Using Web 2.0 to Make Libraries More User-Oriented: Outcomes from a Case Study at Loughborough University Library (UK)

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Introduction

In her presidential address, the 2009-2011 IFLA President, Ellen Tise indicated that *Libraries Driving Access to Knowledge (A2K)* would be the theme to inform her term of office. Tise identified various strands of this theme which libraries and librarians need to address in order to ensure that effective A2K takes place, one of which is the driver that “libraries and librarians must become more user-oriented by:

- Bringing libraries and their resources to the users;
- Empowering users through information literacy, social networking, etc.;
- Enabling access to information (a paradigm shift from a custodial approach); and
- Facilitating the full participation of all citizens in societal activities” (Tise 2009).

This theme is also supported by Casey and Savastinuk (2006) when they discuss the concept of Library 2.0 and argue that readers should be heavily involved in the evaluation and selection of services, both physical and electronic on offer from libraries. They also feel that technology, such as virtual reference desks, personalisation of library catalogues and blogs can help libraries become more user-oriented.

There are a range of complex and evolving social, political and technological factors which make the future world of libraries challenging. These include a:
Widening participation agenda in UK (United Kingdom) Higher Education;
Growth of digital media;
Greater emphasis on enhanced learning and teaching; and
More independent and collaborative learning.

Loughborough University is a UK research and teaching intensive university located in the Midlands. It is based on a 437 acre single-site campus, one of the largest campuses in Europe. It has nearly 14,000 undergraduate, postgraduate taught and postgraduate research students distributed across three faculties: Engineering; Science; and, Social Sciences and Humanities.

The University strives to be a high achiever in both research and teaching. The quality of the University’s research was confirmed by the results of the 2008 UK Research Assessment Exercise (RAE). Every department was found to be undertaking research that is internationally recognised, with a significant number judged to be ‘world leading’. Learning and teaching are also seen as being very important and have consistently been rated excellent in independent assessments, placing the University towards the top of the UK teaching quality tables. These include being:

- Named by the Sunday Times as the 2008/09 UK University of the Year;
- Ranked 9th out of 118 institutions in the 2011 UK Guardian University Guide; and being
- Voted the UK’s ‘Best Student Experience’ in the prestigious Times Higher Awards for the past 4 years (2006–2010).

Sport also has a high profile at Loughborough University and the University is positioning itself to be in the top 10 university sport campuses in the world.

There is a single University Library on the campus with 87 members of professional and non-professional staff; 55 full-time equivalents. Library staff is divided into 9 teams, which includes the team with overall responsibility for e-learning in the University. The building presently used as the Library was opened in 1980. It has a footprint of 7,777 square metres spread over three floors with 900 study places, including 140 workstations. The Library provides access to over 500,000 books, 681 print journal subscriptions and approximately 19,000 e-journal subscriptions. It designs and delivers both module specific and generic information literacy and study skills teaching. In recent years it has incorporated Twitter, digital video, blogs, podcasts and Google Apps into its services.

The Library invests significant time and effort into gathering data on its user population. Data collection methods include:
Cumulative statistics that are collected and discussed by the Library Management Group on a quarterly basis. For example,

- Data generated by library systems includes library footfall (traffic), book circulation statistics and the use of electronic resources;
- Records are maintained of the number and type of enquiries, building occupancy at key times and attendance at teaching sessions provided by the Library;
- Annually undertaking two investigative studies, one exploring aspects of how the Library supports learning and the other on research support. For example, the learning study in 2008 was based on the information used in assessed work by students (Jones, Stubbings and Walton 2008);
- A general user survey is completed every three years, with the most recent being in 2009 (Walton 2010); and
- Working closely with the Department of Information Science whose staff and students investigate services offered by the Library, for example Master students dissertations (ter Haar 2010).

The purpose of this chapter is to explore how the Library has used a range of tools to become more user-oriented, so that readers are empowered to make the most of the variety of information resources and tools available. The chapter will focus on one particular study that investigated the use of Web 2.0 technologies by students in their self-directed learning. The intelligence that emerged from the investigation was used to inform how the Library can become more user-oriented. This work represents a single case study. Its findings and conclusions could inform other libraries as long as its limitations are taken into consideration.

An underlining driver emerging from this case study is the importance of gathering data and evidence about library users. If library services are to achieve user orientation, they need accurate data on users’ views and needs. This case study generated an insight into how Web 2.0 is being used by students at one university and will be used to inform library development at that institution.

The communication and collaboration abilities that Web 2.0 brings have been available for users of the World Wide Web (Web) for many years and have become increasingly popular, particularly with the younger generation. Tim Berners-Lee, the inventor of the Web claims this is how he envisaged the Web would be. He points out that the functionality of what is recognised as Web 2.0 has been available since the onset of the Web. The recent advances with the Semantic Web have made Web 2.0 services far more accessible. The Semantic Web provides a common framework that allows data to be shared and reused across application, enterprise, and community boundaries (W3C 2010). As university libraries seek to maintain relevance with students, there is an imperative to discover how Web 2.0 is supporting students in their independent learning and how this can inspire library services.
Methodology

For the Web 2.0 study at Loughborough University a project team was created which included representatives of several stakeholders with an interest in Web 2.0 and its’ impact on learning. This included members from the Student’s Union, the E-learning team and the Library. The project members provided knowledge and expertise that could help direct the project and take the findings forward.

The study took place over a 6 month period. There was no funding specifically allocated for the work and it was undertaken within peoples’ existing workloads. Time intensive research methodologies could not be undertaken so it was decided to choose data collection approaches that would be straightforward to create and implement; a methodology that would require a short amount of time for responders to complete; and an approach that did not need extensive input to evaluate. The two phases of data collection were an initial short survey to gather some level of insight followed by a more detailed full survey.

An initial short online survey was made available on the University’s Virtual Learning Environment (VLE), called LEARN, to gauge an initial overview of where Web 2.0 figured in students’ learning. Students were asked three questions:

− Which is your favourite Web 2.0 site?
− What do you use it for? and
− How often do you use this site during term time?

There were 99 responses, which provided an indication of the breadth of Web 2.0 sites in use by the students, the purpose of use and also the popularity of certain sites. The results showed that:

− 80% of respondents chose Facebook as their favourite site;
− 40% of respondents used Web 2.0 sites for academic purposes; and that
− 80% access Web 2.0 at least once daily or more frequently.

The responses confirmed that students were familiar with the term Web 2.0 and that they were interacting with Web 2.0 to support their studies. This provided the justification for a more detailed investigation to ascertain how prevalent this behaviour was and whether the Library and the E-learning Team should be providing access and support in the use of these tools. The results from the short survey were used to develop a more substantive online survey where the Web 2.0 applications identified were concentrated on in detail.

The full survey was developed using the Bristol Online Survey software (BOS). It investigated students’ perspectives on:
Using Web 2.0 to Make Libraries More User-Oriented

The survey also collected demographic data including age, gender, year of study, faculty and region of origin.

The full survey was piloted with members of the Students’ Union Executive to determine the understanding of the terminology, how long it would take to complete, and whether it would provide good data to analyse. Feedback from the pilot was taken on board and minor amendments were made to the survey.

The full survey was available for completion for three weeks and an incentive of a prize draw for a £25.00 iTunes voucher was offered to encourage participation. In UK Higher Education students are regularly asked to provide feedback both by the Government and their local institutions. The project team was aware that students may be suffering from survey fatigue so it was reluctant to heavily promote the survey. The survey was promoted to students via the electronic student noticeboard, the Library Blog and General News and announcements on LEARN.

Results and Discussion

This case study produced interesting results on student use of Web 2.0 but the small scale of the project means that it is not generalizable. Limitations include the small sample size; the survey being a single site case study; the use of key terminology being unclear e.g. ‘constant’ and one question focused specifically on LEARN, rather than being open and including all available services. Despite these limitations, the findings provide a clear snapshot of how undergraduates at Loughborough University are currently using Web 2.0 tools.

There were 178 responses to the full survey. This was a disappointing response rate as surveys from the library generally attract a higher response rate of over 600. It is assumed the lower response rate is because the survey was less heavily advertised than those of the past.

When looking at the demographics of the 178 respondents, it can be seen that 82% of the respondents were undergraduates as illustrated in Figure 1.
The survey asked the undergraduate respondents to indicate their year of study: 24% were first year, 31% were second year, and 27% were final year students. Normally responses to library surveys have the majority of respondents being from undergraduate first year. For this Web 2.0 survey there was a higher than normal proportion of second year responses. It is unclear why this occurred.

The spread of respondents across the three faculties was relatively even (Figure 2). This is surprising as the Social Sciences and Humanities (SSH) Faculty is twice the size of the other two faculties. Again it is unclear why there were fewer than expected respondents from this faculty. One reason could be that some subjects taught in SSH are less PC orientated as a result students in that faculty may be less likely to understand the terminology used in the survey, but there is no real evidence to support this.

Figure 3 shows that 73% of respondents fell into the age category of 18-21 years, which was reflected across all three faculties. This is not surprising as the majority of undergraduates at Loughborough University fall into the traditional 18-21 age category. It was disappointing that there were limited responses from the more mature student population so that the study could ascertain whether age impacts on the use of Web 2.0 tools.
Figure 2: Number of respondents by Faculty

Figure 3: Percentage of respondents by age
Figure 4 illustrates the breakdown of respondents by gender. Of the respondents, 62% were male and 38% were female. This is a satisfactory balance as the University’s male/female ratio is 5:2. It should be noted there was a much higher response rate from males from the Engineering Faculty, again this reflects the gender balance across that faculty.
An area of disappointment was that only 13% of respondents were non-UK students. Figure 5 illustrates the breakdown of respondents by region and faculty. Approximately 25% of Loughborough University students are considered international students, so this response was lower than anticipated. However, the faculty response rate was similar across the three faculties. With this small response rate an exploration of Web 2.0 usage and cultural background was not possible.

To ascertain the types of Web 2.0 sites used by the student population, the survey listed nineteen common Web 2.0 sites. When completing the survey, respondents were asked to indicate:

- Which sites they used;
- The purpose of use (academic work, and/or social life / sport); and
- Frequency of use.

The sites listed were a combination of those identified in the first short survey with additional suggestions from the E-learning team and Students’ Union.

Figure 6: Reason for using Web 2.0 sites
From Figure 6 it can be seen that out of the nineteen applications listed, Facebook, YouTube and Wikipedia are the most heavily used sites by respondents. Sites with significantly less use but predominant social use included Twitter, Flickr and Photobucket. The survey asked if respondents used other Web 2.0 sites which were not listed. Twenty additional sites were noted, but only three sites were mentioned more than once, these were Deviantart, Tumblr and Livejournal. Therefore it can be assumed that the sites chosen by the survey team were key sites regularly used by students at Loughborough University.

The Web 2.0 sites used predominantly for social purposes only (but not exclusively) are YouTube, iTunes, Facebook, Twitter and Photobucket. The low use of Twitter contradicted results by the PEW report (Lenhart et al. 2010) which discovered that one third of their adult respondents regularly used Twitter. It is noted Wikipedia and Google Apps are used significantly more for academic work, and significantly less for social life. The comparison of use of sites by gender shows little difference in use by male and female students. There were five Web 2.0 tools which were used heavily for both academic and social purposes. Not surprisingly, these were Facebook, Wikipedia, iTunes, YouTube and Google Apps.

Facebook is a popular social networking tool that describes itself as a site that “helps you connect and share with the people in your life” (Facebook 2010). Respondents from the Web 2.0 survey were asked to identify their two favourite Web 2.0 sites of which Facebook was significantly the most popular, with 111 (62%) respondents ranking it as their top site. This reflects both the US and UK national trend for Facebook usage. Statistics from the PEW Research Centre indicates that Facebook is the “social network of choice” in the US (Lenhart et al. 2010). Statistics from Clickymedia (2010) show there were over 25 million active UK Facebook accounts in April 2010. Feedback from past library surveys and anecdotal evidence gained by walking through the Library had already highlighted that Facebook was heavily used by students. In the recent user survey conducted at Loughborough University concerns had been raised by a small number of students about the use of Facebook on Library PCs (Walton 2010). Requests were made for Facebook to be banned, so that library PCs would be free to be used for academic work. The Library was hesitant to ban the use of Facebook until it understood better how the application was used. Results from the survey show that Facebook is not used specifically for academic work alone but is used for both academic and social purposes by 48% of respondents. Those who use Facebook for academic purposes tend to use Web 2.0 sites in general to discuss academic work and find resources for their modules. Results from this survey imply that it would be inappropriate to ban the use of Facebook on library PCs as the site was being used for both academic and social purposes. It is also worth noting that social life and sport are integral parts of Loughborough University life and that they are seen as essential ingredients of the student experience.
Wikipedia is a “free, web-based, collaborative, multilingual encyclopedia” (Wikipedia unknown) that is written and edited by its users. Anecdotal evidence from lecturers in general, and at Loughborough University specifically, has suggested that students regularly use Wikipedia to gain a better understanding of their subject area when first undertaking an assignment. This was confirmed by a series of focus groups run by the Library in 2008 (Jones, Stubbings and Walton 2008). The focus groups attendees used Wikipedia as a starting point for gathering information but were very aware of issues of provenance and lecturers dislike of this resource. The focus group results were similar to those of Head and Eisenberg (2010). Figure 6 shows that students use Wikipedia regularly for academic purposes. 29% of respondents use it specifically for academic purposes, whilst 59% use it for social life/sport and academic work. In addition, Head and Eisenberg discovered that Engineering and Science students were more likely to use Wikipedia than their Social Science counterparts. Results of the Web 2.0 survey confirmed this tendency and illustrated that Engineering students were more regular users of Wikipedia than students from the other two Faculties.

iTunes is a free application that allows the organisation and sharing of audio and video resources (Apple Inc. 2010). It is heavily used for the sourcing of music, but high profile universities in America, such as MIT and the Open University in the UK, are using it to distribute teaching and learning resources through iTunesU. The Web 2.0 survey indicated iTunes is mainly being used for social life/sport (61%), but that a small percentage, (7%), of respondents use it for both social and academic purposes. Unfortunately, the survey did not ascertain the specifics on how and what iTunes resources were being used for in relation to academic work. Currently Loughborough University is not actively providing resources through this channel. Are students accidentally sourcing learning materials when seeking music or are Loughborough University lecturers directing their students to resources provided by other institutions via iTunes? This was not investigated as part of this study.

YouTube describes itself as “the world’s most popular online video community, allowing millions of people to discover, watch and share originally created videos” (YouTube unknown). The Web 2.0 survey indicates minimal use of YouTube for academic purposes only. It illustrates heavy use of YouTube for social life/sport by 62% of respondents, and 36% use it for social life/sport and academic uses. YouTube was the second favourite Web 2.0 web site of respondents. It was surprising that only 36% of respondents use YouTube for both social life/sport and academic uses, as lecturers are linking to more and more videos on YouTube to enhance student understanding of lecture material.

Google Apps describes itself as a “Reliable, secure online applications wherever you work” (Google 2010). Applications include email, calendar, collaborative document sharing (documents, spreadsheets, drawings and presenta-
The Web 2.0 survey illustrates 21% of respondents use Google Apps specifically for academic work, and 33% use it for social life/sport and academic work. These results were as expected due to the nature of the application and the growth of collaborative learning in UK Higher education institutions.

Eight Web 2.0 sites were looked at in more detail in terms of how often they were visited by the respondents, see Figure 7.

Figure 7 shows that of the 96% of respondents who use Facebook, 41% use it constantly, 38% use it several times a day, and a further 15% use it several times a week. It is assumed that by constantly, the respondents meant that the application was permanently open on their desk top and they returned to it on a regular basis. However, this assumption should be further investigated to clarify what constantly means. This may explain the high visibility of Facebook on library PCs.

YouTube and Wikipedia are regularly accessed but less constantly than Facebook, with weekly or more frequent use of 69% and 68% respondents. On the other hand, a. smaller number of respondents stated that they used iTunes and Google Apps, but of those, a significant proportion reported that they used these sites constantly.

The survey took a closer look at the use of Web 2.0 sites in relation to academic work, see Figure 8. Not surprisingly, because of the nature of the Web 2.0 sites, the results clearly indicate that the respondents mainly use them for finding information and discussing academic work with friends.
Communities and collaboration on social networking sites and Web 2.0 provide an area for informal and unstructured learning to take place. Maloney (2007) reasons that “students will invest time and energy in building relationships around shared interests and knowledge communities.” Franklin and von Harmelen (2007) relate this to pedagogy stating these communities allow for “greater student independence and autonomy, greater collaboration and increased pedagogic efficiency.” In addition, Ipsos MORI (2008) claims that the “evidence shows that using these sites in education is more effective when the students set them up themselves; lecture led-ones can feel overly formal”. According to OCLC “The social Web is being created by opening the doors to the production of the Web, dismantling the current structures and inviting users in to create their content and establish new rules” (2007).

As discovered in the Loughborough University Web 2.0 survey students use these communities for both their university social lives as well as for academic communication. The evolution of Web 2.0 and beyond is likely to be subject to sizable changes in the way people access and interact with knowledge, in terms of information and technology. Institutions should be encouraging these informal social learning communities to evolve and thrive. Respondents were asked to indicate all the different ways they access Web 2.0 tools, see Figure 9.

The most popular ways to access Web 2.0 sites were from PCs provided by the University, either in the Library (81 respondents: 52 male, 29 female) or other PC labs (78 respondents: 55 male, 23 female). This together with the results on how respondents use Web 2.0 indicates that the use of Web 2.0 sites on University provided PCs should not be prohibited. Of the respondents, 157 of them regularly use their own laptop to access Web 2.0 sites. This reflects the findings of the PEW report (Lenhart et al. 2010), which discovered that adults under 30 years of age prefer to own a laptop rather than a desktop computer.
The Web 2.0 survey illustrates that there was far less use of hand held gadgets, e.g. smart phones to access Web 2.0 sites than laptops and PCs. This is contrary to the findings of the PEW project (Lenhart et al. 2010), where 35% of adults were reported as accessing the Internet via a mobile device. In terms of gender (see Figure 9), male students used hand held devices slightly more than female respondents to access Web 2.0 sites. It would be interesting to review this in 6 months to a years’ time to see if this trend has changed and whether the University should be optimising general services for Web 2.0 access.

As indicated by the PEW report, mobile devices are already important in accessing Web 2.0 applications but it notes that the most popular method of access remains the computer. At Loughborough University this level of use of mobile devices is not so apparent, however, it is expected that over the next few years the use of mobile devices to access Web 2.0 sites will increase. The Library needs to consider how to adapt services so they can be made more easily and effectively accessible by mobile devices. Further dialogue with readers is required to ensure appropriate advances and adaption of technology takes place.

Respondents were asked to identify Web 2.0 type features they would like provided by university systems. The majority of feedback related to features the students would like to see in LEARN. LEARN uses the course management system called Moodle, which provides options to incorporate Web 2.0 tools with modules. However, in many instances the Web 2.0 functions are not highly used or provided by the module tutors on LEARN.
The features the students would like to see provided by the University, especially in relation to LEARN fell into four key areas:

1. Easier student communication;
2. Provision of a greater variety of learning materials;
3. User interaction; links to other University systems; and a
4. Greater awareness for academic staff in how to make the most of the tools on offer.

The study highlighted how students are using technology in their learning. The results had implications for both the Library and Loughborough University. The study made it apparent that the majority of undergraduate students are using Web 2.0 to support their academic studies alongside their online social activities. Web 2.0 services that are particularly valued are Facebook, Wikipedia, iTunes, YouTube and Google Apps. The Web 2.0 surveys at Loughborough University indicate students would like more channels to be made available for communication, including via the VLE. A library’s responsibility includes advising and supporting academics in their use of online technologies and an emphasis should be on the inclusion of incorporating appropriate Web 2.0 in teaching and learning. Collaboration and communication are of pedagogic importance to the learning cycle. In recognition of some of the social, political and technological factors challenging universities, these networking options should be encouraged in their online communities as well as in traditional teaching and learning environments.

Interpreting the Findings

The findings of the survey have been informative in helping the Library and the E-Learning Team shape services to become more user-oriented for students. A range of recommendations (Barnett et al. 2010) were put forward for consideration by the University and the various stakeholders concerned with learning.

As indicated previously there was some pressure for students to be restricted in their use of Web 2.0 technologies on university library provided PCs. This study provided evidence that Web 2.0 makes a valuable contribution to learning. As a consequence, it would be a retrograde step for the Library to restrict access to this site from its PCs. The survey also indicates that libraries cannot rely on just one mechanism to gain feedback and in order to become user-oriented. Libraries need to use a variety of tools to interact with and become flexible and adaptable to a variety of stakeholders needs.

With regard to the concept of A2K, the library should be seeking to empower students with the skills to make effective use of Web 2.0 in their learn-
There is already a well-developed and sophisticated information and study skills program at Loughborough University Library. The findings from several library surveys indicate the library should develop workshops on how Web 2.0 can be incorporated effectively into academic life.

There is also a need for library staff to take on an advocacy role to help academic staff become more user-oriented in helping student’s access knowledge. One of the key findings from the study was that students perceive that some academic staff could make more effective and informed use of LEARN. Library staff work directly with departments and are ideally positioned to raise academic colleagues’ awareness and confidence in making full use of the Web 2.0 features of LEARN.

The study did not generate data that informed how the university library’s physical space should be developed in the context of Web 2.0. It can be extrapolated that if a university library is user-oriented then it should provide appropriate space for students when they need access to Web 2.0 technology. Habib (2006) has been contemplating how libraries should be interacting with students both in the physical and virtual world. His diagram (Figure 1) considers Web 2.0 technologies and their presence in a student’s life, both in terms of social interaction, academic interaction and libraries.

Figure 1: Academic Library 2.0 Concept Module Basic v2
Loughborough University Library has a large social learning space which was evaluated in an ethnographic study (Bryant, Matthews and Walton 2009). This provided evidence that students in this social learning space made extensive use of technology (and a surprisingly low use of print information).

It came as no surprise that the Web 2.0 survey evidences that Facebook has a high uptake by respondents and highly probably by Loughborough University students as a whole. Casey and Savastinuk argue that introducing Web 2.0 services can help libraries become more user-oriented. The Web 2.0 survey illustrates that student’s are keen to discuss their learning with each other online, but express disappointment that tools to facilitate discussion are not always provided with their modules on the VLE. The Library is always seeking to provide appropriate communication channels for use both by and with the user population. Various on-line mechanisms have been set up to achieve this including a Library Blog, a Twitter account, and an ‘Ask the Librarian’ email account. None of these approaches have been successful in eliciting substantial, meaningful dialogue with students, nor has there been considerable ‘visible’ dialogue between students. Currently, the Library uses Facebook to give access to various library systems, not to promote services and interact with its readers. If a large percentage of Loughborough University students use Facebook ‘constantly’ then the Library should consider in more depth its use of this application to support students in their learning. The Library needs to undertake further studies to ascertain how students would prefer to communicate with the Library.

Conclusion

How do libraries and librarians improve their provision of access to knowledge and become more user-oriented? The physical space and atmosphere of libraries are being adapted to reflect the importance of collaboration and communication as part of the learning process and university life experience. Offering areas for interaction to take place both online and face-to-face (in addition to more traditional quiet areas) will support independent study.

Library spaces should be designed to inspire learners to discover and innovate, to enable collaboration and interaction to take place. The LASSIE report states that “libraries need to be brave, to relax their rules and to encourage mass participation in the social library ...” (Secker 2008).

Through research, investigation and data collection, libraries will have a better understanding of their role and the importance of the traditional and new services they provide. Libraries must accept that Web 2.0 is an integral part of the majority of today’s students’ independent study and university life experience and make provision to support its use. Libraries must consider enabling access to appropriate services remotely to provide empowerment to bring the
library to the users and widening participation. Libraries should welcome the growth of digital media and enable readers to utilize library spaces in conjunction with the media.

Libraries should empower librarians through encouragement and training to welcome and enjoy both the physical and virtual spaces available to them as part of their working environment. Library staff need to interact and generate dialogue with their readers in both worlds to ensure appropriate and effective access to knowledge for today’s students.

Credits

Figure 10: Michael Habib (2006) www.flickr.com/photos/habibmi/222296001

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