An empirical introspection of the library website from user perspectives: resource gateways versus Web Content Management Systems (WCMS) in higher educational institutions

M. A. L. Silva,[1] T. Ramanan,[2] and D. C. Kuruppu[3]

Abstract

Library websites being the virtual or digital facet of any library it is paramount to constantly evaluate and enhance the interface with necessary resources and services. In this regard, this study was carried out to analyze a range of opinions and feedbacks from stakeholders of a university library, which has published the links to subscribed databases, training guides, reference services, and research support services on its website. Due to the restrictions on mobility by economic crisis and Corona pandemic, library users heavily relied on digital interfaces to share and retrieve information. In this regard, a survey was carried out to explore the demand and desire of the library users as whether the library website satisfies them or does it need redesigning. Convenient sampling technique was employed where hundred and fifteen (115) users had responded to semi-structured questionnaires. Data extracted were analyzed using the Pearson Chi-square test, one-way ANOVA, and one sample Wilcoxon sign rank test. Majority (33.3%) of the students of the

[1] Senior Assistant Librarian, University of Colombo Email: anusilva@lib.cmb.ac.lk https://orcid.org/0000-0001-9345-7509

[2] Senior Assistant Librarian, Faculty of Technology, University of Colombo Email: ramanan@lib.cmb.ac.lk https://orcid.org/0000-0003-1344-843X

[3] Acting Librarian, University of Colombo Email: kuruppu@lib.cmb.ac.lk https://orcid.org/0000-0003-0763-0497

Faculty of Science were using the library website more frequently than the students of other faculties. Responses showed that the Training Guides (Mean=4.00; SD = ±0.926) and past-paper portals (Mean=3.96; SD = ±0.989) accessed via the library website were useful. The chi-square test revealed a significant relationship of faculties with article requests (p=0.037) and adequacy of website information for academic work (p=0.036). Similarly, the level of students has a significant relationship with Selective Dissemination of Information (p=0.048); usefulness of the training guides (p=0.022); adequate research support (p=0.026); and effective organization of information (p=0.003). Overall responses revealed that the Library website is highly user-friendly (Mean=3.90; SD = ±0.909). One-way ANOVA revealed a significant relationship between the resourcefulness of the website and the respondents' overall satisfaction with the information received from the library website (p=0.021). These results evinced that the library website must comply with users' expectations and needs. Students' opinions and feedback emphasized on the need for updating the website through a benchmark of other library interfaces. FAQ section and Chat bot were a few suggestions made by the users.

Keywords: *Library Resources, Web Content Management Systems (WCMS), Website Evaluation, User Satisfaction*

Background of the Study

Libraries stay relevant to the fast-changing digital times by adapting themselves with state-of-the-art resources and cutting-edge technologies. Their survival in the waves of transformation in education, especially in higher educational institutions, is strongly determined by how 'closer' they are to stakeholders. Hence, the authors carried out a questionnaire-based survey across the library user communities of selected faculties, and based on the findings, they put forward their proposals for embracing a total web content management system (WCMS) to cater to the users. The library website of the University of Colombo continues to evolve with all the necessary resources to maintain its *status quo* as the 'number one' state university in the country in spite of current financial challenges.

It is natural that people go about their business in the networked society since the Internet has become an essential commodity as nearly 5.5 billion Internet users have been recorded in World Internet User Statistics (2022) as cited in He and Huang (2023). This has obviously increased the use of websites and electronic resources worldwide. Websites are one of the most effective instruments to retain customers by frequent interactions which increase their satisfaction (Tahir & Mushtaq, 2015) with respective goods and services. In similar vein, the libraries are no exception to this effect. From catalogue data to institutional repositories to journal databases, the library websites serve as resource gateways for stakeholders, thus user perspectives should be reflected in their designs and functionalities (Swe & Yang, 2021).

It has been observed that resources retrieved and services enjoyed from library websites have increased more than ever due to the recent crisis situations, namely COVID-19 pandemic and politico-economic downfall of Sri Lanka. Nevertheless, structure and style of library websites more or less

continue to stay as they were during the periods what people called 'normal days.' In a recent survey, it was found that users are highly satisfied only with library catalogue, past examination papers and electronic databases accessed through the websites (Amarasekera & Marasinghe, 2020). In an ever-changing digital world library users may expect even more dynamic web interfaces to exploit information although they are satisfied with existing web-based resources and services.

The Library of the University of Colombo declared its digital presence by launching its first-ever website in 2001 since satisfying users' expectations conventional services was not sufficient. Since launching the website, the library has continued to develop content and interactions with stakeholders (Silva, 2015). Over the years the library website evolved steadily, and in 2013 the website was re-designed to provide new services to the patrons. At present, the library website has become a platform that provides a wide-spectrum of digital resources and services including Online Public Access Catalogue (OPAC), eBooks, journal databases, library tutorials, research support services and many more (http://www.lib.cmb.ac.lk). In this regard, regular updating, monitoring and evaluation are essential prerequisites for library websites to provide effective and efficient interface for users to tap information without any barriers. Despite the necessity of assessing the library website based on user perspectives there was no surveys carried out to do so since 2013 (Silva & Wijayaratne, 2015).

Therefore, the Library intended to analyze the feedback of its users of different faculties and genres, so that it can decide whether to refurbish or redesign the existing website or to create an entirely new interface more likely to be a Web Content Management System (WCMS). When the scale and complexity of library websites increase (Velasquez & Evans, 2018)

transformation of services through new access policies is inevitable (Bashorun et al, 2021), thus, more resources could be made available to cater to a wide range of library users (Cox & Brewster, 2020). All this improvement is justified only by the comments, needs, and feedback from stakeholders of the Library, especially from students.

Objectives

The study was conducted to objectively evaluate the Library's website as opposed to the perspectives of library user communities of the University of Colombo so that the digital interface of the library will be improvised. Alongside, the following are the specific objectives:

- To assess the effectiveness of resources and services provided by the library website;

- To evaluate the user comments on the existing website design; and

- To investigate the relationship between user proclivity and website resourcefulness.

Study Methods and Analysis

This study was initiated with a pilot survey with selected respondents of faculties of arts, education, science, law, and graduate studies. Later, with the validated questionnaire the survey was expanded to the faculties of management, nursing, and technology. Based on the literature the website usability can possibly be evaluated using ISO 9241-11, which encompasses attributes such as effectiveness, efficiency and user satisfaction that are predominantly measured by user perceptions (Arthana, Pradnyana, & Dantes, 2019). Researchers devised a criteria based on ISO standards and previous literature for structuring the questionnaire to draw data on relevant elements.

The library serves a wide spectrum of user communities, nevertheless, the pilot survey mainly focused on undergraduates, which was a limitation of this study. Convenient sampling technique was employed in the pilot survey and fifty (50) users (who regularly visit the library website) were administered via emails with semi-structured questionnaires (Google Form). Data extracted from the pilot survey were descriptively analyzed using Pearson Chi-square test and one way ANOVA. Based on the pilot-survey's findings the data collection tool was validated to execute the actual survey to cover even wider range of subjects that used the library website. In this regard, convenient sampling technique was employed, and subjects were manually administered with questionnaires, where 115 responses were finally received with two reminders. Number of responses was low due to the country's condition at the time of the survey. Data from the final survey were quantitatively analyzed using Chi-Square and one-sample Wilcoxon signed-rank test (applied with Rosenthal test to check the effect size of significance). Single-sample Wilcoxon signed-rank test (one tail) was performed at 95% Confidence Interval (CI) by considering the hypothetical median as 3. Respondents' overall satisfaction was analyzed using Multiple-linear Regression to prove the variability of data used in the survey. Analyzed data were statistically interpreted and discussed alongside the existing literature in the following sections.

Resources and Services from Library Website

Library websites serve as resource-gateways to the patron communities and librarians keep in touch with their users regardless of time and space limits. Consequently, students' feedback on information resources and services availed via websites is paramount to assess the effectiveness of websites. Single-sample Wilcoxon signed-rank test (one tail) was performed

at 95% CI by considering the hypothetical median as 3. The output indicate that the majority of the responses are significantly higher than three (p<0.05), i.e. observed median is higher than the hypothetical median. In other words, responses remained more towards higher end of scoring. In order to test the magnitude of the differences, the effect size (r) was calculated. As a result, ILL, Plagiarism, Smart classroom and Facebook are with lower effect size (Table 1).

Table 1:

Responses on Resources & Services accessed via Library Website

Resources & Services via the Library Website	SD*	D*	M*	A*	SA*	Mean	P-Value	r†
Easy access to OPAC	1.7%	13.0%	28.7%	40.9%	15.7%	3.56	0.000	0.50
Enjoying ILL	5.2%	14.8%	45.2%	27.0%	7.8%	3.17	0.032	0.17
24/7 access to E-Resources	4.3%	4.3%	35.7%	39.1%	16.5%	3.59	0.000	0.50
Library news being good source	3.5%	6.1%	22.6%	46.1%	21.7%	3.77	0.000	0.59
Institutional Repository is useful	2.6%	1.7%	28.7%	49.6%	16.5%	3.78	0.000	0.65
Library training guides	0.0%	7.0%	26.1%	44.3%	22.6%	3.83	0.000	0.68
Index helps selecting articles	0.0%	6.1%	27.8%	52.2%	13.9%	3.74	0.000	0.68
Online Fine Payment - convenient	0.0%	11.3%	47.8%	32.2%	8.7%	3.38	0.000	0.43
User friendly access to past papers	3.5%	9.6%	18.3%	38.3%	30.4%	3.83	0.000	0.59
Selective Dissemination of Info. (SDI)	0.0%	7.0%	37.4%	42.6%	13.0%	3.62	0.000	0.60
LMS-based services	1.7%	3.5%	18.3%	46.1%	30.4%	4.00	0.000	0.72
Library Helpline	0.0%	14.8%	22.6%	42.6%	20.0%	3.68	0.000	0.58
Information on new resources	0.9%	7.0%	36.5%	41.7%	13.9%	3.61	0.000	0.58
Document Supply Services (DSS)	0.9%	11.3%	39.1%	34.8%	13.9%	3.50	0.000	0.48
Videos tutorials	1.7%	8.7%	40.9%	34.8%	13.9%	3.50	0.000	0.48
Plagiarism checking – helpful	5.2%	7.0%	38.3%	44.3%	5.2%	3.37	0.000	0.37
Quick access to library handbook	0.0%	7.0%	35.7%	41.7%	15.7%	3.66	0.000	0.62
Info. on using smart classroom	4.3%	12.2%	43.5%	30.4%	9.6%	3.29	0.001	0.28

Links to British Council resources	4.3%	7.8%	37.4%	40.0%	10.4%	3.44	0.000	0.41
Research Support Services	1.7%	8.7%	36.5%	42.6%	10.4%	3.51	0.000	0.50
Facebook activities – links	4.3%	10.4%	39.1%	36.5%	9.6%	3.37	0.000	0.35
Sufficient info. for academic work	0.9%	5.2%	27.0%	47.8%	19.1%	3.79	0.000	0.67
Meaningfulness organization of info.	3.5%	1.7%	33.0%	42.6%	19.1%	3.72	0.000	0.59
Currency of information	1.7%	7.8%	30.4%	46.1%	13.9%	3.63	0.000	0.57
Trustworthiness & accuracy	1.7%	3.5%	29.6%	49.6%	15.7%	3.74	0.000	0.65
Special-need students	1.7%	10.4%	27.0%	42.6%	18.3%	3.65	0.000	0.55

* SD – Strongly Disagree; D – Disagree; M – Neither agree nor agree; A – Agree; SA – Strongly Agree
† Effect size

According to the above Table, all the responses with respect to library resources and services were significant from the hypothetical mean. However, it is important to measure the size of that significance, thus effect size was also derived to interpret the results. For example, when the effect size is low the responses are accumulated around the hypothetical mean and when the effect size is high the significant responses are farther from the mean. In this sense, ILL and services rendered through Smart Classroom have very low and low effect sizes, respectively, which means those services need to be given wider marketing importance. Conversely, institutional repository, article delivery and training tutorials have strong effect size. Overall, as Table 1 shows, most of the services gained positive attention from student communities, thus those resources need to be high profiled on the website.

Factors Influencing the Use and Choice

In his doctoral study, Alotaibi (2020) found that students' preference of information sources are determined by a number of factors such as intent of users, domain knowledge, and social influence. Therefore, student's stream of study, level of the program, and digital literacy skills will influence how

frequent and far they exploit the resources and services rendered by the library website. In the pilot survey, the authors found certain interesting phenomena, such as library website was more frequently (33.3%) visited by the students of the Faculty of Science although more than 75% of the respondents comprised Faculty of Arts.

Moreover, the study found that students often visit the library website when they get experienced in their level of study, i.e. final level of students (42%) frequently consulted the resources from the library website. Second highest (25%) frequency of using the library website was reported from the students of Law Faculty. It is obviously the faculties of studies have an influence on the usage of resources and services received from the library website.

Further to the above discoveries, 64% of the respondents were using the Library website at least 2 - 3 times a month and 58% were skilled to use computers (computer efficacy) and 56% were confidently Internet literate. Cross tabulation revealed that students having high skills of computer efficacy (40%) and Internet literacy (30%) do visit the Library website occasionally 2 - 3 times per month. These findings implicitly show that students with high computer/Internet efficacy may depend on other sources of information rather than relying heavily on the library website. This could attribute to redesigning the library website to attract potential users. Meanwhile, respondents also stated that the Library Management System accessed via the library website is useful for their studies (Mean=4.02; SD =± 0.869) and the Training Guides provided by the website are also considerably beneficial (Mean=4.00; SD =± 0. 926). Furthermore, the respondents indicated the past-paper database availed through the library website is user-friendly and valid (Mean=3.96; SD =± 0. 989).

Figure 1

User perception on resources and services
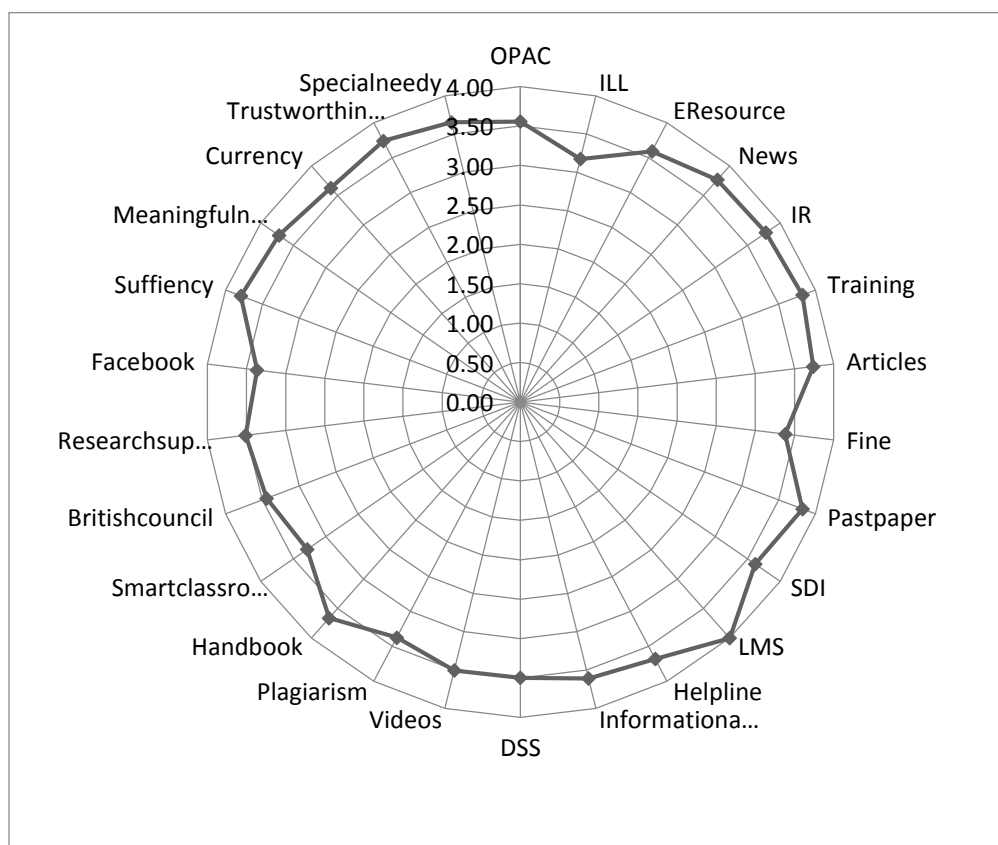
When it comes to Selective Dissemination of Information (SDI) services, Pearson Chi-Square revealed a significant relationship of faculties with article requests (p=0.037) and adequacy of library website information used for academic work (p=0.036). Similarly, the year of study showed a significant relationship with journal articles being received to personal emails (p=0.048); usefulness of the training guides (p=0.022); adequacy of research support (p=0.026); and meaningful organization of information (p=0.003). Thus, stream and year of study determines the usage metrics of the library website. Moreover, Pearson Chi-Square revealed a significant

relationship of Interlibrary lending (ILL) with the frequency of using the Library website (p=0.004) and access to e-resources (p=0.026), separately. This may infer that the more students visit the library website the more their demands grow.

Responses to open-ended questions included proposals such as to update the past papers database accessed via the library website, to display the recommended reading material, and to increase the availability of textbooks and articles in local languages through the library website. Therefore, more resources are required to be added to the existing library website.

Design and User Satisfaction

It is paramount that resources and services are required to be accessed via effectively accessible website design. Based on the ISO 9241-11 standards of evaluation there are a number of elements or features an effective website must contain. All the aspects of the website evaluation derived significant relationships. Accordingly, the respondents stated their feedback on a 5-point Likert scale as shown below in Table 2:

Table 2

User satisfaction with design factors

Factors	SD*	D*	M*	A*	SA*	Mean	P value	$r^{\dagger}$
User friendly	1.7%	9.6%	20.9%	40.9%	27.0%	3.82	0.000	0.62
Attractiveness	2.6%	10.4%	27.8%	38.3%	20.9%	3.64	0.000	0.53
Colour	1.7%	8.7%	27.8%	46.1%	15.7%	3.65	0.000	0.57
Uncluttered	0.9%	3.5%	30.4%	48.7%	16.5%	3.77	0.000	0.68
Familiarity	0.0%	7.0%	26.1%	53.0%	13.9%	3.74	0.000	0.68
Quick links	0.9%	3.5%	20.9%	47.8%	27.0%	3.97	0.000	0.73
Font styles	0.9%	2.6%	23.5%	51.3%	21.7%	3.90	0.000	0.73
Screen length	1.7%	6.1%	25.2%	49.6%	17.4%	3.75	0.000	0.63
Navigation	1.7%	7.0%	20.9%	59.1%	11.3%	3.71	0.000	0.64

Labels	2.6%	3.5%	33.0%	45.2%	15.7%	3.68	0.000	0.59
Information	0.9%	6.1%	34.8%	44.3%	13.9%	3.64	0.000	0.60
Language	0.9%	7.0%	27.8%	48.7%	15.7%	3.71	0.000	0.63
Simple narrative	0.9%	3.5%	33.9%	51.3%	10.4%	3.67	0.000	0.66
Compatibility	0.9%	10.4%	26.1%	47.8%	14.8%	3.65	0.000	0.59
Uniformity	0.0%	8.7%	38.3%	40.9%	12.2%	3.57	0.000	0.57
Smartphone access	0.9%	2.6%	27.8%	48.7%	20.0%	3.84	0.000	0.70
Content list	6.1%	9.6%	32.2%	34.8%	17.4%	3.48	0.000	0.39
Images	0.9%	6.1%	28.7%	55.7%	8.7%	3.65	0.000	0.65

* SD – Strongly Disagree; D – Disagree; M – Neither agree nor agree; A – Agree; SA – Strongly Agree

[†] Effect size

It is highly commendable that the library website is highly user-friendly as it has strong effect size. Similarly, tidiness, familiarity, quick links, information provided, font style used, easy navigation, access via smartphones, and images appear on the library website have strong effect size meaning they are positively perceived by the respondents. Meanwhile, attractiveness, colours used, compatibility and uniformity of the website have moderate effect size, that showed that those areas need further improvement. However, students' response revealed that the content list on the website has low effect size, which means more content is demanded by the user communities.

Furthermore, the study indicated that the quick links appeared on the website were valuable for the patrons to have access to the resources/ services (Mean=4.02; SD =± 0.845), and the font styles and sizes used were apprehending/readable (Mean=3.94; SD =± 0.767). In general, the respondents said that the Library website is highly user-friendly (Mean=3.90;

SD =± 0.909). However, this pilot survey will expand to probe further into user aspirations with respect to website design and navigation.

**Figure 2**

User perception on website design
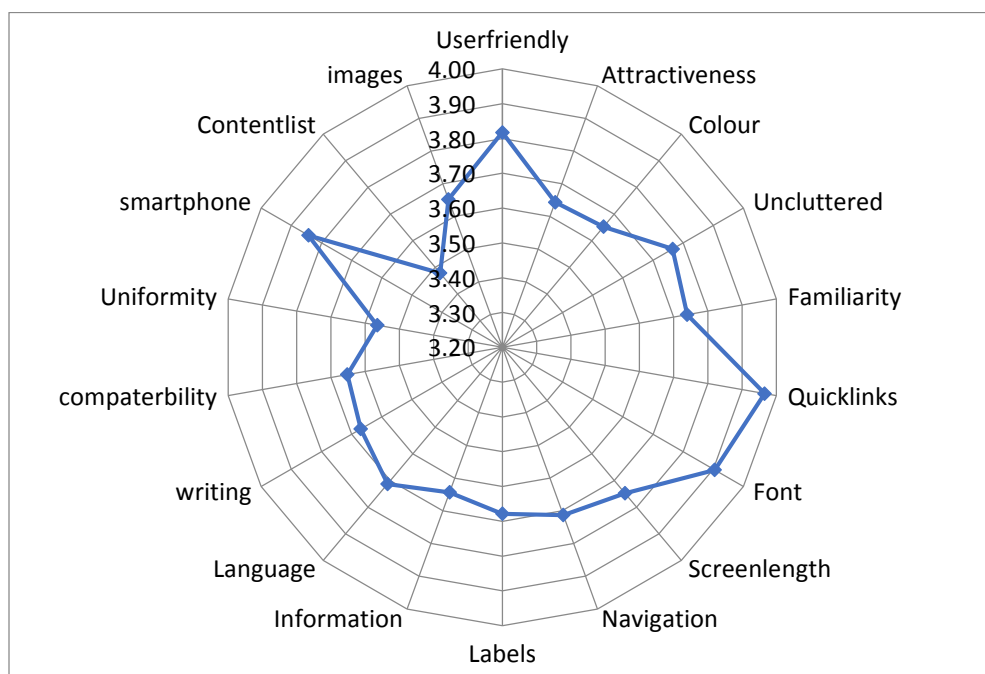
Pearson Chi-Square revealed a significant relationship of the year of study with colours used in the website (p=0.000) and the use of meaningful link labels (p=0.022). Post-hoc test revealed a significant difference between first and second year students (p=.0.033) with regard to the colours used in the website. Therefore, the year of study may have an influence on inclining toward the attractiveness of the website.

Substantial number of respondents were satisfied with the services provided by the library website (Mean=3.94; SD =± 0.913) and the overall structure/design of the library website (Mean=3.90; SD =± 0.839). One-way ANOVA revealed a significant relationship of resourcefulness of the website

and the respondents' overall satisfaction towards the information received from the library website (p=0.021). Furthermore, One-way ANOVA showed a significant association between the design of the library website and the respondents' overall satisfaction towards the structure of the website (p=0.017). Hence, the library website needs to be kept aligned to users' expectations.

Figure 3

User satisfaction levels
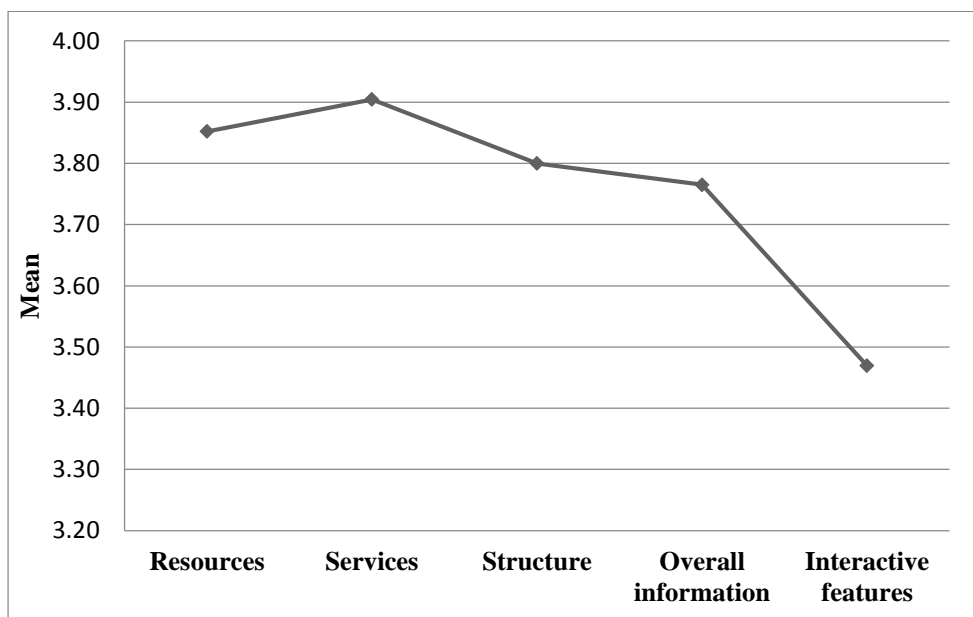
In similar vein, Pearson Chi-Square revealed a significant relationship between respondents' overall satisfaction with the services provided by the website as opposed to the academic years (p= 0.036). Furthermore, Post-hoc test revealed a significant relationship towards the overall satisfaction and web services amongst the undergraduates studying in the third academic year and first year (p=0.003); second year ((p=0.016) and fourth year (p=0.025).

Moreover, the respondents' Internet literacy showed a significant relationship with services received through the library website (p= 0.007) and the overall structure/design of the website (p= 0.000). Therefore, users with higher Internet literacy may expect better volumes and quality of information from library websites.

Overall Satisfaction of Library Website Resources

Respondents have expressed relatively a high level of their overall satisfaction with the library website and its resources. Their responses were significant and showed strong effect size for resourcefulness, services received, and structure of the website. Overall information provided by the library website has moderate effect size, whereas 'interactive features of the website' has low effect size, making those areas to be attended.

Table 3

Overall satisfaction of Library Website

	SD	D	M	A	SA	Mean	P value	*r*
Resources	0	2.6%	29.6%	47.8%	20.0%	3.85	0.000	0.725553
Services	0	5.2%	25.2%	43.5%	26.1%	3.90	0.000	0.710572
Structure	0	3.5%	35.7%	38.3%	22.6%	3.80	0.000	0.674179
Overall information	0	2.6%	35.7%	44.3%	17.4%	3.77	0.000	0.69078
Interactive features	0	13.9%	38.3%	34.8%	13.0%	3.47	0.000	0.46854

* SD – Strongly Disagree; D – Disagree; M – Neither agree nor agree; A – Agree; SA – Strongly Agree

† Effect size

In order to analyze the influence of resourcefulness and website design on the overall satisfaction multiple linear regression was performed. In this model, dependent variable was the overall satisfaction and the independent variables were resourcefulness and design of the library website. The results revealed that both independent variables significantly and positively influenced the overall satisfaction of the library website (p=0.000, adjusted R^2 was 0.471). Therefore, resourceful content and effective structure of the library website is crucial for attaining maximum satisfaction from users.

Need for the Web Content Management System (WCMS)

In a systematic review, Ashiq et al., (2022) found out that libraries had to instantly transform during pandemic to serve their patrons, which pushed libraries toward new roles on platforms such as video streaming, social media, and micro-blogging in addition to regular websites. These changes were triggered from the users' end and their requirements. Answering to open-ended questions regarding the resources and design, respondents revealed that they were not aware of the presence of or access to many valuable resources and services provided via the library website. The students ardently proposed adding more resources and services in a sense of personalized approach. Thus, results of the study suggest developing a Web Content Management System (WCMS) provided the feedback and proposals made by the respondents strongly incline towards a highly interactive and versatile web interface of the Library of the University of Colombo. Library websites are mere platforms of conveying information and other resources to their users, on the other hand content management systems (CMS) are directly handled and customized constantly by librarians.

Therefore, growing demand for more dynamic and interactive contents insists that libraries adopting WCMS. Many studies in the developed world discovered that web authoring tools of academic libraries were not adequate to manage the contents to the satisfaction, however the choice of such tools lies in the hands of the parent institution (Connell, 2013), hence, the continuous evaluation of library websites would help academic institutions to make stern decisions. Connell (2013) continues that managing WCMS by libraries requires special expertise and skills for intermittent customization as per demands. He and Huang (2023) state that over the past decade the number of libraries adopting WCMS has increased. Factor *et al*. (2023) found that content management systems provided effective platform for sharing information, research and learning during pandemic lockdown, thus CMS have enhance communication between libraries and users. With ever-growing amount of presence of artificial intelligence tools the libraries are obliged to enlighten their patron with more credible resources and proactive services. Therefore, the library websites are in urgent need of transformation to stay relevant to a highly diversified user community.

Conclusions

As part of the quality assurance task, the libraries execute regular inspections and assessment of how effective their websites are. Growing digital presence of both users and content creators it is essential to keep the electronic interface up-to-date and enticing to cater to patrons more with all potential resources and services. Recent financial crisis and pandemic challenges pushed both libraries and users to depend more on online platforms of interactions. This survey results may not emphasize on a serious changeover in the library

website design and resource presentation, nevertheless, it is apparent that user satisfaction relies on the service quality and design of the library website. It is therefore derived from the findings that the library website needs to be redesigned into a more dynamic and versatile platform of multitudinal interactions. In other words, library's digital interface needs to be constantly customized to cater to Gen Z user communities that heavily rely on digital contents rather than using traditional library material. In this regard, the Library may include Ask a Librarian and/or Chat bot to keep a 24/7 assistance to the users. The website may develop an FAQ section with usual queries and answers. Since LibGuide is popular in the western world, the Library can incorporate such platforms into its website to enhance the blended learning activities. Therefore, library websites need to transform from resource-gateways into WCMS for more dynamic and lively services.

References

Alotaibi, F. (2020). *Perceptions of university digital libraries as information source by international postgraduate students* [Doctoral dissertation, Manchester Metropolitan University]. https://e-space.mmu.ac.uk/627215/

Amarasekera, K. M. R. K. & Marasinghe, M. M. I. K. (2020). User satisfaction on library resources and services: Survey conducted in main library of the Open University of Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 23 (2), 27-46. http://doi.org/10.4038/jula.v23i2.8007

Arthana, I. K. R., Pradnyana, I. M. A., & Dantes, G. R. (2019). Usability testing on website wadaya based on ISO 9241-11. *Journal of Physics: Conference Series*, *1165*(1). https://doi.org/10.1088/1742-6596/1165/1/012012

Ashiq, M., Jabeen, F. & Mahmood, K. (2022). Transformation of libraries

during Covid-19 pandemic: A systematic review, *The Journal of Academic Librarianship*, 48 (4), 102534, https://doi.org/10.1016/j.acalib.2022.102534

Bashorun, M., Babaginda, B., Bashorun, R.B., & Adekunmisi, I.S. (2021). Transformation of academic library services in Coronavirus pandemic era: The new normal approach, *Journal of Balkan Libraries Union*, 8 (1), 42 – 50. https://dergipark.org.tr/en/pub/jblu/issue/63007/905170

Connell, R.S. (2013). Content management systems: Trends in academic libraries. *Information Technology and Libraries, 32*(2). https://www.proquest.com/openview/47904f85aeb34b9d93fa6e872f065 63f/1?pq-origsite=gscholar&cbl=1156335

Cox, A. & Brewster, L. (2020). Library support for student mental health and well-being in the UK: Before and during the COVID-19 pandemic, *The Journal of Academic Librarianship, 46* (6), 102256. https://doi.org/10.1016/j.acalib.2020.102256.

Factor, M., Manabat, A., Maghari, J., Balbas, Y. (2023). Emerging trends in content management systems (CMSs) for library websites: A study of selected academic libraries in the Philippines. In: Goh, D.H., Chen, SJ., Tuarob, S. (eds) *Leveraging generative intelligence in digital libraries: Towards human-machine collaboration. ICADL 2023. Lecture Notes in Computer Science*, Vol. 14458. Springer. https://doi.org/10.1007/978-981-99-8088-8_6

He, Xiangfeng & Huang, Y. (2023). Web content management systems as a support service in academic library websites: An investigation of the world-class universities in 2012–2022, *The Journal of Academic Librarianship,49*(3),102716. https://doi.org/10.1016/j.acalib.2023.102716

Silva, M. A. L. (2015). Factor identification of web usability characteristics to end-user satisfaction: A case study at the University of Colombo, In *Proceedings of the International Conference on Library and Information Science 2015*, 30 – 40. https://www.slla.lk/images/stories/docs/activities/ICLIS/iclis_2015_3.p df

Silva, M. A. L., & Wijayaratne, I. D. A. L. (2015). Usability evaluation of University of Colombo library website: A case study. *Annals of Library*

and Information Studies (ALIS), *62*(1), 40-47. https://doi:10.56042/alis.v62i1.7201

Swe, T. M., & Yang, S. (2021). User satisfaction survey of university library websites in Myanmar, *International Journal of Innovative Science and Research Technology,* *6*(9). https://ijisrt.com/assets/upload/files/IJISRT21SEP656.pdf

Tahir, U., & Mushtaq, A. (2015). Measuring user satisfaction through website evaluation framework. *International Journal of Knowledge Engineering-IACSIT*, *1*(2), 125–128. https://doi.org/10.7763/ijke.2015.v1.21

Velasquez, D. L. & Evans, N. (2018). Public library websites as electronic branches: A multi-country quantitative evaluation, *Information Research,* *23*(1), 786. http://InformationR.net/ir/23-1/paper786.html or https://files.eric.ed.gov/fulltext/ EJ1174237.pdf