level Design above 80%	1	
Medium Level	Success Level Design 60% - 80%	1	
Low Level	Success Level Design below 60%	10	

It is clear that the design accuracy level of the websites of Sri Lankan university libraries is literally poor. Only 2 libraries managed to reach the first level and medium level, while 10 libraries remain in the low level.

Figure 2 illustrates the comparison between the content richness level and design accuracy level of websites.

Figure 2



6. CONCLUDING REMARKS

The findings of this study draw attention towards certain important factors and carry many helpful messages to the library professionals. All the libraries, except a recently established university library, have marked their presence gracefully in the cyberspace, with majority of sites (86%) exceeding 50 pages. The content richness of the library websites is also at a satisfactory level, though, the room for improvement is substantial. When comparing the library websites that have achieved high content score with library websites that have gained low content score, it appears that success does not depend on the availability of expensive e-resources or maintaining web services based on expensive web tools or software systems. All most all the libraries in the high content richness level demonstrate an effective use of free and open source software tools and open access resources to develop web-based services and to design information products.

The design accuracy level of the Sri Lankan university library websites is totally a different story of the content richness level. The main reason behind this discouraging situation seems to be either the lack of awareness or absence of interest towards application of accessibility guidelines and standard HTML codes. Both these features reported minus values in success level and reduced the success level design percentage of all the tested websites significantly. For example only one each in the high level and medium level of design accuracy when calculating the success level design score with respect to all 7 features, but when calculating the score with respect to balance 5 features, the number of libraries in high level is 2 and number of libraries in medium level is 6. In other words, when the said two features are excluded from the calculation the number libraries in the low level were reduced from 10 to 4. Another factor that should be highlighted is the poor status of displaying the last date of update. Three websites did not display the last update date at all and 3 websites displayed a date a year or more ago (*over 2 years in two cases*) as their last update date. The author is not sure whether this is due to the failure of updating the date only or failure to update the site itself from the date mentioned. Either way, displaying a date that is so old is a huge drawback under the international standard and a challenge to the validity of the content of the site.

Enriching the web content is a time consuming effort and needs fair amount of intellectual contribution. Conversely, as explained in the introduction, correcting the accessibility errors and fixing the HTML codes is quite simple and straight forward even for a non-technical librarian. There are more than enough open source tools and web services that are able to highlight the error/s in black and white and capable of suggesting corrective measures. Hence, it is clear that with the help of these free and easy to use tools and little bit extra effort form the part of the librarian, the majority of tested library websites can be easily raised to the high level of design accuracy.

Another important point, that author wishes to bring to the notice before concluding, is that the results presented here are generated based on a simple tool that covers only the basic areas through 17 items. Hence, even the sites that have attained the high level may also have a distance to walk to reach the international benchmarks. However, the author strongly believe that Sri Lankan librarians are quite capable to go on par with their international colleagues from developed countries, if appropriate training opportunities and adequate resources are provided.

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Appendix A

Summary of WCAG 2.0 Guidelines

1 Perceivable - Information and user interface components must be presentable to users in ways they can perceive

- 1.1 Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.
- 1.2 Provide alternatives for time-based media.
- 1.3 Create content that can be presented in different ways (for example simpler layout) without losing information or structure.
- 1.4 Make it easier for users to see and hear content including separating foreground from background.

2 Operable - User interface components and navigation must be operable

- 2.1 Make all functionality available from a keyboard.
- 2.2 Provide users enough time to read and use content.
- 2.3 Do not design content in a way that is known to cause seizures.
- 2.4 Provide ways to help users navigate, find content, and determine where they are.

3 Understandable - Information and the operation of user interface must be understandable

- 3.1 Make text content readable and understandable.
- 3.2 Make Web pages appear and operate in predictable ways.
- 3.3 Help users avoid and correct mistakes.

4 Robust - Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

4.1 Maximize compatibility with current and future user agents, including assistive technologies.

(Web Accessibility Initiative WAI of the Worldwide Web Consortium)

Appendix B

Evaluative Instrument for academic library websites – simplified version

Content Elements		Score	Design Features	Score
E-resources			WCAG 2.0 success criteria – Level A	
Level of availability	1-5		Zero errors	3
Absence	0		1-5 errors	-1
Information about printed resources			6-10 errors	-2
Level of availability	1-5		More than 10 errors	-3
Absence	0		Standard HTML codes	
Web-based services			Zero errors	3
Level of availability	1-5		1-10 errors	-1
Absence	0		11-20 errors	-2
Information about in-house services			More than 20 errors	-3
Level of availability	1-5		Readability	
Absence	0		Readability score less than 15	3
Useful external links			Readability score 15-17	2
Level of availability	1-5		Readability score above 17	0
Absence	0		Site search engine	
About the library			Presence	1
Level of availability	1-5		Absence	0
Absence	0		Copyright statement	
Library rules			Presence	1
Level of availability	1-5		Absence	0
Absence	0		Length of the homepage	
Staff information			1 page	5
Presence	1		1.5 to 2 pages	3
Absence	0		More than 2 pages	0
Contact information			Last date of update	
Presence	1		Less than 1 week	5
Absence	0		1-4 weeks	3
Opening hours			1-2 months	2
Presence	1		2-12 months	1
Absence	0		More than 1yr or no date	0

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- [1] <http://www.w3.org/TR/WAI-WEBCONTENT/>
 - [2] <http://www.section508.gov/>
 - [3] <http://en.wikipedia.org/wiki/HTML>
 - [4] <http://validator.w3.org>
 - [5] <http://www.htmlhelp.com/tools/validator/>