Evaluation of English Language Learning (ELL) Websites using Automated Evaluation Tool

Nur Anisa Ibrahim Gani, Hadina Habil

Universiti Teknologi Malaysia, Malaysia
Email: nuranisa@graduate.utm.my

Abstract
English Language Learning (ELL) websites provide excellent opportunities for language learning. In order to provide interactive, fun learning experiences, many teachers opt to use ELL websites and end up facing problems regarding the websites' accessibility and usability. Websites' quality is a key factor for users' acceptance and satisfaction. The proliferation of a variety of free and unique website testing tools has made it possible to quickly assess the quality of websites. This quantitative study aims at evaluating 5 free ELL websites in terms of Search Engine Optimization (SEO), performance, usability, social aspects and links using an automated evaluation tool i.e., SEOptimer. All in all, none of the 5 websites evaluated scored the overall grade A+ which indicates a critical need to improve the 5 aspects evaluated in order to increase their quality. This study contributes to the improvement of selected free ELL websites. Besides, it substantially advances the online learning trend in Malaysia by accentuating the potential free ELL websites to be explored and utilised by teachers to provide authentic English language learning experiences. Above all, the 5 aspects evaluated by SEOptimer form a comprehensive guide which will be useful for the curriculum developer and Ministry of Education to develop personalised online resources and websites for Malaysian primary students in ensuring quality education for all.
Keywords: Evaluation, English Language Learning Website, Automated Tools, Online Learning

Introduction
English Language Learning (ELL) websites provide excellent opportunities for language learning (Abramova & Boulahnane, 2019; Namoun et al., 2021). With the availability of fun and engaging resources, teachers can effectively deal with the learner's emotional state thus reducing the filter that impedes input necessary for language acquisition (Krashen, 1982). With this tenet in mind, many teachers opt to use ELL websites to provide interactive, fun learning experiences and end up facing problems regarding the websites' accessibility and usability. Websites' quality is a key factor for users' acceptance and satisfaction (Aguayo & Ramírez, 2020). The proliferation of a variety of free and unique website testing tools has made it possible to quickly assess the quality of websites. Search Engine Optimization (SEO), performance, usability and social aspects are crucial in providing meaningful and satisfactory learning experiences (Namoun et al., 2021).

Despite numerous research conducted within the spectrum of websites evaluation, there are still significant number of facets which appear ambiguous in this research literature. First, despite being a viable learning tool, the quality of ELL websites' remain inexplicit. Second, majority of studies used checklists and questionnaires to evaluate ELL websites. Less made an attempt to use automated evaluation tool. Third, based on the literature, only a few studies utilised specifically SEOptimer as an automated evaluation tool to evaluate websites' quality. Thus, there is a dire need to evaluate the technical quality of free ELL websites available while accentuating problematic technical aspects which will provide useful information for the website hosts and teachers.

This study aims to evaluate the quality of free ELL websites using an automated evaluation tool. The 5 aspects evaluated by the automated evaluation tool; SEOptimer are On-Page SEO, Performance, Usability, Social as well as Links. 'On-Page SEO' is crucial to ensure website content is being comprehended appropriately by the search engines thus helping in terms of ranking for relevant keywords. The second aspect which is the 'performance' is essential to ensure a good user experience and reduced bounce rates (which indirectly affect websites' search engine rankings too). The third aspect; 'usability' is important to maximise websites' available audience and minimise user bounce rates. The next aspect which is 'social' revolves around users' communication, brand awareness and as a marketing channel to bring more users or visitors to websites. The last aspect which is 'links' emphasises on readable links or URLs to increase accessibility.

This paper offers an examination of the technical quality of the selected ELL websites currently available online. The scores obtained for each aspect determine the quality of each free ELL website audited. The analysis gives rise to the limitations of each websites followed by recommendations. This effort provides comprehensive guide to a better design of online learning resources for quality language learning websites.

Literature Review
Evaluation of websites is crucial to determine the quality of the websites (Khandare et al. 2017; Aguayo & Ramírez, 2020). The technical quality is one of the prerequisites of acceptance as users will choose websites which are accessible and user-friendly while neglecting those problematic. This suggests on the importance of using automated evaluation tools to assess websites' technical quality within the shortest amount of time.

Rocha (2012) introduced an innovative high-level structure for a global quality evaluation of a website. According to him, one of the dimensions of website quality is technical quality. This is further clarified by Hubbard (2006) with his methodological framework to guide websites' evaluation. He proposed evaluating the 'technical preview' as the initial stage.

According to Rocha and Brandao (2011), technical quality can be described as how the content and services presented or made available to users. As interpreted by Hubbard (2006), it revolves around the idea of ensuring that a particular website will run the way we want it to and on the available devices. In other words, the websites are readily accessible and easily usable without assistance.

Adepoju and Shehu (2014) explored the technical quality of universities' websites in Nigeria by focusing on the usability and the conformity of those websites with Web Content

Accessibility Guidelines (WCAG 1.0 and 2.0). The numbers of problem detected by the tools used were categorised as Known, Likely and Potential problems. The errors identified were discussed further.

Kaur and Kaur (2018) in their study using 5 automated evaluation tools summarised all the suggested aspects into three parameters, namely Performance, Accessibility and Search Engine
Optimization (SEO). These parameters were then utilised for the usability analysis. Besides, Rasheed et al (2018) evaluated websites with seventeen parameters of Nibbler and five of the SEOptimer.

Kumar et al (2021) claimed that a good quality website should possess high performance, superb accessibility and usability. They conducted a study focusing on 6 aspects which are User Friendliness, Accessibility, Performance, Security, SEO and Social in order to determine the websites' quality.

Raikar et al (2017) viewed websites' quality as comprising of 6 parameters i.e. Performance, Mobile, SEO, Usability, Security and social. These parameters were based on the aspects evaluated by 3 automated evaluation tools used. Another study conducted by Kwangsad et al (2019) evaluated a website based on the following 6 aspects; Performance, Usability & Mobile friendliness, Accessibility, SEO, Social and Security. Briefly, most of the studies conducted evaluate websites based on the criteria, aspects or parameters suggested by the chosen automated evaluation tools.

Evaluating Websites using Automated Evaluation Tools
Kwangsawad et al (2019) conducted a study on a herbal cosmetic website by using three different automated evaluation tools, i.e., SEOptimer, Website Grader, and Qualidator. The overall score calculated by SEOptimer tool is 70.4%. Usability aspect was reported as having the highest percentage (100%) followed by security (71%), social (50%), SEO (57%) and performance (56%). The overall analysis proved that cosmetics.com website need to be improved in terms of security, social, SEO and performance.

Khandare et al (2017) had also utilised SEOptimer, Website Grader, and Qualidator to evaluate a website named 'pit.ac.in'. The data obtained showed that the website's quality was average and improvements needed in order to elevate its quality. Their study accentuated the effectiveness of using SEOptimer, Website Grader, and Qualidator to enhance websites' quality up to the international standard.

Another study using SEOptimer, Website Grader, and Qualidator tools is the study conducted by (Raikar et al., 2017). These tools were used to evaluate 10 agricultural websites. The best website was www.sarkariyojana.co.in, with the highest scores obtained for SEO, Usability, Social and Overall performance. The overall grade for the best website evaluated was A-. Other websites scored either C+, C-, D, D+ or F-. None of the websites scored A+. The study was concluded with suggestion for the other websites' hosts to improve their websites according to the parameters which scored less.
The study on the evaluation of universities' websites by Rasheed et al. (2018) compared the data obtained by SEOptimer and Nibbler. All of the websites were average in quality with a

few scored high in certain aspects. For instance, Caltec University website obtained maximum point (10) for social aspect and minimum point for security aspect (5). The Oxford University website achieve 10 (maximum point) for the SEO, Social, Security aspects and 5 (minimum point) for the performance aspect.

Kaur and Kaur (2018) in their study utilised 5 automated evaluation tools (Website Grader, Web Page Analyzer, Qualidator, Site Analyzer and Nibbler) to evaluate 6 E-Commerce Websites. Based on the analysis of 3 tools (Qualidator, Site Analyzer and Nibbler), www.Myntra.com scored the highest for technical quality. The highest percentage obtained was for SEO aspect. The study concluded Myntra as the best shopping website compared to the other 6 selected websites.

Kumar et al (2021) proposed the accuracy and effectiveness of data reported by automated evaluation tools. They justified the accuracy of data obtained by analysing the performance of random websites using 3 different automated evaluation tools. The overall performance was above average which indicated that SEOptimer, Website Grader, and Qualidator tools are effective automated evaluation tools.

Adepoju and Shehu (2014) evaluated the usability of universities' websites using 3 automated evaluation which are; Web Accessibility checker, HERA and WAVE. The tools inspected the conformity of the websites with Web Content Accessibility Guidelines (WCAG 1.0 and 2.0) by reporting violations in the forms of errors and problems. Based on the analysis, all the websites had a number of accessibility errors which accentuated their non-compliance with WCAG.

Methodology
This quantitative study aims at evaluating the technical quality of 5 selected ELL websites. This paper views the technical quality as consisting of 5 aspects outlined by SEOptimer which are, On-Page SEO, performance, usability, security and links. The evaluation was carried out in July 2022.

According to Fotos and Browne (2013) the evaluation process of ESL/EFL websites can be divided into 2 consecutive steps which are screening and evaluation. Thus, this study was initiated with a screening process to reduce the evaluation pool to a manageable number eventually choosing appropriate websites to be evaluated.

This study combined both screening methods suggested by (Fotos and Browne, 2013). First, a few websites with a list of ESL/EFL websites were visited. Second, six criteria were listed (based on the aim of the study) and applied to the available learning websites via search engines. The screening criteria are; i) English Language Learning (ELL) websites, ii) free, iii) contain resources for all skills, iv) appropriate for primary level, v) provide complete lessons (with assessments) and vi) support independent learning. 5 websites fulfil the screening criteria listed. The selected websites were then labelled as follows:

Table 1
Labels for the selected websites

Selected Websites	Label
learnenglishkids.britishcouncil.org	Website 1
pbskids.org	Website 2
www.funbrain.com	Website 3
www.education.com	Website 4
and www.highlightskids.com	Website 5

One appropriate automated evaluation tool which is SEOptimer was carefully selected to evaluate the websites' quality. SEOptimer is a website SEO checker which audits the website's Performance, Usability, SEO, Social media, and Security to highlight problems and provide recommendations to improve the potential of a website (Kwangsawad et al., 2019). Kwangsawad et al (2019) in their study, suggest using the SEOptimer tool as it provides full audit report. The effectiveness of SEOptimer as an evaluating tool is further supported by (Kumar et al., 2021; Rasheed et al., 2018; Khandare et al., 2017). The full audit report for each website was analysed and the results were tabulated.

Data Analysis
The evaluation data gathered were analysed to determine the quality in terms of 5 technical aspects which are; On-Page SEO, performance, usability, social as well as links. The first part of the analysis focuses on the percentage of each aspect and the overall grade. The second part of the analysis documented the number of recommendations as well as the common recommendations. The results are then discussed with respect to the technical aspects evaluated and other relevant studies.

Results
There are 5 aspects evaluated by SEOptimer in order to determine the technical quality of the selected websites. These aspects are on-page SEO, performance, usability, social and links. Table 2 depicts the percentage of each aspect as reported by SEOptimer.

Table 2
Percentage of each feature.

Websites	Percentage (%) of each Aspect					Overall Grade
	On-Page SEO	Performance	Usability	Social	Links	
Website 1	73	66	52	58	0	C
Website 2	66	46	47	0	0	D
Website 3	82	73	41	10	0	C
Website 4	96	93	64	69	0	A-
Website 5	68	66	47	36	0	C-

The first aspect is on-page SEO which involves the evaluation of 17 features. There are 8 features which are present in all websites. Those features are, 'Meta description tag', 'Language', 'H2-H6 Header tag usage', 'Noindex tag test', 'Noindex header test', 'HTTPS Redirect', 'Robots.txt' and 'Analytics'. Based on Table 2, Website 4 has the best on-page SEO (96%) with only 1 limitation which is the 'Image Alt Attributes' feature. Website 2 scored the least (66%) with the absence of 8 features.

There are 8 features investigated for the second aspect; performance. All the 5 websites have the following 2 features; 'GZIP Compression' and 'Deprecated HTML'. Website 4 scored 93% which is the highest with only 1 limitation which is in terms of 'Inline styles' while website 2 scored 46% which is the least with the absence of 4 features which are; 'Page size info', 'Optimize images', 'Minification' and 'Inline styles'.

There are 10 features investigated within the third aspect; usability. All of the 5 websites have the following 5 features; 'Use of mobile viewports', 'Flash used?', 'iFrames used?', 'Favicon', 'Email privacy'. Website 4 scored the highest percentage (64%) with only 2 limitations which are in terms of 'Google's core web vitals' and 'Google's PageSpeed Insights – Mobile'. In fact, these 2 features are absent in all websites. In contrast, website 3 scored the least percentage (41%).

There are 10 features investigated within the fourth aspect; social. Website 4 has the best social features (69%) with only 4 limitations which is in terms of 'Facebook pixels', 'Twitter cards', 'Instagram connected' and 'LinkedIn connected'. Website 2 scored 0 with the absence of all 10 features.

The fifth aspect which is the links comprises only 1 feature which is 'Friendly Links'. This feature is absent in all 5 websites as all of them achieved 0% for this aspect.

The last column in table 2 shows the overall grade of the websites. Website 4 scored A-, which is the best overall grade compared to the other 4 websites. In contrast, website 2 scored the least overall grade which is D. Website 1 and 3 scored C while websites 5 scored C-.

The second part of the analysis documented the number of recommendations as well as common recommendations based on the analysis of each website. Table 3 shows the number of recommendations for each aspect and the total number of recommendations for each website.

Table 3
Number of recommendations.

Websites	Number of recommendations based on each aspect					Total number of recommendations
	On-Page SEO	Performance	Usability	Social	Links	
Website 1	5	3	4	5	1	18
Website 2	8	4	3	8	1	24
Website 3	4	1	5	7	1	18
Website 4	1	1	2	4	1	9
Website 5	7	2	4	5	1	19

For the first aspect; on-page SEO, website 2 recorded the most number of recommendations which is 8. Comparatively, website 4 recorded the least with only one recommendation. For the performance aspect, website 2 recorded the highest recommendations which is 4 while websites 3 and 4 recorded the least of only one recommendation.

In terms of usability which is the third aspect, website 3 is reported as having the most number of recommendations which are 5 compared to website 4 with only 2 recommendations. For the fourth aspect; social, website 2 recorded the most number of

recommendations (8) while website 4 recorded the least (4). Since all the 5 websites reported the absence of the fifth aspect, there is only one recommendation reported for each website.

SEOptimer highlighted the least number of recommendations for Website 4 i.e. 9 recommendations. In contrast, website 2 is reported as having the most number of recommendations which is 24. A total of 18 recommendations were reported for websites 1 and 3 while website 5 received 19 recommendations.

There are 9 recommendations which are shared by more than 3 websites. Table 4 shows the analysis of common recommendations as reported by SEOptimer.

Table 4
Common recommendations

Aspect	Recommendations	Shared By
On-Page SEO	'Add Alt attributes to all images'.	All
Performance	'Remove inline styles'	4 Websites
	'Reduce total page file size'	3 Websites
Usability	Optimize for core web vitals and	All
	'Optimize page for mobile pagespeed insights'	All
Social	'Setup and install a facebook pixel'	All
	'Create and link associated instagram profile'	All
	'Create and link an associated LinkedIn profile'	All
Link	'Update link URLs to be more human and search engine readable'	All

For the first aspect; on-page SEO, there is only 1 common recommendation for all the 5 websites. The recommendation is 'Add Alt attributes to all images'. For the performance aspect, the recommendation to 'Remove inline styles' is shared by 4 websites while the recommendation to 'Reduce total page file size' is shared by 3 websites.

In terms of usability which is the third aspect, 2 common recommendations for all websites are 'Optimize for core web vitals' and 'Optimize page for mobile pagespeed insights'. For the fourth aspect; social, 3 recommendations shared by all 5 websites are, 'Setup and install a facebook pixel', 'Create and link associated instagram profile' and 'Create and link an associated LinkedIn profile'. Since all the 5 websites reported the absence of the fifth aspect, the only recommendation given to all is to 'Update link URLs to be more human and search engine readable'.

Discussions
The first part of the analysis discusses two types of scores i.e. percentage for each aspects and the overall scores. Website 4 scored the highest for 4 aspect; On-Page SEO, Performance, Usability and Social which indicates on its technical quality compared to other ELL websites evaluated. This is similar to the findings of the study conducted by Raikar et al. (2017). The best website which is www.sarkariyojana.co.in obtained the highest scores for SEO, Usability, Social and Overall performance.

None of the websites scored A (80-100%) for usability which highlights their limitations in terms of the provision of core web vitals to maximise available audience and minimise user bounce rates. These will indirectly affect overall accessibility. Comparatively, the website evaluated in the study conducted by Kwangsad et al (2019) scored 100% for its usability.

Furthermore, none of the websites scored A (80-100%) for social aspect which highlights their limitations in terms of users' communication and marketing channels which will definitely affect overall accessibility. All the websites achieved 0% for the fifth aspect. This highlights a serious issue that affects websites' accessibility caused by unreadable URLs.

Website 4 scored A-, which is the best overall grade compared to the other 4 websites which scored either C, C- or D. None of the websites scored A+. Similarly, the overall grade for the best website evaluated by Raikar et al (2017) was A-. Other websites in the same study scored either C+, C-, D, D+ or F-. This is further supported by the findings by Kwangsad et al (2019) where cosmeticsotop.com scored the overall grade C which indicates on the limitations of the website. The findings revealed the importance of improving the 5 aspects evaluated in order to increase the overall quality of ELL websites.

The second part of the analysis presents the total number recommendations and common recommendations extracted from the analysis. There are 7 recommendations shared by all the 5 websites. Those recommendations are related to 4 aspects which are on-page SEO, usability, social and links. In other words, these common recommendations highlight critical limitations which need to be addressed in order to improve the technical quality of the ELL websites evaluated. This is in line with Adepoju and Shehu (2014) who evaluated the usability of universities' websites using 3 automated evaluation. All the websites had a number of accessibility errors which accentuated their non-compliance with WCAG. These findings are against Kaur and Kaur (2018) as they claimed the evaluated website (www.Myntra.com) as having the best technical quality and concluded the website as the best shopping website compared to the other 6 selected websites. Above all, the recommendations serve as a guide for the websites' hosts to improve their websites according to the parameters which scored less.

Conclusion

This paper presented a study to investigate the quality of 5 free ELL websites. The result of this evaluation sheds light to the use of automated tools in evaluating language learning websites. Besides, the data scores obtained for each aspects accentuate the limitations of the websites evaluated. The complementary recommendations outlined inform the website hosts or domain hosts on the limitations and urgent need to improve the quality of their websites in order to ensure accessibility regardless of students' characteristics, time, location and devices used.

This study contributes to the improvement of selected free ELL websites in order to optimise their quality which will eventually ensure their accessibility and usability. Besides, it substantially advances the online learning trend in Malaysia by accentuating the potential free ELL websites to be explored and utilised by teachers to provide authentic English language learning experiences. The analysis and recommendations serve as useful guide for teachers to consider adopting and adapting the available resources. Above all, the 5 aspects evaluated by SEOptimer form a comprehensive guide which will be useful for the curriculum developer and Ministry of Education to develop personalised online resources and websites for Malaysian primary students in ensuring quality education for all.

Limitations and Future Studies
Since this study evaluated only 5 ELL websites which fulfil the selection criteria, the data might not be able to provide the overall view of ELL websites available. Thus, studies evaluating more websites will definitely benefit educators.

This study utilised only one automated evaluation tool which is SEOptimer to evaluate the websites' quality. There are many automated evaluation tools available. Future studies might consider other automated evaluation tools such as Qualidator and Website Grader to bring about different perspectives. Comparative studies may be carried out to determine the technical quality based on various parameters or aspects.

As this study aims at evaluating the quality of selected ELL websites, the analysis revolved around the percentage of each aspect with brief discussion on the recommendations provided by SEOptimer. Future studies may extensively discuss each aspect (On-Page SEO, performance, usability, social and links) with regards to the recommendations.

Acknowledgement

References
Abramova, V. S., & Boulahnane, S. (2019). Exploring the Potential of online English Websites In Teaching English To Non-Linguistic Major Students: BreakingNewsEnglish As Example. Register Journal, 12(1), 1-12.

Adepoju, S. A., & Shehu, I. S. (2014). Usability evaluation of academic websites using automated tools. In 2014 3rd International Conference on User Science and Engineering (i-USEr) (pp. 186-191). IEEE.

Aguayo, N., & Ramirez, C. M. (2020). Does technical assessment matter? Functionality and usability testing of websites for ESL/EFL autonomous learners. Research in Learning Technology, 28.

Fotos, S., & Browne, C. M. (Eds.). (2013). New perspectives on CALL for second language classrooms. Routledge.

Hubbard, P. (2006). Evaluating CALL software. Calling on CALL: From theory and research to new directions in foreign language teaching, 313-338.

Kaur, J. K., & Kaur, P. J. (2018). Usability evaluation of E-commerce websites. International Journal of Scientific & Engineering Research, 9.

Khandare, S. S., Gawade, S., & Turkar, V. (2017). Survey on website evaluation tools. In 2017 international conference on recent innovations in signal processing and embedded systems (RISE) (pp. 608-615). IEEE.

Kumar, N., Kumar, S., & Rajak, R. (2021). Website Performance Analysis and Evaluation using Automated Tools. In 2021 5th International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT) (pp. 210-214). IEEE.

Kwangsawad, A., Jattamart, A., & Nusawat, P. (2019). The performance evaluation of a website using automated evaluation tools. In 2019 4th Technology Innovation Management and Engineering Science International Conference (TIMES-iCON) (pp. 1-5). IEEE.

Namoun, A., Alrehaili, A., Tufail, A. (2021). A Review of Automated Website Usability Evaluation Tools: Research Issues and Challenges. In: Soares, M.M., Rosenzweig, E., Marcus, A. (eds) Design, User Experience, and Usability: UX Research and Design. HCII 2021. Lecture Notes in Computer Science, vol 12779. Springer, Cham. https://doi-org.ezproxy.utm.my/10.1007/978-3-030-78221-4_20

Rasheed, K., Noman, M., Imran, M., Iqbal, M., Khan, Z. M., & Abid, M. M. (2018). Performance Comparison Among Local And Foreign Universities Websites Using SEO Tools. ICTACT Journal on Soft Computing, 8(2).

Raikar, K., Gawade, S., & Chopade, S. (2017). Usability evaluation of agricultural websites. In 4th International Conference on ''Computing for Sustainable Global Development''(INDIACom-2017), Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM), New Delhi (pp. 136-141).

Rocha, A. (2012). Framework for a global quality evaluation of a website. Online information review.

Rocha, A., & Brandao, P. L. (2011) 'Quality of health web sites: Dimensions for a broad evaluation methodology', in Handbook of Research on ICTs and Management Systems for Improving Efficiency in Healthcare and Social Care, eds M. Cruz-Cunha, I. M. Miranda & P. Gonçalves, IGI Global, pp. 922–936.