Citation:
Fisher, J (2018) Managing external links on the Leeds Beckett University Library website: strategies and approaches. Collaborate: Libraries in Learning Innovation, 3.

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Managing external links on the Leeds Beckett University Library website: strategies and approaches

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Leeds Beckett University library has been using LibGuides as its content management system since 2014. During this time responsibility for the maintenance and updating of content on the library website has gradually grown to encompass many colleagues in different teams across the Libraries and Learning Innovation service. This article will highlight strategies employed to maintain the quality control and currency of external links on the website, with particular reference to the subject guide pages. It will demonstrate how Google Tag Manager and Google Data Studio have been used to connect content writers with relevant analytics data showing exactly how external links on their subject guides have been used.

Content Management Systems

Like many academic libraries, Leeds Beckett University Library currently uses LibGuides as a content management system (CMS) for writing and maintaining its website. An editorial board consisting of around twenty library staff from across the department manages the overall direction of the site, but in recent years more control over specific areas has been transferred to the relevant teams. For example, frequently asked questions are maintained by front line staff who are receiving requests for this type of information first hand, and Archives and Special Collections pages are maintained by the Principal Information Assistant for the Archives. Alongside this, Academic Librarians have always managed the bulk of their pages from within their team, each maintaining their own set of subject guides according to their subject responsibilities.

Writing for the web using a content management system can have many advantages, including the decentralisation of web content and a degree of stylistic consistency (Comeaux, 2017). Another huge benefit is the ability to devolve the writing of web pages to those teams which have the most knowledge of their professional area. The LibGuides CMS is generally easy to learn and in most cases library staff can begin to edit their own pages after a handful of training sessions.

However, there is a trade-off between the simplicity of a content management system and quality control. Digital UX Consultant Paul Boag recognises that "content management systems encourage anybody to put content online. This makes it harder for users to find the information they want. Too many of our sites are full of content '*that somebody might find useful*' rather than focusing on specific use cases" (Boag, 2014).

This isn't a problem which exclusively affects libraries, and even organisations as large as the European Commission recognised they had a problem with quality control in 2016. Their response was to cull 90% of their content and initiate the EU Digital project in an attempt to steer their site back to a recognised level of quality information and uniformity (Boag, 2014).

Using content management systems can mean that gaining an overall picture of a website proves increasingly difficult. As ownership of pages is spread wider, each person becomes an editor of their own section and it can be easy to lose sight of the website in its entirety. As already mentioned, an editorial board attempts to keep an oversight of all of the Leeds Beckett library web pages, recognising that "even the discovery of basic mistakes, such as incorrect or broken links and ineffective wording, can negatively affect

discovery of library resources and services" (Becker and Yanotta, 2013).

Recognising a problem

The library Academic Support Team, consisting of Academic Librarians and Information Service Librarians, has exclusively maintained its own web content in the form of subject guides for around three years. Over time, this has meant pages have grown at a faster rate than was first anticipated, especially with regards to external links. Whilst this in itself was not a problem, there was a concern that these links were not being maintained. It was also felt that it was becoming difficult to track which links were proving useful and which were being clicked infrequently or not at all. Mindful of this, the library website editorial group attempted to rationalise how the performance of the subject guides could be approached, paying particular heed to research into library website behaviour by Swanson et al:

"The more links offered on the page, the less successful students were at recognizing the link that they needed. Each time we include a link on a page, we should be very purposeful. Does each link serve a purpose or does it just get in the way of the important links? As our online content expands, it seems that answering this question is increasingly important" (Swanson et al., 2017, p.366).

Bearing this in mind it had therefore become clear that during the four years of the current LibGuides library website iteration, the proliferation of external links had brought us to the situation outlined above. Coupled with this was the increasing number of external links which were becoming outdated or broken.

However, the benefits of using a CMS far outweigh the disadvantages, so a strategy to deal with managing external links needed to be sought. Unfortunately, the in-built external link checker within LibGuides is severely limited in that it cannot check links in rich text boxes. As the majority of external links on the library's subject guides were housed within rich text boxes this effectively meant that there was no method for auditing these from within the content management system itself.

Having discussed the problem within the editorial group, it became clear that the problem was twofold; firstly, it was essential that any broken links were immediately dealt with, so a method for checking these needed to be sought. Secondly was the issue of whether the external links were of value to the library website. In summary, this meant that some form of external link checker needed to be employed, and in addition it would be necessary to find a way to track links to prove which were being used and which needed pruning.

Checking broken links

Due to the limitations of LibGuides' broken link checker it was agreed that a third party checker would need to be used. With budget restrictions in mind a free option was sought and after some searching it was decided that BrokenLinkCheck would be suitable. BrokenLinkCheck offers both a paid-for and free service, with report export options and the number of links checked being the major differences between the two. It is a simple service to use where the basic URL of your website is pasted into a box and the site does the rest of the work. A progress checker at the bottom of the screen keeps you informed of how many pages and links have been checked. There is a 3,000 page limit on the free version but as the Leeds Beckett site is considerably smaller than this it is a very useful tool.

#	Broken link (you can scroll this field left-right)	Page where found	Server response
1	https://www.leedsbeckettsu.co.uk/svw	url src	404
2	https://auth.athensams.net/?ath_action=daauth&id=urn%3Amace%3Aeduserv.org.uk%3Aa »	url src	404
3	http://eds.b.ebscohost.com/eds/search/basic?vid=0&sid=2b295f92-c35b-40db-99db-7331f9 »	url src	400
4	https://www.leedsbeckett.ac.uk/cseinfo/	url src	404

Disable page auto-scrolling

Status

Processed 908 web-pages and 1342 links

Stop

Figure 1: BrokenLinkCheck website in progress.

There are slight formatting issues with exporting the final report, as Excel reports are only available with the paid version. However, it is perfectly possible to copy and paste the final report table into Word or similar software and

with some basic formatting produce a manageable table.

As BrokenLinkCheck will trawl all broken links within a website, it must be remembered that links which do not pertain to your criteria will need to be weeded out; namely those which are internal links or point to external authenticated services. Removing these false positives hopefully leaves those external links which require attention.

This report has proved a valuable tool for managing broken links and has been incorporated as a monthly housekeeping task, with a list of broken links being circulated to the relevant page owners.

Whilst the use of BrokenLinkCheck eliminates those external links which are no longer working, it was still felt that there was a problem with too many external links appearing on the library website. The feeling that users of the website couldn't 'see the wood for the trees' was one which the editorial group felt needed to be addressed by the page owners, echoing the sentiments of Michiel Heijmans when writing about website menus:

"With so many links on a page, every link from that page is just a little less valuable...Besides that, it messes up the focus of your visitor. With every link, you add a diversion from the main goal of your website" (Heijmans, 2017).

Google Analytics

The library at Leeds Beckett University has been using Google Analytics for a number of years and this data analysis has proved valuable in making decisions on the content, layout, and wording of the site. Currently used by a handful of dedicated staff, it was felt that opening up access to the Google Analytics data would be a good way of demonstrating the usage of the pages maintained by each team or content owner. This consequently highlighted the links that were not being used and demonstrated that the overall performance of a web page was intrinsically linked to any broken links on the page, so it was necessary to track usage of the page itself as well as those external links on it.

However, Google Analytics requires an account login and can also be difficult to interpret without training. Additionally, Google Analytics cannot pinpoint external links usage without the additional power of Google Tag Manager, another service which would have training implications.

As most page owners on the library website were not involved with the maintenance of the website other than editing content, it was felt that this was perhaps a step too far, so alternatives were sought which would allow this data to be presented in a more accessible way.

Google Tag Manager

Google Analytics is a hugely powerful tool and it was felt that a solution had to incorporate this in some way. After some research it was decided that Google Tag Manager could be used as a stepping stone for gathering the data which was required. Tag Manager, which is fully integrated into Google Analytics, allows events and actions within a web page to be recorded. In this case we wanted to set up two types of events: how many external links were being clicked and how many pages within each subject guide were being used.

The setting up of the tags themselves is a relatively straightforward process and this proved immeasurably easier by using Farney's (2016) comprehensive guide on the use of Google Tag Manager within LibGuides. Background information on LibGuides, Google Analytics and Google Tag Manager in Crane's (2017) summary also proved useful.

Tags relating to links needed to exclude certain criteria to ensure that only external links were triggered, so particular attention was paid to the makeup of the URL as illustrated in Figure 2:

Figure 2: Tag configuration setup showing settings to ensure only non-Leeds Beckett library external links are counted.

Active Users with Events: **5** (**23**% of total)

	Event Category	Event Action		Active Users
1.	Art Page Visits	http://libguides.leedsbec...ac.uk/subject_support/art	2	9.09%
2.	Art - Subject Guide	Outbound Link Clicked	1	4.55%
3.	Art Page Visits	http://libguides.leedsbec...port/art/media_and_images	1	4.55%
4.	Art Page Visits	http://libguides.leedsbec...ct_support/art/newspapers	1	4.55%
5.	Art Page Visits	http://libguides.leedsbec...and_official_publications	1	4.55%
6.	Human Geography Page Visit	http://libguides.leedsbec...aphy_housing_and_planning	1	4.55%
7.	Human Geography Page Visit	http://libguides.leedsbec...nd_planning/dissertations	1	4.55%
8.	Sport Page Visit	http://libguides.leedsbec....uk/subject_support/sport	1	4.55%
9.	Sport Page Visit	http://libguides.leedsbec...t_support/sport/databases	1	4.55%
10.	Videos	Play	1	4.55%

Figure 3: List of tags fired in Google Analytics.

Once both sets of tags (external link tracking and page tracking) had been set up for each subject guide, the results then fed automatically into the Behaviour area of Google Analytics, under the Events heading. Now, every time a user accessed a subject guide page or clicked on an external link this would be recorded in Google Analytics and could be viewed in real time if required.

Now that the events had been set up, the next stage was to allow those page owners to view the data in an accessible and clear format. Although Google Analytics provides a dashboard interface, the previously discussed requirement for a login and some degree of familiarity meant that this method of presenting the data was not seen to be suitable.

For this reason it was decided to present the data using Google Data Studio.

Google Data Studio

Google Data Studio is a data visualisation program designed as a user-friendly tool for representing complex data sets in an attractive and clear fashion (Snipes, 2018). By taking data from Google Analytics but presenting it in a more visual and accessible form, it was hoped that staff engagement would increase, forging a bond between ownership of web pages and the actual performance of links within the page.

Initially Google Data Studio can seem overwhelming as it is takes many aspects of Google Analytics but also has the ability to incorporate data from other Google services such as Tag Manager, Sheets and AdWords. However, the overall look and consistency with other Google products, plus its seamless integration with Google Analytics data, means that dashboards can be produced in a short space of time after minimal training. Particularly clear instructional videos such as those by Juenemann (2017) also helped to understand Data Studio within the context of data analytics and presenting using dashboards.

By utilising Data Studio's drag and drop interface, it was possible to quickly build a table which took data from Google Analytics and Tag Manager and presented a summary of which external links had been used in any given subject guide (see Figure 4).

The addition of a filter for both the date range and the subject guide fields allows the user to focus on the data which is particularly relevant to them. Most Academic Librarians at Leeds Beckett University cover more than one subject, so the ability to pick either one or all of the subjects which they cover means that data is personalised as much as possible (see Figure 5).

Filter by Subject Guide

External links clicked from Subject Pages
Data valid from 1st Feb 2018

1 Apr 2018 - 30 Apr 2018

	Subject Guide	Page Containing Link	Outbound Link	Total Clicks
1.	Tourism - Subject Guide	Websites - Tourism - The Library at Leeds Beckett University	OECD	1
2.	Sports and Exercise Therapy - Subject Guide	Welcome - Sports and Exercise Therapy - The Library at Leeds Beckett University	online tutorial to help with referencing	1
3.	Sports and Exercise Therapy - Subject Guide	Websites - Sports and Exercise Therapy - The Library at Leeds Beckett University	NHS Choices: Sports injuries	2
4.	Sports and Exercise Therapy - Subject Guide	Websites - Sports and Exercise Therapy - The Library at Leeds Beckett University	American Physical Therapy Association	1
5.	Sports and Exercise Therapy - Subject Guide	Websites - Sports and Exercise Therapy - The Library at Leeds Beckett University	Department of Health	1
6.	Sports and Exercise Therapy - Subject Guide	Statistics - Sports and Exercise Therapy - The Library at Leeds Beckett University	Gov.UK	1
7.	Sports and Exercise Therapy - Subject Guide	Referencing - Sports and Exercise Therapy - The Library at Leeds Beckett University	CiteULike	1
8.	Sports and Exercise Therapy - Subject Guide	Referencing - Sports and Exercise Therapy - The Library at Leeds Beckett University	How to use Word for referencing	1
9.	Sports and Exercise Therapy - Subject Guide	Dissertations - Sports and Exercise Therapy - The Library at Leeds Beckett University	OpenThesis	1
10.	Sports and Exercise Therapy - Subject Guide	Dissertations - Sports and Exercise Therapy - The Library at Leeds Beckett University	Dart	2

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Figure 4: Google Data Studio table presenting data on external links clicked in all subject guides.

Filter by Subject Guide (Art ... Hits

Type to search

Law - Subject Guide	151
Psychology - Subject Guide	107
Film and Documentary Making - Subject	23
Nutrition and Dietetics - Subject Guide	22
Business and Management - Subject	22
Media and Communication - Subject	21
Art - Subject Guide	20
Architecture - Subject Guide	19
History - Subject Guide	17
Human Geography - Subject Guide	13
Sport - Subject Guide	13

External links clicked from Subject Pages
Data valid from 1st Feb 2018

1 Apr 2018 - 30 Apr 2018

		ining Link	Outbound Link	Total Clicks
		rt - The Library at Leeds Beckett University	Visual Arts Data Service	1
		rt - The Library at Leeds Beckett University	Land of Lost Content	1
		s / Free Web Resources - Art - The Library at Leeds Beckett	The Getty Open Content Program	1
		s / Free Web Resources - Art - The Library at Leeds Beckett	Museum of Modern Art (MOMA)	1
		s / Free Web Resources - Art - The Library at Leeds Beckett	Open Access Button	1
		s / Free Web Resources - Art - The Library at Leeds Beckett	MoMA Learning	1
		s / Free Web Resources - Art - The Library at Leeds Beckett	Internet Archive Ebooks and Texts	1
		s / Free Web Resources - Art - The Library at Leeds Beckett	Indianapolis Museum of Art	2
9.	Art - Subject Guide	Open Access / Free Web Resources - Art - The Library at Leeds Beckett University	Archive of Digital Art	3
10.	Art - Subject Guide	Media and Image Archives - Art - The Library at Leeds Beckett University	LIFE Photo Archive	1

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Figure 5: Google Data Studio table showing the ability to filter by particular subject guide and date.

It was decided amongst the editorial group that a simple approach would be best, so the data was deliberately left in table format rather than

Filter by Subject Guide: Med... (1)

External links clicked from Subject Pages-Summary
Data valid from 1st Feb 2018

1 Apr 2018 - 30 Apr 2018

Subject Guide	Link	Event Action / Grand Total Outbound Link Clicked
Media and Communication - Subject G...	Ethos (Electronic Theses Online Service)	5
	PDQT Open	4
	OpenThesis	3
	Dart	3
	Box of Broadcasts	2
	Wiley Open Access	1
	Twitter Page@LibFisherObrien	1
	Radio at BUFVC	1
	Gov.UK	1
	Total	**21**
Grand total		**21**

Figure 6: Google Data Studio pivot table.

embellish it into a more dashboard-like presentation. However, the addition of an extra pivot table summary provided some flexibility in how the data could be viewed. Once again this table could be filtered by subject guide and date (see Figure 6).

Embedding into LibGuides

One of the key benefits of Google Data Studio presentations are that they can be successfully embedded into websites allowing anyone to view them. Viewers also have the choice of whether to view the data on the webpage in situ or use the pop out option for a full screen experience.

As the data gathered on the performance of our external links was for a specific target market of staff, it was decided that any embedding of Google Data Studio tables should be restricted to that target audience. Fortunately, LibGuides allows private pages to be created where only those people with access to the URL can view the content. It is also possible to password protect pages by keeping them as unpublished but it was felt that the fewer steps needed to access the information the better.

A private page was created in LibGuides and the embed code from Google Data Studio was added. As the data is embedded as an iframe, dimensions can be altered to suit. The URL of the private page was then circulated to relevant staff who now had control of when and how they accessed data relating to their subject guides (see Figure 7).

Conclusions

This project has highlighted a number of issues which affect many academic libraries using content management systems. Namely that giving a degree of control to smaller teams allows flexibility and expertise to flourish away from any central editorial group, but this can come at a price. It becomes harder for overall editorial standards to be maintained, and Boag's (2014)

THE LIBRARY 24 SEVEN

LEEDS BECKETT UNIVERSITY

Library Home | Using the Library | Subject Support | Resources | Student IT Support | Research Support | Search Library website | Search

Subject Guides Analytics

Filter by Subject Guide: Arch... (1)

External links clicked from Subject Pages
Data valid from 1st Feb 2018

1 Apr 2018 - 30 Apr 2018

	Subject Guide	Page Containing Link	Outbound Link	Total Clicks
1.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	Architectural Record	1
2.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	DOAJ	2
3.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	Architonic	1
4.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	Abitare	1
5.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	A&A: Art and Architecture	5
6.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	e-architect	2
7.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	Archdaily	1
8.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	Visual Arts Data Service (VADS)	1
9.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	Inhabit	1
10.	Architecture - Subject Guide	Open Access / Free Web Resources - Architecture - The Library at Leeds Beckett University	springerOpen	1

Figure 7: Embedded Google Data Studio table within a LibGuides page.

assertion that content can spiral out of control can certainly pertain.

The methods employed to track external links and general usage of the subject guides at Leeds Beckett University library have certainly provided a means by which Academic Librarians can keep a greater handle on the performance of their pages. Education and awareness of these tools through departmental-wide advocacy is the next step, with a hopefully successful outcome.

By embedding the information within LibGuides, with actual data processing being performed behind the scenes in Google Data Studio and Tag Manager, it was hoped to keep access to, and presentation of, this information as simple as possible. Consequently, demonstrations of how to access the data can be undertaken in a matter of minutes.

Allied to the hard data, it may also be worth reminding librarians that their web pages are a shop window. Using skills and discipline to help users find the most relevant sources should apply as much to maintaining the content of their own web pages as it does to any other source of information.

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