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**Web 2.0 Technologies for Library Internal Communications
- A Case Study of Loughborough University Library, UK**

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DECLARATION

I certify that all material in this thesis which is not my own work has been identified and that no material is included for which a degree has previously been conferred upon me.

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(signature of candidate)

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[ABSTRACT]

The aim of the thesis is to find out whether current Web 2.0 applications function well, and the possibilities to implement more similar tools in the future in Loughborough University Library. The purpose is to examine current internal communications situation, including methods, benefits and downsides in the Library. The used research methods were key informant interviews and a web-based questionnaire. The surveyed target was the 83 staff in the Library.

This thesis reports the results of a qualitative survey of Web 2.0 knowledge and usage of Loughborough University Library staff. Among those staff, six of them carried out a key informant interview to provide insights into Web 2.0 for their internal communication. Afterwards, an online questionnaire was sent out to all staff within the Library via e-mail with the questionnaire URL to collect further opinions towards Web 2.0 for internal use.

This study indicates that, in general, the staff believed that the internal communication in the Library can be improved further. Their perceptions of Web 2.0 internal communicating methods currently used in the Library were positive. Some applications, such as blogs and wikis, were recognised to be more useful than others, such as social networking and instant messaging.

However, this survey also indicates a general misunderstanding and lack of awareness of Web 2.0 among the staff. In addition, staff training and profound consideration before implementing are the most important factors to help the Library building an enjoyable internal communication environment.

Keywords: Web 2.0, internal communication, intranet, librarian, library, library management, social networking, social software

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CHAPTER 1 - INTRODUCTION

1.1 Background

1.1.1 Motivation

A library is a place which collects, collates and preserves documents, and provides readers with information, resources, and related services. It is a scientific, cultural, and educational institution. Due to the rise of the Internet and increasingly advanced technologies, libraries nowadays have been redefined as a place where people are able to get access to information from multiple sources in multiple formats.

Web 2.0 is a term created in a conference brainstorming session by Dale Dougherty who is the founder of O'Reilly Media Inc. in 2004 (O'Reilly, 2005). It is not a new-invented skill, but a new notion mixed with previous expertises based on users' habits in the present Web environment. Several popular Web 2.0 applications, such as blogs, RSS, wikis and social networking, have been introduced to life. In order to carry out better services, productivity and participation, libraries should not only keep good relationships with external communities, but also construct smooth internal communications among the staff. Instead of staying outside from the nonstop trend of the Internet atmosphere, libraries can apply these online gadgets to connect with their readers / users, and make a good use of these new technologies to create a new working environment as well.

1.1.2 Web 2.0 in Loughborough University Library, UK

Loughborough University Library is the main library of Loughborough University, UK. Several Web 2.0 technologies have been applied for both external and internal use in the

Library. The Library uses Twitter¹, ad-lib² (the Library blog), and RSS Feeds³ to communicate current developments to Library users. YouTube⁴ and Flickr⁵ are used to promote the Library and new services and record Library events. As for information literacy and study skills teaching, Voicethread⁶, Animoto⁷, Wordle⁸, Wallwisher⁹, and Moodle¹⁰ are applied to support the tutoring. What's more, the Library provides different access points to Library services, including iGoogle gadget¹¹ and Facebook application¹². In addition, a Library Staff Blog and a VLE (Virtual Learning Environment), 'Learn', are used for internal Library staff communication and training. (Loughborough University Library, 2010a) Other Web 2.0 applications, such as podcasting and vodcasting, are also implemented for e-learning purpose, while several teams and projects in the Library use wikis, social bookmarking, and instant messaging for internal communication as well.

1.2 Statement of the Problem

Currently there are more and more libraries using Web 2.0 as communication methods providing services or staying in contact with their readers / users. For example, blogs have been used to announce the latest news in the library and market the services offered by the library. In the universities and their libraries, podcasting, screencasting and vodcasting are utilised widely as a kind of teaching material. It seems progressively conventional that libraries have these channels to connect with their patrons, but using the same media and technologies stated above as internal communicating ways or work implement is not yet that common. Loughborough University Library, the library investigated in this survey, has been

¹ <http://twitter.com/lbinfo>

² <http://blog.lboro.ac.uk/blog/>

³ <http://www.lboro.ac.uk/library/resources/RSS.html>

⁴ <http://www.youtube.com/user/PilkingtonLibrary>

⁵ <http://www.flickr.com/photos/loughboroughuniversitylibrary/>

⁶ <http://voicethread.com>

⁷ <http://animoto.com/>

⁸ <http://www.wordle.net/>

⁹ <http://www.wallwisher.com/>

¹⁰ <http://moodle.org/>

¹¹ <http://www.google.com/ig/add?moduleurl=hosting.gmodules.com/ig/gadgets/file/116563230278623558425/LboroUnilLibraryGadget.xml>

¹² <http://apps.facebook.com/lborolibrary/>

used certain Web 2.0 technologies to generate another form of working environment in their office. Nevertheless not all the staff get used to these as they manage e-mails or meetings which are customary communication approaches in the Library. Therefore, this thesis is going to examine the possibilities of applying Web 2.0 technologies in libraries from an interior point of view, and give some suggestions for libraries which would like to benefit from Web 2.0 internally.

1.3 Research Questions

The ultimate purpose of this research is to find out whether current Web 2.0 applications function well, and the possibilities to implement more similar tools in the future in Loughborough University Library. With the purpose of looking into the atmosphere, the following questions will be studied:

1. What method of internal communication works well? What does not work well?
2. What are some of the most and least effective methods which have been used to communicate internally?
3. What Web 2.0 tools are currently being used?
4. How Web 2.0 can help in internal communication and work?
5. What are the special challenges of using Web 2.0 tools as communicating ways?

1.4 Aims and Objectives

From the process of the research, this thesis hopes to accomplish the following targets:

1. To review the types of Web 2.0 technologies available and how these can be implemented within organisations
2. To review the potential benefits of using Web 2.0 technologies for internal communication

3. To identify the barriers preventing the use of Web 2.0 technologies internally
4. To identify case studies where Web 2.0 technologies have been implemented internally
5. To determine the extent to which Loughborough University Library staff would find Web 2.0 useful in their internal communication

1.5 The Outline of the Thesis

The first chapter of this thesis, which is *this* chapter, provides a rationale for the research by giving background information with circumstances to the current situation. It initiates the motivation for the study followed by a discussion of the research problem. The research questions and the aims and objectives are stated subsequently.

Chapter 2 reviews the literatures which enlighten this research. The definition and types of Web 2.0 are discussed. The features of Web 2.0 are listed. The pros and cons of Web 2.0 are reviewed as well. On the subject of Web 2.0 for internal use, the importance of internal communication is emphasised. The advantages and concerns of using Web 2.0 for internal communication are reported. Several suggestions are provided as well. Some business cases are mentioned in the end of this chapter.

The methods used in this research and the justification for the choices are outlined in Chapter 3. Sources of data, the data collection instrument, questionnaire distribution and methods for analysis in this survey are also examined.

The survey results and discussion are covered in Chapter 4. These falls into two main categories: the results summary of the primary data collection, which includes the analyses of the participants' responses of both key informant interviews and online questionnaire, and a discussion of the findings in relation to the literature discussed in Chapter 2.

The final chapter, Chapter 5, presents conclusions about the findings of this research. Several suggestions for both libraries and areas of further research are offered as well.

1.6 Chapter Summary

This chapter has provided the groundwork for the thesis. The background for this research was outlined; a general overview of the use of Web 2.0 was given in order to provide a rough understanding about the situation. Afterwards the statement of the problem and the research questions of the research were described. The outline of this thesis was also provided. In the following part of the thesis, Chapter 2, a review of literature relevant to the topic of this study will be presented.

CHAPTER 2 - LITERATURE REVIEW

In order to locate the most relevant literatures with regard to this research, the following search strategy was applied. The sources of literature mainly derive from the electronic databases available at Oslo University College, e.g. Emerald, Library and Information Science Abstracts (LISA), Library, Information Science & Technology Abstracts (LISTA), and WorldCat. The resources from the World Wide Web, especially Google Scholar and Google Books, were searched as well.

The search terms related to Web 2.0 and library internal communication were 'Web 2.0', 'social software', 'social networking', 'library', 'librarian', 'internal communication', and 'intranet'. The limitation of the publication year in the search strategy was set from 2004, which was the year that the term Web 2.0 appeared, until present. The search strategy for library internal communication included terms such as 'library', 'librarian', 'internal communication', and 'management'. There was no limitation in the year of publication for this search strategy so that as many resources as possible could be retrieved. Boolean logic operators, AND, OR, and NOT, were used during the searching process. Related bibliographies perceived from references were referred as well.

2.1 What Is Web 2.0

Since the day when the phrase 'Web 2.0' was created, there have been arguments saying that it is just a stunt as a business marketing trick. Nonetheless, from the massive websites, software and gadgets applying the essence of Web 2.0 over the Internet, the trend can be obviously determined. In this section, the definition, manifestations, characteristics, also advantages and disadvantages of Web 2.0, will be talked about, so that a general idea of Web 2.0 can be established.

2.1.1 Defining Web 2.0

As mentioned in the introduction, the term Web 2.0 was originally used by Dale Dougherty, the founder of O'Reilly Media Inc., an American company that publishes high quality books and websites and holds conferences on technology-related topics, in 2004 (Anderson, 2007). Tim O'Reilly (2006) himself gave a brief definition to Web 2.0 in his article 'Web 2.0 Compact Definition: Trying Again':

Web 2.0 is the business revolution in the computer industry caused by the move to the internet as platform, and an attempt to understand the rules for success on that new platform. Chief among those rules is this: Build applications that harness network effects to get better the more people use them. (This is what I've elsewhere called 'harnessing collective intelligence.')

(para. 1)

In the world of the Internet, the applications have been always a continuous evolution. Web 2.0 is one of the processes of the development (Stephens, 2006b). As Birdsall (2007) emphasised, 'Web 2.0 is a social movement'. Web 2.0 is not a new-invented skill. Instead, it is a new notion mixed with previous expertises based on users' habits in the present Web environment. As a consequence of the complementary contemporary idea and advanced technologies, new applications are generated.

Web 2.0 is built upon the interactions and cohesions of people. It focuses on people's mobilising force, rather than strong finance and capital capability. Miller (2005) described that Web 2.0 is 'an attitude not a technology'. Abram (2005) also explained that Web 2.0 is 'ultimately about a social phenomenon'; it includes networked social experiences as well as the distribution and creation of Web content. From this essential concept, we can discover that Web 2.0 is more about content contributed by users; the whole idea about Web 2.0 is to build 'event-driven user experience' (Peek, 2005). It is less about just costly but unidirectional websites (Needleman, 2007) or the technological backend of the Web (Peek, 2005). With

Web 2.0 technologies, users can develop, rank and distribute their own content on a dynamic portal grown from the earlier and more static website, which is how Web 1.0 formed, and thus expressing themselves (OECD, 2007). According to the literatures, most of the scholars have the same opinion that Web 2.0 is a new generation of the Web which allows users to originate, discuss and share ideas and information on a website as a platform. The spirit of Web 2.0 incorporates the ideas of user interactions and processing, and different types of Web 2.0 techniques and services represent various genres, or ‘cybergenre’ in Shepherd and Watters’s (1998) terms. Blogs can, e.g., be described as either a variant or an emergent ‘cybergenre’.

According to Stephens (2006b), there are several other names for Web 2.0, such as ‘Two-Way Web’, ‘Participatory Web’, etc. The sense that this manifestation of the Web neither made up of static pages nor merely one-way interaction is clearly demonstrated from these terms. Although the term ‘Web 2.0’ looks like a software version serial number which is commonly seen, it doesn’t practically refer to any particular technology. To be more precise, the term Web 2.0 is ‘for an emerging set of Internet-based tools and an emerging philosophy on how to use them’ (Krasne, 2005). Although the definition and the value of the expression ‘Web 2.0’ have been questioned by some people, the fact that the evolution of the Web is utterly explained with this new phase cannot be denied (Kelly, Bevan, Akerman, Alcock & Fraser, 2009).

2.1.2 The types of Web 2.0 technologies

According to the definition of Web 2.0 stated above, the spirit of Web 2.0 can be revealed from the following popular tools related to this research on the Internet: (Kroski, 2008; Farkas, 2007)

1. Blogs

A blog, or Weblog, is a shared online journal or website where people can post entries about their personal experiences, hobbies, professional expertise, or any other interested subject. On blogs, articles are displayed in chronological order. A number of blogs focus on particular issues or themes as their content. In addition to reading, readers can make comments on the content of the blog.

For example, according to Online Education Database (2007), the most popular librarian blog is [librarian.net](http://www.librarian.net)¹³ (Fig. 1). Apparently the topic of this blog is on the subject of librarian, while the blogger, Jessamyn West, has another personal blog¹⁴ which is about her private life. The latest article is on the top of the webpage. Readers of these blogs can leave their message in the comment field.

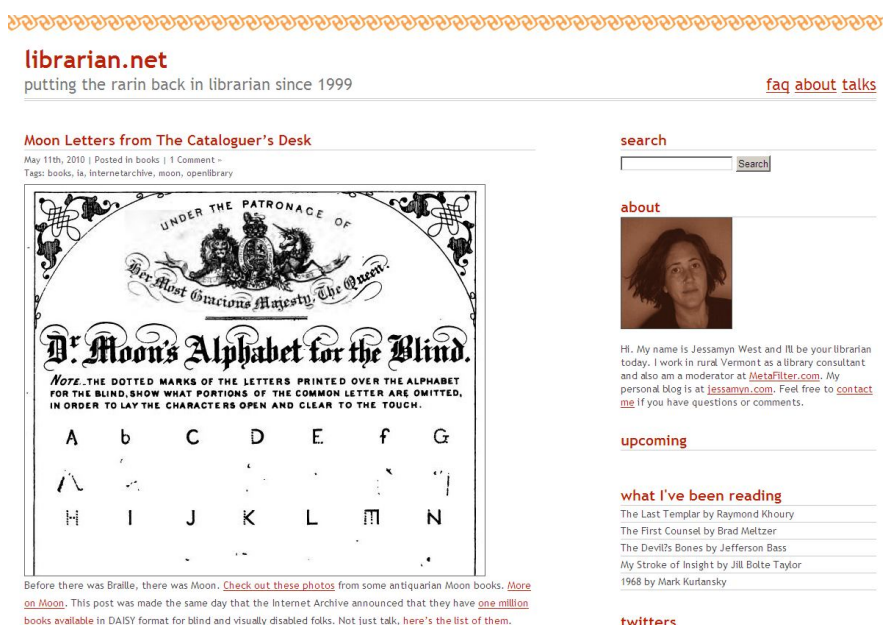


Figure 1. Screenshot of [librarian.net](http://www.librarian.net)

¹³ <http://www.librarian.net/>

¹⁴ <http://www.jessamyn.com/journal/>

2. RSS

RSS is the initial of 'Really Simple Syndication' or 'Rich Site Summary'. Exactly resembling its name, RSS is used to publish frequently updated works, such as blog entries, news headlines, stock quotes, weather conditions, etc. in a standardised format. As a sort of data exchange standard for sharing news and other Web content, RSS is built upon the purpose of providing more convenient and efficient information distributing and exploiting. Via RSS, the sources on the Internet become independent. The information follows users, rather than being attached in the webpages or websites. Whenever the websites are updated, the users receive e-mails which contain the new content, titles, and the posted time. By applying RSS, users connect with websites just like they subscribe the websites. This is very different from the days in Web 1.0 which users had to check the inactive websites one by one to see if they were updated. There are numerous RSS readers such as Google Reader (Fig. 2) and Bloglines (Fig. 3). Users can put the websites they want to follow into their reader interface so that they can be updated with the latest post from each website in real time without wasting time to visit every website.



Figure 2. Screenshot of Google Reader (adopted from Cutts, 2006)

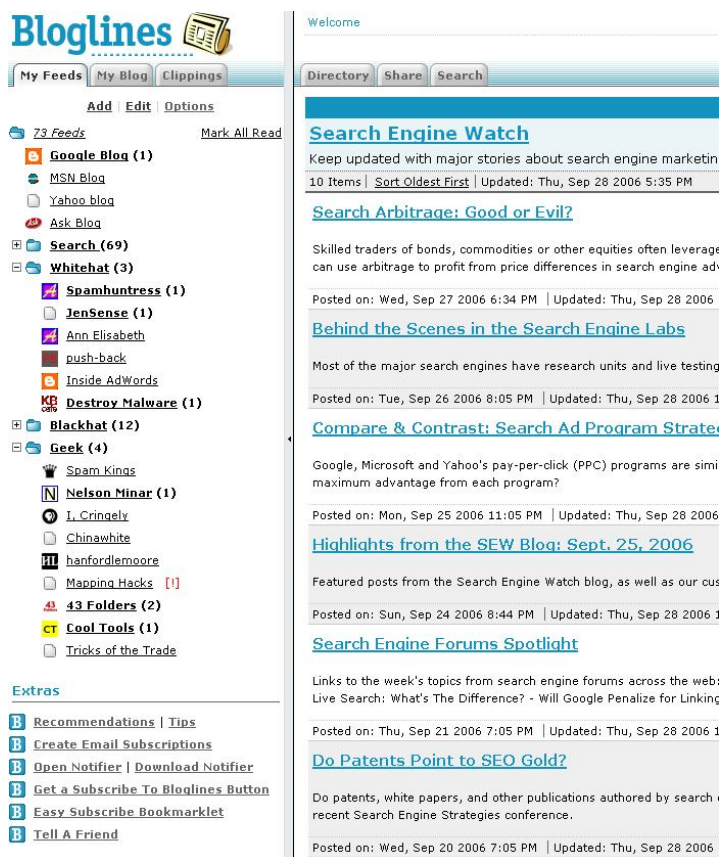


Figure 3. Screenshot of Bloglines (adopted from Cutts, 2006)

3. Wikis

A wiki is a style of server software that allows easy creation, amending Web-based content and editing any number of interlinked Web pages by users via a Web browser (Stephens, 2006b). Wikis enable real-time interaction between the users especially when the content of the collaborative documents change quickly. It is often used to create joint websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems (Atwater-Singer & Sherrill, 2007). Wikis can be time savers especially when they are used for a collaborative project (Kelley, 2008). People can work on the same page at anytime from anywhere without worrying about the version control.

Take Wikipedia¹⁵ for instance. Wikipedia is an online encyclopaedia which advertises it as a 'free encyclopaedia'. Providing conforming to the demands and norms, anyone can compose new entries. If an entry written by other users is questioned, it can be edited or modified. In a wiki environment, the freedom of information is emphasised. Wikipedia is an open, free of charge, public accessible content, and multilingual project (Wikipedia, 2010). People from all over the world can participate in this project by keeping the latest information posted at anytime. Therefore the cooperative wisdom can be produced via the process of collective creation.

4. Productivity tools

In addition to Web-based collaborative environment, a new variety of office applications, which is productivity tools, is thrived in the spirit of Web 2.0. With productivity tools, documents can be edited synchronously by contributors from any location with computers along with Internet connection rather than being e-mailed back and forth. Productivity tools create an online working setting for virtual teams to interact on projects, make communities to cooperate on tasks possible, and help individuals to increase efficiency. The needs to purchase and install pricey office software and check the version and content of the collaborative files are eliminated. Websites such as Google Docs offer access to powerful applications. Users can create and edit documents, spreadsheets, presentations and drawings online in their Web browsers. They can also upload their existing files to Google Docs and modify them just like using the office software installed in their PCs. Since the files are online, sharing and collaborating these resources in real time become workable and straightforward. Furthermore, the owner or the creator of the files is capable of controlling which people can see and edit these files. (Google, 2010)

¹⁵ <http://wikipedia.org/>

5. Photo and video sharing

Since Web 2.0 allows users to publish their own materials on the Internet, there are increasing number of photo and video sharing websites for users to upload and distribute their digital photos and videos online. These websites enable users to share their photos and videos with others, whether publicly or privately. As the websites automatically modify the uploaded files, users do not need to worry about the original formats of their photos and videos. Web 2.0 digital image management is innovated from the idea of sharing the content with other people and encouraging user interaction virtually. These new types of sharing applications embrace the social nature of the participatory Web. They improve the experience of connecting people online not just with plain text information but with images and animation as well. Flickr and YouTube are two recognised triumphant cases.

6. Podcasting and Vodcasting

There is a simple equation to explain what a podcast is: 'Audio file + RSS = Podcast' (Sampson, 2006). A podcast is the combination of 'iPod' and 'Broadcast', which is the mixture of MP3 and broadcasting functions. It is usually in an MP3 format. Via subscribing with RSS, audiences can download the latest MP3 files uploaded to the websites in real time and listen to the podcasts with an MP3 player. Moreover, unlike producing a broadcasting programme which needs expensive particular equipment, making a podcast only requires a microphone, a speaker, and a PC connecting to the Internet, which is fairly easy and low cost. One of the most popular free and cross-platform sound editors, Audacity, is often used to produce podcast files.

Vodcasting is also called video blog, video podcast, and video broadcast. It shares the same idea with podcasting but alters the audio section to video, which make the equation develop into 'Video file + RSS = Vodcast'. With the visualisation effect, video captures people's

attention more than audio or text alone. Vodcasts offer richer sensations for audiences to experience. iTunes is one of the biggest podcasts and vodcasts providers. Users can find music, films, TV programmes, audiobooks, self-learning resources and more on it (iTunes, 2010). Both podcasting and vodcasting efficiently help users to absorb information better by means of multimedia channels.

7. Social tagging

How social tagging works can be literally understood from the term itself. Fundamentally, social tagging is based on the concept of tagging. Users can label and categorise any content online with their own familiar, accessible, and shared vocabulary, words and phrases. This labeling process is called tagging. (Stephens, 2006b). The ‘content’ here means any format of resources and information. The most commonly seen labelled objectives are Web links (‘social bookmarking’), photographs, music, singers, and so on. The behaviour of tagging develops into one of the major choices people organise and manage digital information in a very short time. Social tagging is also known as ‘folksonomy’. Folksonomy indexes user-generated tags created by common people (just plain folks). Comparative with folksonomy, taxonomy is normally generated by small groups of ‘experts’ in the fields. (Sauers, 2009) Since users give the keywords to the objectives with their customary habits rather than fixed terms they are not familiar with, social tagging provides another more flexible way to search on the web. Social tagging has extensive significances for information management, information architecture and interface design. Not only these technical domains but our culture as well is completely influenced by social tagging. (Smith, 2007)

Figure 4 is a screenshot of Delicious. Delicious uses the application of social bookmarking, which is a method for members to bookmark, organise, search, manage and share websites, articles, blog posts, podcasts, images, and any other Web-based materials for future retrieval

in an online space. Since these ‘favourites’ are stored online, they become accessible from any computer with Internet access instead of being limited to the users’ PCs only.

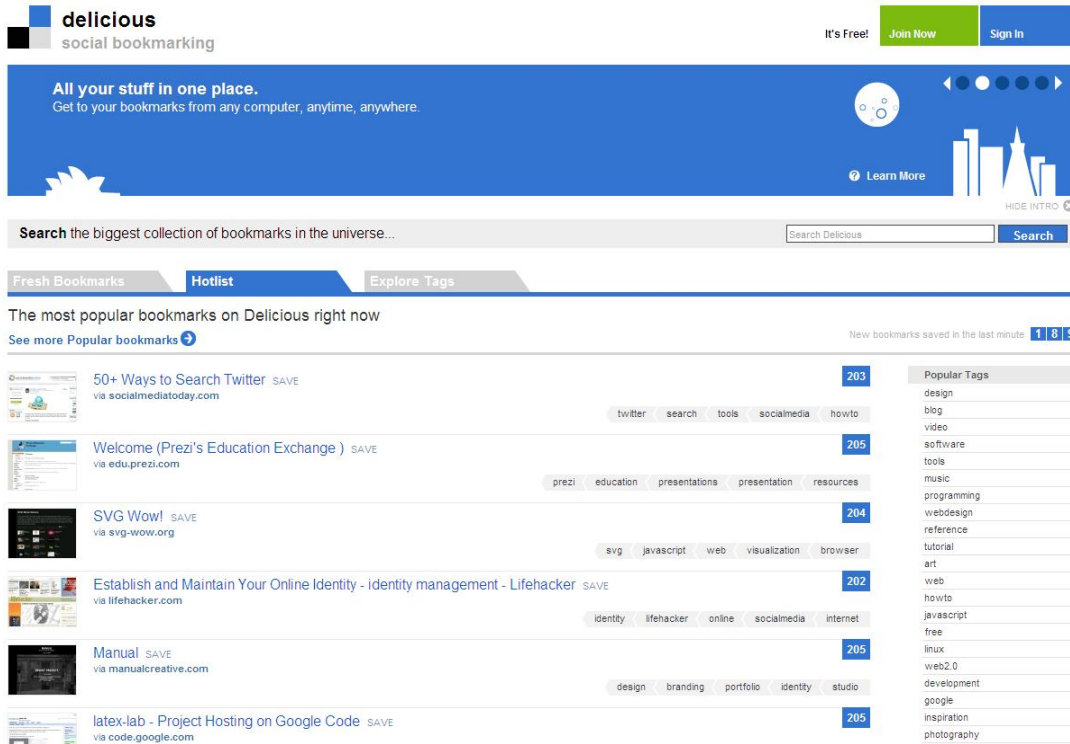


Figure 4. Screenshot of delicious (adopted from Delicious, n.d.)

Another social tagging example is social cataloguing. Take Last.fm (Fig.5) for example. It is a music service that lets users discover new music they like based on the music they already listen to. The process is called ‘scrobbling’, which means ‘to publish one’s music-listening habits via software, as counted events when songs or albums are played, to selected internet services in order to track them over time, out of curiosity and/or to make them visible to others’ (Wiktionary, 2010). The website itself does not have any music files online; instead, it collects the information about the artist, track, album name, etc. of the music that the users listen to, and automatically creates a page for these items (Last.fm, 2008). All of the information is created and updated by the users, including the tags and wikis. Every simple element, such as an artist’s name, a song’s title, or the music type, can be a tag for users to manage their music library and facilitate to search in the whole website.

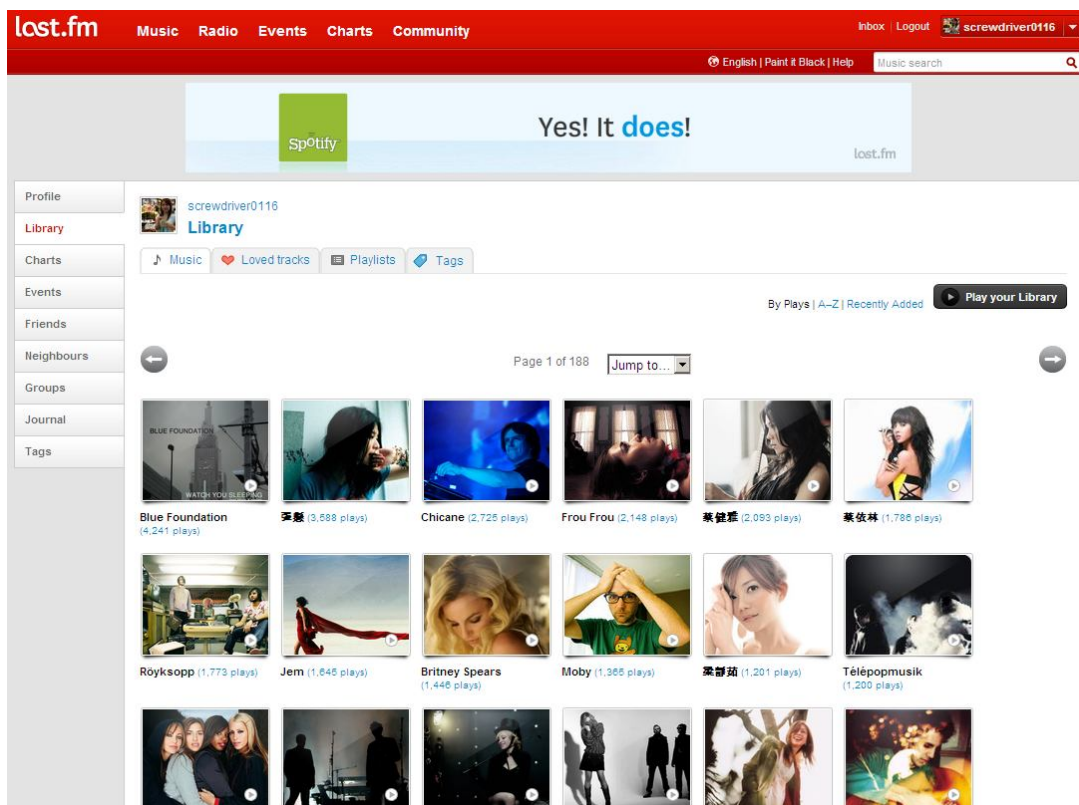


Figure 5. Screenshot of Last.fm (adopted from Last.fm, 2008)

8. Social networking

Social networking websites are virtual places where the members gather to interact and associate with each other. These websites consist of a profile of each user, the groups that the user join in, friends lists, and a variety of additional services, such as user blogs, sending instant messages, e-mails, comments, browsing users, searching, etc. They are online environments where users can look for compatible people and build connections with them. The services that social networking websites supply help users to be creative and to generate original content, for instance blogs, photos, videos, and customised user profiles. Users are allowed to share ideas, activities, events, and interests within their individual networks. Facebook is one of the most celebrated social networking websites. According to the official statistics, there are more than 400 million active users on the website (Facebook, 2010).

9. Instant messaging and VoIP (Voice over Internet Protocol)

Instant messaging is a form of real-time direct text-based communication between two or more people from any location. Messages can be sent out and received, and users can get immediate notice without delay. Instant messaging is one of the primary ways that people around the world communicate synchronously on the Internet. Since instant messaging is easy to use, no cost and can be installed in any PC, it is now being utilised in many organisations and business for both internal and external communications.

VoIP, which is the initial of Voice over Internet Protocol, is also known as Internet Telephony. VoIP means that a conversation is transmitted over an IP network rather than over phone lines. With VoIP and a headset or a phone that connects into a computer's USB port, users can talk to other people over the Internet just as what they would do on the telephone. VoIP has been applied for many years, and its growing reliability and sound quality make it become a mainstream social tool nowadays. Given that instant messaging and VoIP are free, plus they can be applied with a Web cam so that people who are in the conversation can see each other, these kinds of tools are often used for synchronous online reference. Skype (Fig. 6) is one of the examples that provide internet voice and video calls, which is responsible for 12% of global international calling minutes. Skype users made 3.1 billion minutes of calls to landlines and mobiles in the third quarter of 2009, and 36.1 billion minutes of Skype-to-Skype calls in the fourth quarter of 2009. (Skype, 2010)



Figure 6. Screenshot of Skype (adopted from Skype, 2010)

10. Mashups

A mashup is a hybrid web application that combines two or more distinct sets of data and functionality from separate sources, blending them to form something new. There is no content in a mashup in its very beginning. All of the content and functions are from others websites. Through combining the services from these websites, new Internet applications are derived. A mashup can be a website or an application programme. By mixing different content and information from different resources, brand new services are developed.

Flash Earth¹⁶ (Fig. 7) is an example of mashup websites. It is a zoomable mashup of satellite imagery supported by Google Maps, Microsoft Virtual Earth, NASA (The National Aeronautics and Space Administration, US), OpenLayers, and Yahoo Maps through a Flash application. Users can rotate the compass on the Web page or building a permanent link to a certain location. It is mainly for enjoying and exploring images of our planet. (Neave, 2010)

¹⁶ <http://www.flashearth.com/>

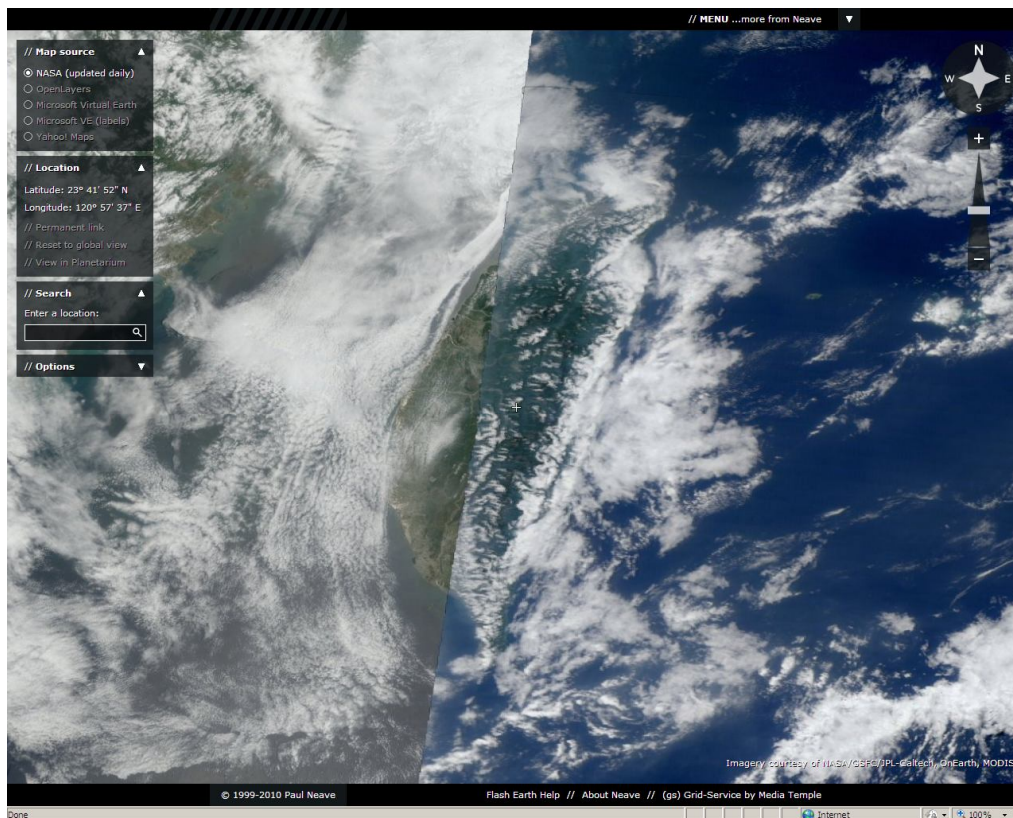


Figure 7. Screenshot of Flash Earth (adopted from Neave, 2010)

11. Personalised start pages

A Web 2.0 personalised start page, such as iGoogle (Fig. 8), which is the personalised start page service provided by Google, enables users to apply RSS technology and aggregate a wealth of information gathered from the Web 2.0 websites mentioned above and even more other applications on a single page with the easy drag-and-drop functionality. Users can collect their favourite news sources, blog feeds, photos, Google Docs, bookmarks, social networking profiles, personal calendars, e-mail accounts, to-do list, and sticky notes all in one place. They can decide how these resource widgets are displayed on their personalised pages. In addition, a personalised start page is a portable homepage; users can access this customised collection from any computer with Internet connection.



Figure 8. Screenshot of iGoogle (adopted from Wikispaces, 2010)

2.1.3 Features of Web 2.0

Needleman (2007) raised six design principles that characterise Web 2.0, which are:

1. The user as contributor
2. Participation not publishing
3. Lightweight programming models
4. Trust and collaboration
5. Software above the level of any single device
6. A rich user experience

Moreover, from the various materialisations of Web 2.0, the five Web 2.0 key traits can be discovered:

1. Software above the level of a single device (O'Reilly, 2005)

The spirit of Web 2.0 focuses on easy-to-access and portable perspectives. Therefore the software and applications with price advantage and high compatibility are preferred, rather than expensive suit packages together with many limitations.

2. Interactive, sharing and participating

Contrasting with Web 1.0 in which news was only provided by a small amount people of large corporations, Web pages were static and infrequently brought up to date, and no more than tech-experts could contribute the content to the websites (Krasne, 2005), the core vision of Web 2.0 applications emphasises on the ability of being interactive. In the environment of Web 2.0, the components and sources on the websites are not just created by few self-appointed experts anymore. Everyone is allowed to contribute his / her thoughts to the websites (Sauers, 2009). One of the important characteristics of Web 2.0 is that individuals move from being consumers of the previous one-way interaction websites, to becoming contributors and collaborators on the interactive platforms (Evans, cited in Baltatzis, Ormrod & Grainger, 2008). The perspective focuses on the idea that rather than just reading the content, accessing the Internet, and passively grasp what are available online, users of Web 2.0 technologies are encouraged to be actively involved in sharing their thoughts, writing and contributing on the Web content as much as they consume (Krasne, 2005). The concept of Web 2.0 has also been considered as 'the read / write Web' (Sauers, 2009).

3. Remixable and convergent

With Web 2.0 applications, users can mix up multiple types of data into a new single output based on their needs and interests. Not only text, but also multimedia such as pictures, animation, audio, video, and even various platforms as well, can be integrated into one single source customised by users to achieve particular objects (Sauers, 2009).

4. Cultivating trust

‘Trust’ is the most important foundation of Web 2.0. Having faith in users as co-developers of the Web content is one of the core competencies of Web 2.0. Since the users confide in the information built on the websites or platforms as the premise, the collective intelligence can be accumulated and harnessed (O’Reilly, 2005).

5. User-centred

From the characteristics mentioned above, we can notice that the ‘user’ plays the vital role throughout the perception of Web 2.0. The websites content are composed of users’ original and innovative thoughts, ideas, and comments (Sauers, 2009). In order to facilitate users, Web 2.0 environment is established with software which users can access from anywhere as long as the Internet is reachable. Without users, Web 2.0 could not function well, and the interactive atmosphere would be totally changed. For the reason that users are considerably crucial in Web 2.0, another distinct consequence, which is personalisation, is brought about (Evans, as cited in Baltatzis et al., 2008). Every blog entry, updated news headlines, or newly uploaded video clips appear on the users’ start pages are requested by users themselves. Users would not be forced to receive or absorb unwanted information. In addition, Web 2.0 enables users to customise their own interface of a website, and it also gives them permission to structure the way how the information gathered is represented. The user empowerment is thereby asserted on account of Web 2.0.

2.1.4 Pros and cons of Web 2.0

Derived from the types and features of Web 2.0, the main advantages of Web 2.0 can be uncovered as below:

Benefits:

1. Ease and alacrity

The most obvious advantage of Web 2.0 is that it is convenient and quick to use. Any user can create a Web page, add content and publish it from any computer with Internet connection. The website can be updated with no trouble, and the audiences can comment on the content. As for a personal page, it can be managed with the user's instinct. The changes made on the website are immediate and available instantly. (Kelley, 2008) Complex techniques are not what users need when they make use of Web 2.0 applications. During the process of publishing and sharing, users' interactivity is increased, and their experiences are improved (Wall Street & Technology, 2008).

2. Multiple communications

In addition to offline social life, people have other virtual connections offered by Web 2.0 with their friends, colleagues, and any other related network. Web 2.0 provides a virtual approach for people to communicate in this PC era. Users can make conversations via comments or through online discussions on blogs, wikis, photo-sharing sites, or social networking websites. (Stephens, 2006b)

3. Effective collaboration

With the assist of Web 2.0, collaboration is enhanced owing to the fact that the barriers of distance and time are vanished. For both online and physical realms, communities are created and improved (Stephens, 2006b). What's more, since there are more choices for communicating, the feedback circumstance is also improved (Wall Street & Technology, 2008). No matter it is criticism, advice or simply a response, the time needed to get feedback via Web 2.0 is obviously shorter (Bilal & Muzahir, 2009).

Weaknesses:

Perez (2009) raised several data security threats about Web 2.0, and there are two major vulnerabilities which are more related to the use of Web 2.0:

1. Insufficient authentication controls

In almost all of the Web 2.0 applications, content is trusted incontestably since it is created and maintained by many users, not just a select number of authorised personnel. As a result, if there is a less-experienced user who posts incorrect information or accidental misinformation, other users may be negatively affected. Additionally, users' accounts may be hacked to publish inappropriate content or automatically install harmful programmes to the PCs. Information integrity is one of the key elements. The reliability of the posted information can be destroyed by a malicious or mistaken user, or users who publish inaccurate information. How to monitor the published content on Web 2.0 websites while they advertise free writing and loads of users are devoted into it is a massive challenge.

2. Information leakage

Since Web 2.0 is handy to access and links the users with their network closely, it gradually blurs the lines between work and private life. People may unintentionally share sensitive or even classified information. It may also cause violations if employees are wrongly consented to the access to certain secure data (Bilal & Muzahir, 2009). Even if individuals do not share business confidential secrets actively, the competitors can gain intelligence about what is being worked on at that company based on the accumulation of the small 'non-sensitive' items shared online.

It is distinguished that progressive business and government institutions as well put Web 2.0 into operation to communicate with their external patrons and stakeholders though Web 2.0

has the pros and cons listed above. In next section, what advantages and concerns apart from the ones mentioned before when Web 2.0 is applied internally will be discussed.

2.2 Web 2.0 for Internal Use

In this section, the significance of internal communication, also the impact of Web 2.0 in internal communication will be discussed. Since there is more literature in business fields containing information coping with the use of Web 2.0 internally in practices, and many of the benefits and drawbacks revealed in business literature is applicable to libraries and any organisation (Pressley, 2006), literature in both information science and business management will be referred to here.

2.2.1 The importance of internal communication

A factsheet revised by the Chartered Institute of Personnel and Development (CIPD) in January, 2010 stated that effective internal communication is a vital constituent part of managing an organisation. The purpose is to build trust among all of the staff, no matter it is horizontally between personnel, or vertically between senior leaders and employees. Good two-way communication, rather than one-way command or acceptance, can be a strong support to construct the 'psychological contract', in which employees feel valued by their employer, meanwhile the employer values the contributions made by employees. (CIPD, 2010) With good and effective internal communications, mutual trust can also be established among the staff. On account of this trust between people, those who work together can share information and have confidence in the shared information as well. Consequently, good internal communication is 'not simply about passing information down; it is also about sharing information, trusting people to interpret that information, and listening to what people say'. (CIPD, 2010)

In the process of internal communication, the same information needs to be delivered through various channels, especially when dealing with essential and influential information. As some people have preferences in messages delivered verbally while others pay more attention to written materials, important information should be declared more than once in more than one way to be on the safe side. There are a variety of methods which can be used in internal communicating. Traditional schemes, such as notice boards and in-house newsletters, are still being employed by numerous organisations. Several formal internal communication approaches, for example top-down communication such as presentations from senior managers, and a team briefings or group meetings, provide more dialogue interactions between staff. In recent years, Web-based technologies have increased the range of internal communication alternatives. Not only intranet and e-mail but also social networking, instant messaging, and other Web 2.0 applications are brought into play by many organisations encouraging their staff to make connections via the Internet. (CIPD, 2010) If the internal use policy is conducted well, these Web 2.0 tools can aid collaboration and innovation (Seybold, 2006). No single communication method can stand alone and work effectively. No matter which manners an organisation chooses to practice, these techniques should be complementary to create a better internal communication environment. (CIPD, 2010)

After the information and messages are delivered and received, a communication cannot be called complete until the feedback is accomplished as well. Feedback is a necessary part of communication. Only when feedback is received does a manager know how an employee feels or how to make a decision (Bryson, 1999). The performance of an individual can be assessed after the feedback is acknowledged. If it is a serious situation, what corrective action should take can also be consulted from feedback. Likewise, employees also require feedback to evaluate and take their own corrective action (Orna, 1990).

Since communication has such great importance in an organisation, training for human resources at all levels in communication skills can be designed as a core part of their jobs. A lack of smoothness of knowledge sharing and poor visibility of senior management and quality of downward communication may lead to worse employee performance, maintenance and negative emotions towards work. With good internal communication, employees feel having opportunities to feed upwards and well-informed about what is happening in the organisation, so that the employee engagement can be prompted. (CIPD, 2010)

Good internal communication is also about consistency. A regular flow of information communicated that people trust, regardless of good news or bad news, is more welcomed than random notice flash which may be seen as disturbance while working. Internal communication is immensely about developing an organisational culture (CIPD, 2010). The ultimate goal of internal communication is to gain a more open working atmosphere for sharing knowledge. Good and strong relations can be a competitive advantage of an organisation (De Wit & Meyer, 2004). Open communication is necessary to create a positive environment for people who work internally, and to make good changes both to an individual and the entirety (Bryson, 1999).

Efficient internal communication can make a good influence on employees to share their expertise and important information about work with other colleagues (Chesbrough, 2003). Additionally, through the process of communication, the management functions, such as planning, organising, decision-making, controlling, motivating and leading, can be carried out (Bryson, 1999).

2.2.2 Advantages of using Web 2.0 for internal communication

Web 2.0 has significant impact on knowledge work, innovation processes and cooperation in enterprises (Fuchs-Kittowski, Klassen, Faust & Einhaus, 2009). According to a survey by Bilal and Muzahir (2009), most managers are satisfied with using Web 2.0 technologies within their companies. Web 2.0 is widely spread and aroused positive responses in such a short time because it has following irreplaceable benefits altogether:

1. Economical

With Web 2.0 tools, an open and customised communication platform can be designed rapidly. These tools are easy to implement in an organisation (Bilal & Muzahir, 2009). Good Web 2.0 software can be obtained from the Internet without any problems, and it is a cost effective option compared with other expensive suit software packages (McIntyre & Nicolle, 2008). Web 2.0 applications which can be used internally such as blogs, wikis, instant messaging, personalised start pages, and so forth are generally inexpensive, and these programmes are simple and flexible in implementation (Fichter, 2005b). Since staff can communicate with each other online, the paper clutter can be reduced at the same time (Stephens, 2006a).

2. Pleasant to use

The well-directed and do-it-yourself interface (Stephens, 2006a) of Web 2.0 makes it spread over broadly, therefore information exchanging becomes faster and easier (Fuchs-Kittowski et al., 2009). Given the simplicity of Web 2.0 software and applications, minimal training and no programming language knowledge is required (McIntyre & Nicolle, 2008). Every staff can learn how to operate Web 2.0, originate their own interface, and apply it in their daily works.

3. Sharing knowledge

Organisational knowledge is often kept only in the memories of staff and is not formally recorded on any media, which makes sharing challenging (Wagner, 2005). Web 2.0 tools, such as blogs, wikis, photo sharing and video sharing are brilliant vehicles to store and share these knowledge and experiences in an organisation (Stephens, 2006a) thus knowledge sharing becomes easy and interesting (Bilal & Muzahir, 2009). Stuckey and Arkell (as cited in Evans, 2007) also pointed out that virtual collaboration tools with a social nature can give support to develop a knowledge sharing custom in an organisation.

From the knowledge shared on the Web 2.0 platforms between colleagues, staff can learn from each other and contribute more creative ideas to work. By breaking down departmental units, Web 2.0 formalises knowledge sharing in an organisation (Wall Street & Technology, 2008).

4. Facilitating archiving

Since organisational knowledge is uploaded and shared among staff with Web 2.0 technologies, online archiving can be achieved simultaneously as well (Wagner, 2005). Web 2.0 can be an approach to make these archives searchable (Stephens, 2006a). Unlike paper manuals or e-mails, archived information can be quickly found by using the tags labeled by the staff or any keyword to search (McIntyre & Nicolle, 2008). Web 2.0 smoothes the progress of centralising storage of up-to-date information, and helps consolidating the information (Wall Street & Technology, 2008).

5. Improving efficiency

Another benefit of using Web 2.0 tools internally is efficient real-time communication (Conlin, 2005) and asynchronous collaboration (Pressley, 2006) are both supported. Web 2.0 applications save staff's time and effort in many situations. For example, a time-consuming

newsletter which requires editing and formatting can be replaced by a blog with regular updates. Binders of 'important information' which can be seen everywhere or the e-mails sent back and forth and back again can be replaced by a wiki while collaborating on a project with colleagues (Kelley, 2008). Lots of literature, for example which were written by Shoesmith, Durland, Kavanagh, (as cited in Pressley, 2006) and more, makes strong cases for Web 2.0 supporting efficient, effective, real-time and asynchronous communication within organisations.

6. Increasing productivity

Since staff are empowered by Web 2.0 technologies, employees become more productive when using Web 2.0 collaboration tools (Bilal & Muzahir, 2009). Both individual performance and team work are more competently owing to quicker access to resources needed for work and easier collaboration (Dawson, 2009). In addition, data presentation is enhanced. The interaction between multiple data sets are visualised simultaneously which the outcome can be understood at a glance (Wall Street & Technology, 2008).

7. Enhanced staff engagement

Since the virtual interaction between staff grows, the cooperation linking employees beyond departmental barriers and the integration of the employees are increased (Fuchs-Kittowski et al., 2009). Staff who is professional or majors in a certain subject can post the best answer to a question raised by others (Bilal & Muzahir, 2009); people who are shy can also use Web 2.0 as a platform to express their opinion. From this procedure, both professionalism and confidence of the staff can be increased (McIntyre & Nicolle, 2008). Web 2.0 is a participatory, distributed, connected and evolving environment. The content on Web 2.0 is dynamic and open (Bilal & Muzahir, 2009), which offers an ideal setting for peer mentorship in an organisation. As a consequence of these online activities, the informal interactions

become meaningful and the staff are unified, hence the connotation of team unity is established (Baltatzis et al., 2008).

8. Superior collaboration

Web 2.0 tools inspire staff's confidence and knowledge, thus collaborations are more effective and precise. Web 2.0 tools facilitate personnel from different departments who work together on the same project to storage the information and knowledge, manage team members, plan tasks and schedule, and ultimately reach excellent internal collaboration. By using Web 2.0 applications, staff can easily work together with each other. It saves time and makes the most use of the organisational resources, so that the final product can be delivered on time (Bilal & Muzahir, 2009).

Web 2.0 is not for managerial or supervisory purpose, but for a collaborative principle that all of the members in a team can contribute their ideas to the working project, or even to the organisation (McIntyre & Nicolle, 2008). The spirit of Web 2.0 collapses the barriers between departments, and it also leads managers being more approachable to the employees (Baltatzis et al., 2008).

9. Fostering wide reaching trust

Web 2.0 applications establish trust in an organisation from each individual's small actions like posting, commenting, discussing, and sharing. And because of the information on internal Web 2.0 websites is transparent, each staff knows what is happening within the workplace (Stephens, 2006b), which helps the staff to feel secure. Since staff learn how to trust each other from these movements, cooperating is finally feasible. This trust is possibly strengthened between each person in the organisation eventually, no matter which hierarchy he or she belongs to. Crosscultural issues may be alleviated as well because of the trust atmosphere cultivated by Web 2.0 tools (Baltatzis et al., 2008).

10. Fitting multiple locations and time zones

A stronger sense of community in an organisation can be developed with Web 2.0 technologies, especially when the subdivisions are in different locations and various time zones, and between staff who may seldom meet in person (McIntyre & Nicolle, 2008). What's more, collaborations of trans-national virtual teams are still practicable on account of Web 2.0 applications exploited in internal communication (Baltatzis et al., 2008; Cunningham, 2010). This benefit is especially useful for a company having many branches, or a university possessing more than one campus.

2.2.3 Concerns of using Web 2.0 for internal communication

1. Information mishandling

Web 2.0 applications make the division between personal life and workplace becomes vague. People may manage their networks and connections within the same Web 2.0 technique, such as a blog, or a social networking website. Information which can be revealed to colleagues at work may be very different from the things shared with friends (Baltatzis et al., 2008). Certain confidential information may be accidentally given away (Fichter, 2005b; Tebbutt, 2005). Some organisations doubt about the theory of knowledge sharing, as an interviewee said in Baltatzis, Ormrod and Grainger's (2008) survey, 'People don't want to share information... They take ownership of things, don't like giving it up'. This thought may cause information unreliable (Dawson, 2009). In addition, an organisation may not prepare well enough to contend with the information published publicly on the Web 2.0 websites (Bilal & Muzahir, 2009). These abuse possibilities may cause organisations to avoid Web 2.0 technologies (Fichter, 2005a).

2. Security risks

Since many users have a tendency to ‘remember’ their login information for their most visited websites, hackers have succeeded in stealing user login information and manipulating user profiles to publish spam posts or irritating messages (McGillicuddy 2007). In order to avoid such dangers, a firewall is necessary when implementing Web 2.0 within the organisation (Baltatzis et al., 2008; Fuchs-Kittowski et al., 2009). Besides, as most of the popular Web 2.0 services depend on third-party corporations, how to certify if the servers in these companies are secure is another question (Kelly et al., 2009).

3. Inadequate content control

The Internet can be considered as the fastest copy machine in the world. Any information can be duplicated and spread globally within seconds (Bilal & Muzahir, 2009). It is too open, which should be the strength of Web 2.0 tools, to control the content. The lack of control is a built-in nature of Web 2.0 software (Niles, 2005), and it causes the potential consequences such as cyber-bullying, insulting, the risk of lawsuits, and so on (Baltatzis et al., 2008). Yet, augmented internal policies for using Web 2.0 may trigger staff’s denial of working with these applications. These over controlled policies disobey the freedom of expression, and also spoil the factor that Web 2.0 environment relies on user-created content (Baltatzis et al., 2008). How to get rid of the harm from fast-speed broadcasting while enjoy the benefit brought by Web 2.0 internal communication tools is a dilemma to resolve.

4. Distracting staff

If Web 2.0 tools are misused by employees, their motivation and also the organisation’s reputation may be influenced. Staff may waste their working time mistreating Web 2.0 tools for example chatting and browsing others’ profiles while at work. This may affect the progress of a team project or make deliverables delayed (Bilal & Muzahir, 2009). In this

fashion, Web 2.0 software would distract staff, rather than support innovative internal communications (Baltatzis et al., 2008).

5. Not corresponding with the existing organisation culture

The implementation of Web 2.0 applications internally may cause another more challenging problem, which is fundamental organisational philosophies being conflicted. Before Web 2.0, the IT usage in a company was built upon the resource-based view of the firm (Porter 1980, as cited in Baltatzis et al., 2008). The traditional viewpoint of work and communication was based on the division of labour, and it assumed that staff's performance may be poor owing to their personal incidents (Florida, as cited in Baltatzis et al., 2008). Since Web 2.0 tools offer modern and horizontal channels for internal communication which may not be accepted by a traditional and vertically structured organisation, the managers may see Web 2.0 applications as threats to their existing power relations or current work practices in this hierarchical setting (Baltatzis et al., 2008).

6. Bandwidth problem

From a technical standpoint, considerable Internet bandwidth may be necessitated when accessing Web 2.0 websites. Since various content from different sources on the Internet is displayed at the same time by many staff, additional bandwidth costs may be derived from video sharing sites or other Web 2.0 tools (Dawson, 2009).

2.2.4 Suggestions for using Web 2.0 internally

Since Web 2.0 applications are accommodating and flexible to use internally, they should be chosen and implemented carefully according to the organisational needs and be able to foster the mission and vision of the organisation. Internal Web 2.0 communication tools do not need to restrict themselves to the traditional routine (McIntyre & Nicolle, 2008). But

because Web 2.0 applications have some drawbacks too, before putting any of the tools into practice, the organisation should understand that the culture is changing; there should be a willingness of the staff to engage with use of such services (Kelly et al., 2009). However Web 2.0 software is possible to be a time waster, an irritation and a bore if used without reason (Kelley, 2008). The organisation is obliged to recognise the needs of 1) raising staff awareness about Web 2.0 capabilities and potential risks, and 2) ensuring the applications thriving in improving internal communication (Kelly et al., 2009), rather than chasing the trend blindly.

In order to create a healthy online internal communication environment with Web 2.0 techniques, establishing a usage policy which formalise how staff should behave when using Web 2.0 tools within work is the first step. A basic cycle of information policy development by Orna (1990, Fig. 9) can be referred to. Staff should be communicated fully before launching the applications (Cunningham, 2010). Guidelines for the types of implemented Web 2.0 tools should be available for the staff to consult (Tebbutt, 2005). Proper quantitative and qualitative trainings about Web 2.0 tools are always necessary for staff to keep learning and acquire more confidence in their work.

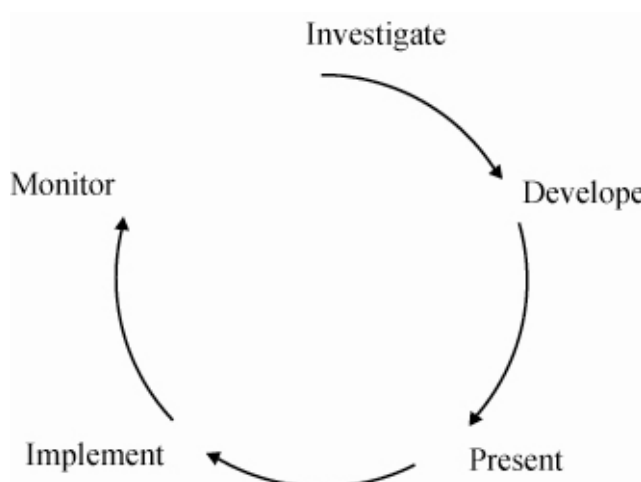


Figure 9. Information policy development: the basic cycle (Orna, 1990)

On the other hand, organisations need to certify that if the internal use of Web 2.0 tools negatively impacts other more mission critical applications, for instance, customer relationship management systems. Organisations have to make sure that they have enough Internet capacity to support both Web 2.0 tools and other business strategy designed systems smoothly at the same time (Cunningham, 2010). Organisations also need to evaluate the outcome of communicating with Web 2.0 channels regularly; appropriate adjustments can make the internal communicating process more enjoyable and efficient.

In brief, Kelly, Bevan, Akerman, Alcock and Fraser (2009) raised six points to maximise the dividends of Web 2.0 tools:

1. Advocacy
2. Listening
3. Training, education, staff development and new media literacy
4. Amplified conferences
5. Preservation in a Web 2.0 environment
6. Personal responsibilities and content

Stephens (2006b) also provided ten steps for staff buy-in for technology projects:

1. Listen to your staff
2. Involve staff in planning
3. Tell stories
4. Be transparent
5. Report and debrief
6. Do your research

7. Manage projects well
8. Formally convene the emerging technology group
9. Training 2.0: let everyone play and experience
10. Celebrate successes

To sum up, organisations which would like to implement Web 2.0 tools as internal communication channels can follow the IT strategy shown in Fig. 10 (Orna, 1990):

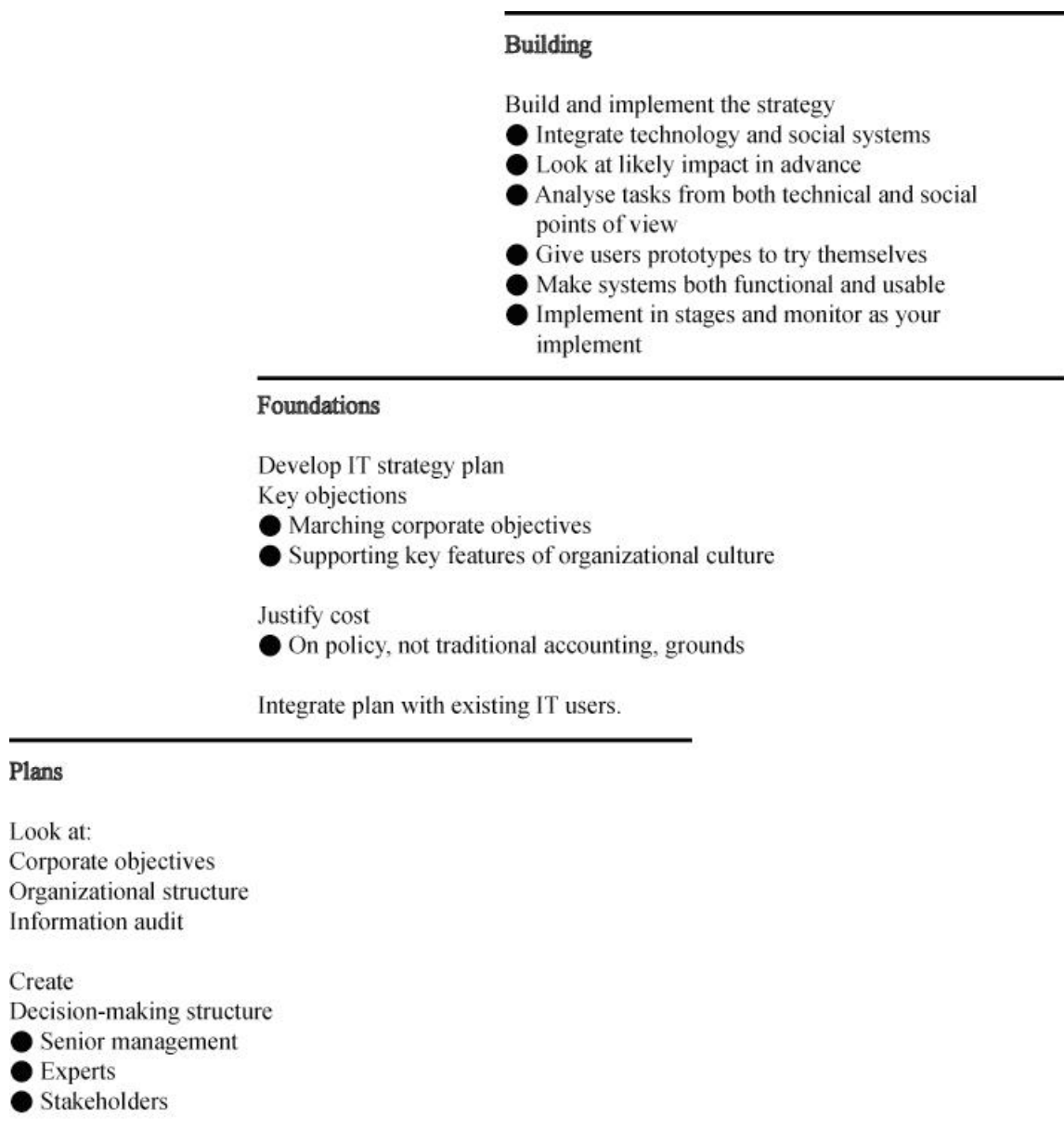


Figure 10. Steps to a successful IT strategy (Orna, 1990)

2.2.5 Cases of Web 2.0 internal use

Web 2.0 technologies have been put into action in businesses for their internal communication and the reactions are quite well. For example, Bellman (as cited in Baltatzis et al., 2008) discovered that the organisations he surveyed had reduced their phone usage by 81 percent and e-mail usage by 67 percent after applying instant messaging software for internal use. In 2005 at the First European Information Architecture Summit in Brussels, Belgium, the BBC (British Broadcasting Corporation) internal Web 2.0 alternatives to the classical knowledge tools, which were blogs and wikis, were presented (Euro IA Summit, 2005). The BBC uses blogs and wikis is because

The benefits are that we all get access to the accumulated experience and knowledge of 25,000 staff. Work related questions get sorted in minutes on the bulletin board and people are able to identify the right people to call on for help from the blogs and skills database. Getting 6000 or so questions answered in a month, even if they were minor ones, which many are not, adds up to a significant saving. (Semple, as cited in Wackå, 2005).

Since the BBC has numerous subdivisions in worldwide locations, Web 2.0 tools do assist the internal communication and international cooperation in the corporation a lot easier. What's more, besides the young, tech-savvy journalists, the BBC administrative staff use these tools in their work as well (Wackå, 2005). Blogs have gradually replaced conventional newsletter and run more functions internally in many companies (Kelley, 2008). Plus as founded in a research by Fuchs-Kittowski, Klassen, Faust and Einhaus (2009), 'Wikis are the most widespread Web 2.0 application in enterprises', and 'The most popular area of use for Web 2.0 is the project team', the attractiveness of blogs and wikis for internal collaborations can be undoubtedly realised. Most of the cases located in the literature are also more about blogs and wikis.

Not only businesses, but also universities, academic libraries, national research institutions, etc. start to implement Web 2.0 tools to foster communication and collaboration internally. The University of Wolverhampton initiated their Web 2.0 internal communication with: (Kelly et al., 2009)

1. Blogs. The University has several project-related blogs and internal communication blogs for staff to cooperate with each other virtually.
2. Wikis. A number of wikis are being used for sharing information internally.
3. Online calendars. Google Calendar has been used in the University to manage events. Compared with editing different agendas in different departments and then combining these timetables as one, updating a shared calendar by each staff online is much easier. This shared calendar is very useful and convenient for scheduling complex activities among various units, for instance, demanding induction weeks.

University of Canterbury Library (in Christchurch, New Zealand) uses blogs for internal communication. The Library's collections and services are spread across several library buildings on two campuses. Full time and part time staff, qualified and unqualified librarians, also employees who work outside normal office hours therefore have limited contact with day time staff, are the elements of the Library. The internal blogs solve a number of long-standing internal communication problems caused by managing both the staff and the information services with manuals, e-mails and inactive system. The situation that the information was scattered in several locations and could not be handled effectively is improved after implementing the blogs. (McIntyre & Nicolle, 2008)

The National Research Council Canada Institute for Scientific and Technical Information (NRC-CISTI) serves as the library for the National Research Council of Canada. It provides services both to a central campus library on the main campus in Ottawa, as well as to research institutes across Canada. CISTI is also Canada's National Science Library and Publisher. Within the library, an intranet wiki has been exploited. Researchers can retrieve the information in a single website; also they can update and correct any content related to their projects. This intranet wiki is particularly effective when organising work on projects as team members situated in different labs. (Kelly et al., 2009)

Jenkins Law Library released its brand new 'Intranet 2.0' in 2005 to foster collaboration within the library. Before Intranet 2.0, the Library applied Intranet 1.0 which was a pure Web-based version to manage their HR forms, policies and procedures, and other documents. Staff could download files, search for information, and submit requests via the website. Nevertheless after around four years, the intranet was exploding with information and documents. It was so much that people had stopped searching for files and just asked where the files were, or even stopped using it. In Intranet 2.0, there is a newly designed home page with dynamic interface containing a blog, a shared calendar, a RSS function for staff to subscribe the blogs they read, and a weather widget. Also there is a wiki for staff to contribute their work. The profile page of each staff can be edited and updated by the individual, and each profile is linked with HR departments' database so that everyone's contact and basic information can be kept up-to-date without keying in by HR personnel. The status of unsolved problems or the progress of a team project can be followed on this Web 2.0 intranet. It is so user-friendly and everyone has the ability to manage his or her work efficiently, that the staff feel comfortable working with these Web 2.0 applications. (Engard & Park, 2006)

From the literature, more companies, universities, almost all types of the libraries, institutions and other sorts of organisations employing Web 2.0 applications for internal communication and collaboration were discussed and listed. Here certain selected cases from different areas were illustrated to show that excluding socialising functions, Web 2.0 techniques can be handy tools fitting in offices.

2.3 Chapter Summary

This literature review provided a brief overview of relevant issues concerning Web 2.0 technologies applied in an organisational internal setting. First of all, the definition, its different manifestations, also the characteristics of Web 2.0, were explored. And then the pros and cons of Web 2.0 were listed. Concerning Web 2.0 for internal use, the importance of internal communication was mentioned. The advantages and concerns of using Web 2.0 as internal communicating path were reported. Some suggestions were provided as well. Several cases using Web 2.0 for internal communication were discussed in the end of this chapter.

CHAPTER 3 - RESEARCH DESIGN

In order to survey how people think of executing Web 2.0 applications for internal communication in an organisation, a qualitative research project was initiated in Loughborough University Library. In the following sections, the research methodology, sampling, data collection, and data analysis techniques will be illustrated. In addition, ethical considerations and research limitations will be explained in the last part of this chapter.

3.1 Methodology

In this survey, a qualitative scheme using a case study method was applied to identify and investigate the staff's attitudes towards Web 2.0 for internal use in Loughborough University Library. According to Stake (as cited in Patton, 2002, p. 297), 'Case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances'. With the intention of acquiring relevant information, comprehending the level of awareness about Web 2.0 perceptions, and exploring current internal communication with or without Web 2.0 tools in the Library, a case study research method is suitable for empirically examining such existing phenomena in the Library.

3.2 Sampling Technique

According to Pickard (2007), 'Qualitative case study research always uses purposive sampling to identify information-rich sources within the case' (p. 88). Purposive sampling is useful when reaching a targeted sample in a short time is necessitated, and the opinions of the target population are readily to access. (Trochim, 2006) In this survey, purposive sampling technique was used to collect sufficient information about internal communication and Web 2.0 views from the sources, which were the 83 staff working in Loughborough University

Library. Data collection methods selected to assemble facts from the staff are justified in next section.

3.3 Data Collection Instruments

Various methods were evaluated before starting data collection so as to identify the most appropriate techniques for this survey. Questionnaires, interviews, focus groups, observational studies, documentary analysis, and action research (Payne & Payne, 2004) are the most common methods for collecting people's attitudes towards certain topics in empirical researches. In this survey, interviews and a questionnaire were the two approaches used to gather primary data.

3.3.1 Key informant interviews

With interviews, participants are encouraged to share in-depth opinions in their own words. Interviews can be structured, unstructured, or semi-structured based on the types. Structured interviews follow a strict interview schedule. Before interviewing, the content and the procedure are standardised, thus structured interview is also called 'standardised interview' (Struwig & Stead, 2001, p. 98). The implementation of structured interviews obeys the planned questions, set options and exact order so that the interviewer can control over the responses. Yet little flexibility is consented when issues raised are going to be discussed in more detail in structured interviews (Moore, 2005, p.129). Unstructured interviews (which are also called 'unstandardised interviews') have neither pre-defined questions nor a scheduled procedure to stick to. There is no limitation for participants to express their viewpoints so that the conversation is unbound, which causes an unsystematic results (Payne & Payne, 2004, p.132). Semi-structured interviews are between structured and unstructured ones. The interviewees may be asked a series of structural questions, and then open-ended questions are used to explore more complete and detailed information. Such an

approach is usually conducted with a pre-designed questionnaire without pre-arranged answers for interviewees to select. Therefore the interviewees may respond the questions without restraint. On the other hand, interviewers conducting semi-structured interviews do not have to complete the process in accordance with the sketch precisely; they can make amendments and supplements at anytime during the interview according to the respondents' experience and background. (FAO, 1990)

In this survey, semi-structured interviews with key informants in Loughborough University Library were performed. Key informants are 'people who are particularly knowledgeable about the inquiry setting and articulate about their knowledge' (Patton, 2002). Through key informants' insights, an observer can understand what is happening, and also the causes of a certain issue to a greater extent. Pickard (2007, p. 88) also mentioned that in a case study, 'there are "key informants" who will have a great deal of knowledge about the case as a whole and what goes on at a variety of levels within the case'. UNICEF (2006) also defined a key informant interview as follows:

The key informant interview is a standard anthropological method that is widely used in health related and other social development inquiry. This is one method used in rapid assessment for gathering information from the affected community. The term 'key informant' refers to anyone who can provide detailed information and opinion based on his or her knowledge of a particular issue. Key informant interviews seek qualitative information that can be narrated and cross checked with quantitative data, a method called 'triangulation'. (p. 197)

Triangulation strengthens a research by combining several quantitative and qualitative approaches, methods, or data (Patton, 2002, p. 247). Thus in this survey, two approaches

were applied to gather more relevant data to support the qualitative findings from the key informant interviews:

- 1) Interviewing the Library staff, so that an in-depth understanding of their Web 2.0 internal usage and other aspects they wanted to raise related to the internal communication in the Library could be explored, and
- 2) A questionnaire, which will be stated in next section.

The researcher travelled to Loughborough, UK to accomplish the key informant interviews. The surveyed Library had been also directly observed and explored during the internship in November and December, 2009.

3.3.2 Web-based questionnaire

A questionnaire is a tool used to gather both quantitative and qualitative information. With a questionnaire, the respondents' perceptions or attitudes towards certain social facts can be measured, and their behaviour can be explored as well. Questionnaires can easily be distributed to a considerable number of participants in a short time. Additionally, from the collected results, the trends and comparison between respondents can be identified. A web-based questionnaire can overcome geographical or national boundaries, allows anonymous responses, and it saves time, paper, and postal costs. Since the response data is transmitted through the Internet to the online questionnaire software system, consequently, the results can be analysed directly without spending time and effort keying in the collected data. (Pickard, 2007)

Although questionnaires are handy to accumulate large sets of data, in-depth discussions and long expressions are not allowed in this manner of data collection technique. Hence

interviews, as mentioned in 3.3.1, were carried out as well. In order to answer the web-based questionnaire, the respondents need certain computer and Internet literacy. What's more, if respondents do not completely understand the query in the questionnaire and cannot get help from the researcher immediately, mistakes due to wrong interpretation of questions may occur. Besides, technical problems such as the questionnaire being classified as a junk mail by e-mail spam filtering scheme, or participants' fear of viruses, may generate a low response rate. (University of Leicester, 2006)

The questionnaire used in this survey (attached in Appendix 2) was divided into three sections: information about the respondents and their work, their Web 2.0 use for internal communications, and their opinions on Web 2.0 for internal communications in the Library. The majority of questions were designed for the staff to select (an) answer(s) from a list or on a rating scale, which assisted quantifying results to collect respondents' opinions about the evaluated theme. With the purpose of facilitating the data analysis process, only five open-ended questions were given to offer the respondents opportunities to express their opinions.

The online questionnaire was conducted using QuestBack¹⁷. It took place after the pilot study. A covering letter was written before the questionnaire to notify the respondents of the rationale of this research, the time might take to complete the questionnaire, the contact details of the researcher, and the confidential principle of all responses. The web-based questionnaire was distributed to all staff members in the Library via Dr. Graham Walton, the Service Development Manager of the Library, to avoid low response rates due to spam filtering or concern for viruses.

¹⁷ <http://www.questback.com/>

3.4 Pilot Studies

After the questions in both key informant interview and web-based questionnaire had been designed, a pilot study was undertaken to ensure that all instructions and questions were clear and understandable, and to guarantee the accessibility of the online questionnaire URL. Any potential problems could be raised and resolved during the process of pilot studies before the interviews were carried out and the questionnaire was distributed, thus the collected results would not be influenced. A proper length of time to finish an interview and a questionnaire could also be calculated from the experiences of the pilot study so that the question numbers could be adjusted. (Teijlingen & Hundley, 2001)

3.5 Data Analysis Methods

3.5.1 Key informant interviews

Excluding the interviewees who chose not to be taped, all of the key informant interviews were noted down, recorded and transcribed. The notes and the transcripts, which were the 'data' collected from the key informant interviews, were analysed with an open coding procedure. Open coding scheme assesses the gathered information by de-constructing the data into words, phrases, or sentences, taking them apart, and examining the separate elements for differences and similarities (Pickard, 2007, p. 243). By means of these breaking down, examining, comparing, conceptualising, and categorising steps, the opinions of the interviewees with regard to the interview subject can be detected and applied to the research.

3.5.2 Web-based questionnaire

The results collected from the online questionnaire were illustrated in figures or tables created by QuestBack. Although the results were displayed in the format of numbers and statistics with several plain text comments, they were basically data in quantifying forms supporting this qualitative research to explain the investigated phenomenon in the Library. In addition to describing the present internal communication situation in Loughborough University Library, a number of comparing and interpretation were exploited as well. Several comparisons were made to measure different attitudes and opinions between the staff from various positions in the Library. Cross-tabulation technique was applied to analyse the connections between the variables in the questionnaire. Cross-tabulation is 'a table that illustrates relationships between responses to two different survey questions by using response choices to one variable as column labels and response choices to a second variable as row labels' (The University of Texas at Austin, 2007). The relationships between the variables can be identified with the presentation in a tabular form, which helps to discover more factors from the research.

To conclude, in order to survey people's knowledge about Web 2.0 and how Web 2.0 tools affect internal communication in an organisation, the reactions to Web 2.0 from Loughborough University Library were assessed by two methods: key informant interviews and an online questionnaire. The entire research process can be outlined as Fig. 11 below:

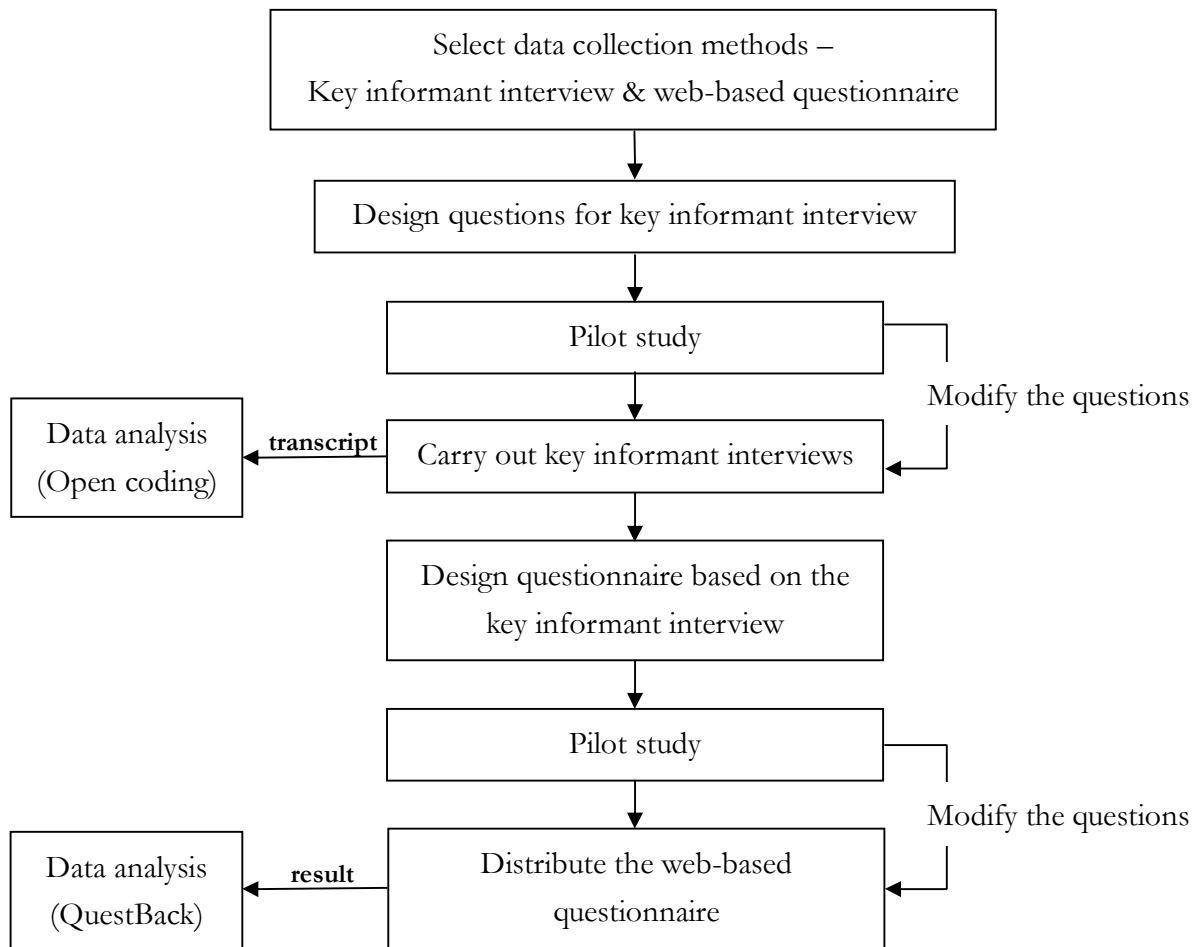


Figure 11. The steps for the qualitative research of this thesis

3.6 Ethical Considerations

The uses of human subjects were involved when collecting data for this research, therefore ethical considerations were indispensable. All prospective respondents were informed about the aims of the research and the researcher's current e-mail address in case the participants required any information of the interview, questionnaire, or any other relevant concerns or problems about the research. Confidentiality was assured to the respondents. Every response in the questionnaire was anonymous, and the collected data stored on QuestBack website was only accessible with the researcher's username and password and is only valid until August, 2010. Except for the interviews which were performed face to face, no personal

information, including actual names and e-mail address, was collected during the data collection process. All the names of the interviewees have been replaced with 'Interviewee #n' in this thesis if necessary. Furthermore, the interview recordings and transcripts would not be available to ensure the confidentiality.

3.7 Research Limitations

This research only examined Web 2.0 internal communication in a particular university library, which may not be persuasive enough to portray the general phenomenon in all libraries and organisations. In addition, more staff would have been interviewed to obtain more possible ideas if more time had been available for this study.

3.8 Chapter Summary

This chapter detailed the qualitative methodology which this case study applied. Sampling strategy and techniques, data collection instruments which contained key informant interviews and web-based questionnaire, and pilot studies, were included. Data analysis methods were discussed as well. Finally, the ethical considerations and limitations of this research were specified.

CHAPTER 4 - SUMMARY OF RESULTS & DISCUSSION

4.1 Summary of Results

The primary data collection methods, which were key informant interview and online questionnaire, were designed to gather staff's perceptions on issues of staff's attitudes towards current internal communication within Loughborough University Library, as well as their thoughts about implementing Web 2.0 tools for internal purpose. In the following sections, the results of the data collected will be summarised. Furthermore, the aspects of Web 2.0 which had been identified and investigated from the literature review, including perceptions on the types of Web 2.0 technologies available for both patrons and staff, the usefulness of Web 2.0 tools in an internal setting, staff's attitudes toward Web 2.0 technologies, the challenges of using Web 2.0 tools, and how to increase the usage of Web 2.0 internal communication, will be discussed in 4.2.

4.1.1 Key informant interviews

Structure

The key informant interviews explored the current situation of internal communication in Loughborough University Library, also the opinions about Web 2.0 for internal communication from different staff's perspectives and experiences in various roles. Each interviewee was asked 10 main questions, while certain of the questions had prompt questions encouraging the interviewee to share more ideas. Each interview was no longer than 30 minutes. The schedule can be found in Appendix 1. All interviews were completed in December, 2009.

Participants

Six library staff members volunteered to participate in the key informant interview. They were on different positions from various teams of the Library, which assisted gathering an assortment of insights on the subject of Web 2.0. The demographics of the participants were summarised in Table 1 below.

Table 1. Demographics of key informant interviewees

Interviewee	Sex	Team	Role
#1	Male	Administration	Head of Planning & Resources
#2	Male	Customer Services	Customer Services Manager, Part-time & Distance Learning co-ordinator
#3	Female	Social Science and Humanities Team	Part-time Library Assistant
#4	Female	Social Science and Humanities Team	Academic Librarian
#5	Male	Systems Team	Library Systems Manager
#6	Female	Social Science and Humanities Team	Head of Academic Services

Current internal communication in the Library

Although the interviewees were in various teams doing different jobs, they all had to communicate or cooperate with people in the Library, or employees / personnel within the University. Based on their experiences, all the interviewees agreed that good internal communication is important for their work. They stated the reasons why internal communication is essential as follows:

‘It is good that Loughborough University has only one campus and one main library building so that all staff can work together; it is better for people to communicate.’

‘There are daytime, evening, and weekend staff working in different time in a week. It is impossible to meet and communicate with all staff at the same time.’

‘When new people come and not being introduced, it is hard to communicate because we don’t know them. A good team leader who always passes things is important.’

‘It is important to let people know what is going on, and what decisions being made.’

With regard to present internal communication in the Library, since most of the staff were approachable in the Library, face-to-face communications were widely preferred by the interviewees. They could distinguish ‘whether the person taking on board the message, whether they agree or disagree, and whether they understand’ (Interviewee #6) during the communication process. In addition, ‘staff could ask any question they’re not clear of’ (Interviewee #2). Without face-to-face communication, people could take things wrongly.

Other than face-to-face manner, the primary communicating tool inside the Library was e-mail. Since not all of the staff in the Library could meet at the same time, it was convenient for everybody having chances to check e-mails and get the information. Yet some receivers either did not pick the e-mails up because of information overload, or they read it but chose to disregard, or even misunderstood, or just forgot they had seen it as they received many e-mails. This is a common problem of written messages; writing them down does not mean people will see, absorb, and take action. Besides, how to give an e-mail a proper subject so that in the future the content can be easily acquired was also a problem. These factors made e-mail scheme inefficient.

Other communication approaches used in the Library mentioned by the interviewees included file folders with an index in front, group meetings, printed meeting notes and a FTP (file transfer protocol, which was called ‘U drive’ in Loughborough University Library)

system. The U drive did not work well according to the interviewees. Since each team has a folder in U drive, too much information was on that space to find needed things. The quantity was so large that the staff did not know what precisely was in there. In addition, how to search a file in U drive was a question. Before the staff uploaded a file, the file name and which folder to put it in were other issues. As a result, the U drive was not used regularly by staff. One interviewee thought that it would be better to have a direct link for everyone to access the location of the file, rather than opening the file folders one by one. One suggested that U drive should be ditched and replaced by other more effective tools.

Almost all of the interviewees had experiences using so-called Web 2.0 technologies either for work or in their private life, or for both. One interviewee posted articles onto one of the library blogs regularly without realising a blog is a kind of Web 2.0; as one of the interviewee neither utilised Web 2.0 nor comprehended it since using a PC was not a daily routine. In the Library, some Web 2.0 applications were applied for internal use. For example, one of the internal blog, which was obviously helpful within the Library, was used to report counter desks problems so that other staff could get relevant information; wikis were exploited as team information platforms, manuals and handbooks; podcasts were used to share good things to use in the Library teaching sessions. Based on the interviewees, these tools worked quite successfully in the Library. Some of the interviewees thought that these Web 2.0 tools make their work easier therefore they were keen on using these applications. Moreover, they considered blogs and wikis as forms of repository of knowledge. The information shared on these applications is searchable. People can find required things quickly and easily. To the staff, Web 2.0 tools such as blogs and wikis provide a central storage space storing all in one place, instead of keeping the same information in several places.

The interviewees also mentioned several problems when using Web 2.0 applications for internal purpose. Although there were blogs, wikis, podcasts, and other Web 2.0 tools for certain projects or teams to work together, there was no wiki for all staff to share and collaborate with other members. According to the interviewees, not every staff member was using these tools either. If a message is urgent, without staff logging in to these services, the communication does not work. Certain related concerns are listed as follows:

‘The funding is an issue when students and teachers want more books, journals and other facilities at the same time.’

‘Getting people used to using Web 2.0 is a big problem. It takes time and fee to get things right; for instance, train the staff to get the knowledge that how to use it, how to log on to it, how to look at it, and get the habit as well because they used to do it in different ways.’

‘It would have to be something we can host and store locally, because obviously there will be confidential information on it.’

Suggestions for using Web 2.0 internally

According to the interviewees, there were too much downwards and not enough upwards communications in the Library. Most of the interviewees believed that a mixed communication approach was better than using Web 2.0 tools alone. ‘If you really want to get a message over, it has to be a mixture of face to face and then back up with emails, letters, wikis, etc.’ (Interviewee #6). Since some people prefer reading printed information on papers, and also technologies change quickly nowadays, training (especially when staff are unable to meet each other) becomes the most important issue when promoting Web 2.0

usage. The interviewees stated that the training should help the staff get familiar and comfortable with Web 2.0; staff should feel confident and become active users of these tools. The interviewees suggested that after the staff have learnt to use Web 2.0 technologies, they should develop the habit to regularly use it. In this way, everyone can surely see the posts online, and the information they want to use can be found in the same place.

Nonetheless, before implementing Web 2.0 technologies, several questions should be taken into account: How worthwhile to implement Web 2.0 tools would be? What is the practical purpose for it? Some of the interviewees pointed out following perspectives:

‘We just do it differently because it is new way of doing things, or actually we need to change? Is it just not good to do it in old fashion way? Is it the best way of doing things?’

‘What benefit does it provide? It takes long time to implement these and support them; also retraining staff is harder. If there is no benefit, what is the point? We try to make sure it is concrete benefit to solve the problem, not just playing something. ... If we adopt them, we would leave some people behind. Web 2.0 technologies may be the barriers before the staff get to the information. I don’t think it’s worth trying to do it once internally because it just confuses everybody.’

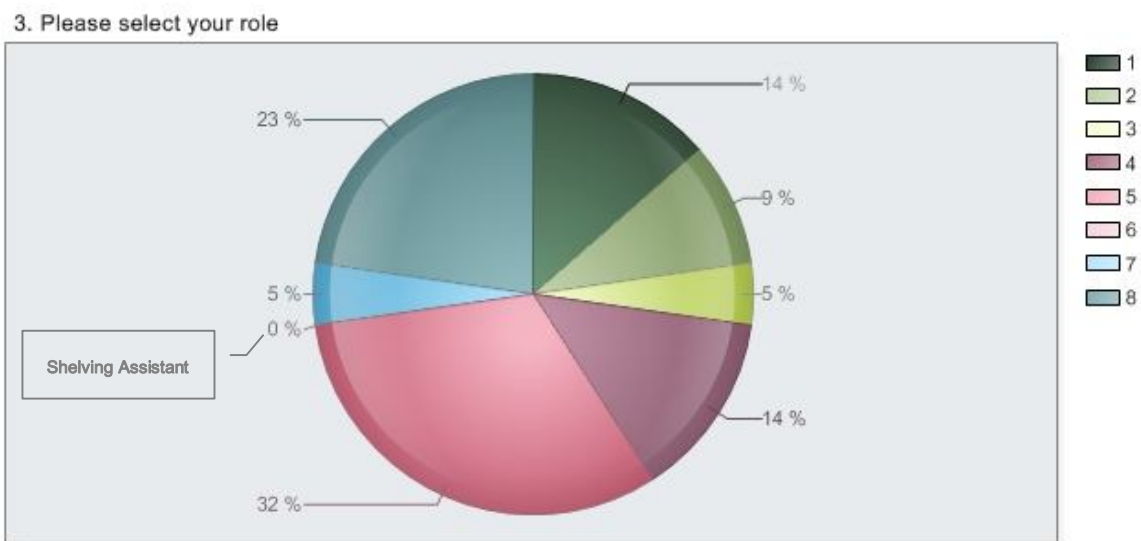
In the end of the interviews, two interviewees specified that the term ‘Web 2.0’ is confusing and complicated to most of the staff. Some staff used Web 2.0 technology without knowing they’re using it. It is quite hard to market what concept of Web 2.0 exactly means. ‘Don’t tag it as Web 2.0’, said Interviewee #6. The interviewee proposed that it would be more widely accepted by the staff if the technologies are simply called nice new tools, or nice new communication ways.

4.1.2 Online questionnaire

The online questionnaire (see Appendix 2) was distributed to the Library staff on 24th March 2009 and was active until 30th April 2009. The following sections illustrate and analyse the results obtained.

Demographical profile of respondents

The online questionnaire was completed by 22 out of 83 staff (Loughborough University Library, 2010b) within the Library. The response rate is 26.5%, which is reasonable for a spontaneous questionnaire. Each respondent was asked about their gender, position, and work in the Library. Of the respondents, there were 17 female (77.3%) and 5 male (22.7%), while 12 (54.5%) of them work full time, and the other 10 (45.5%) work as part-time staff in the Library.



Alternatives

- 1 Member of Senior Management Team
- 2 Team Leader
- 3 Academic Librarian
- 4 Senior Library Assistant
- 5 Library Assistant
- 6 Shelving Assistant
- 7 Support Services Librarian
- 8 Other (PA to the Librarian / Facilities Manager / Accounts / IT Support Officer / Faculty e-learning officer)

Figure 12. Respondent roles

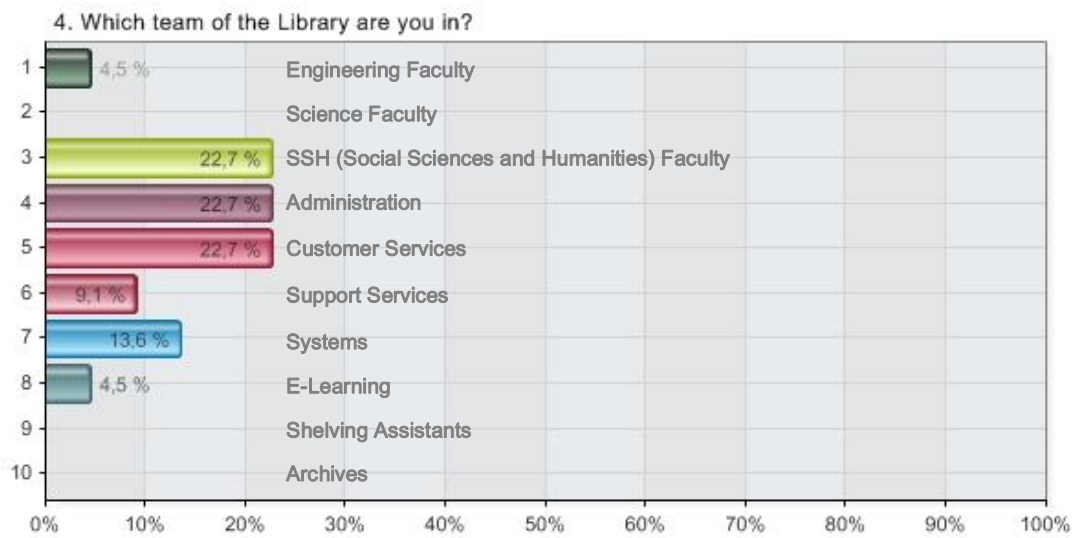


Figure 13. Respondent teams

From the respondent demographical statistics, it is obvious to discover that females, full-time staff, library assistants, and staff in Social Sciences and Humanities Faculty, Administration, and Customer Services teams supplied the largest group of respondents for each demographic. Among the respondents, 68.2% spent more than 60% of their working time using a PC, while 31.8% spent more than 80% (Fig. 14).

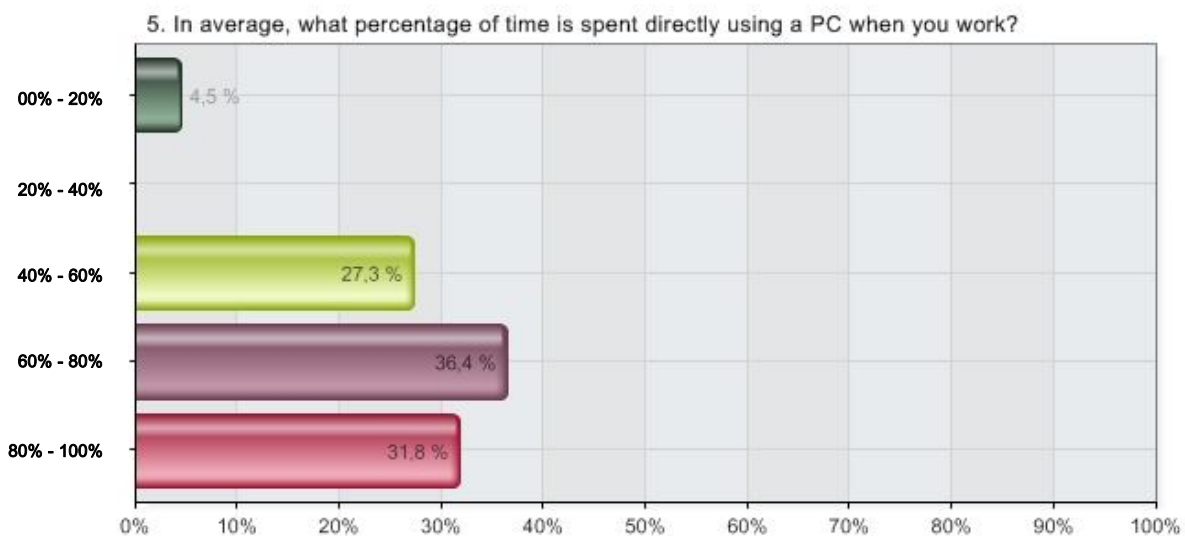
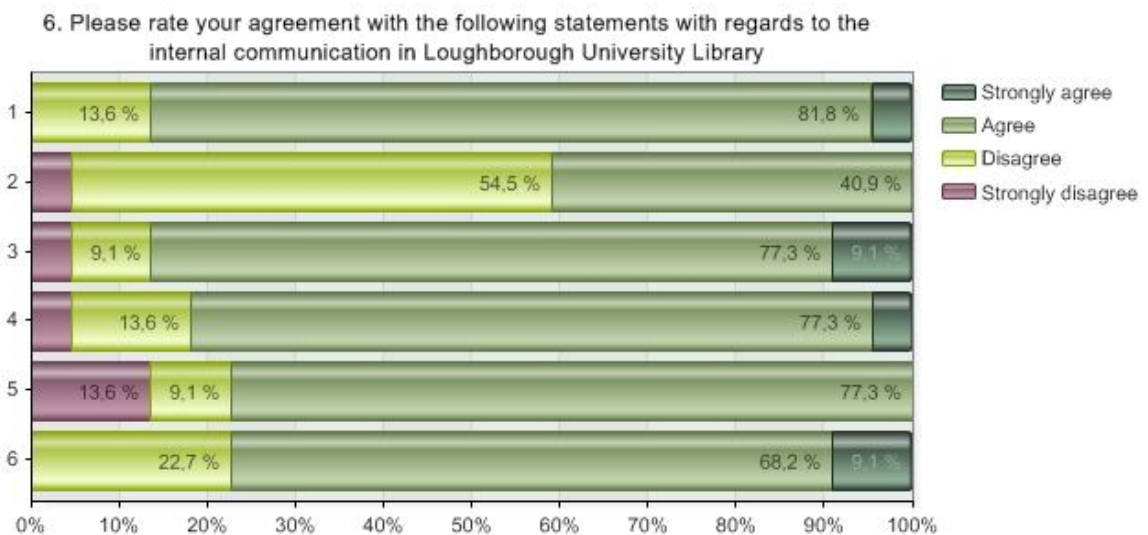


Figure 14. Respondent percentage of time working with a PC

Current internal communication in the Library

Questions about current internal communication aimed to gain general views from the staff. The agreements with the statements concerning internal communication effectiveness, staff awareness, and communicating approaches were rated by the respondents. A large majority (81.8%, see Fig. 15) of the respondents agreed that the internal communication in the Library is very effective. The respondents affirmed that the present internal communication means, such as e-mails, blogs, the minutes of the Management meetings, and word of mouth, were helpful; yet over half (59%) of the respondents did not always know what is going on in the Library. These results could potentially detect the impacts that whether traditional communication ways or Web 2.0 internal communicating schemes may have better influence and accomplishment.



Alternatives

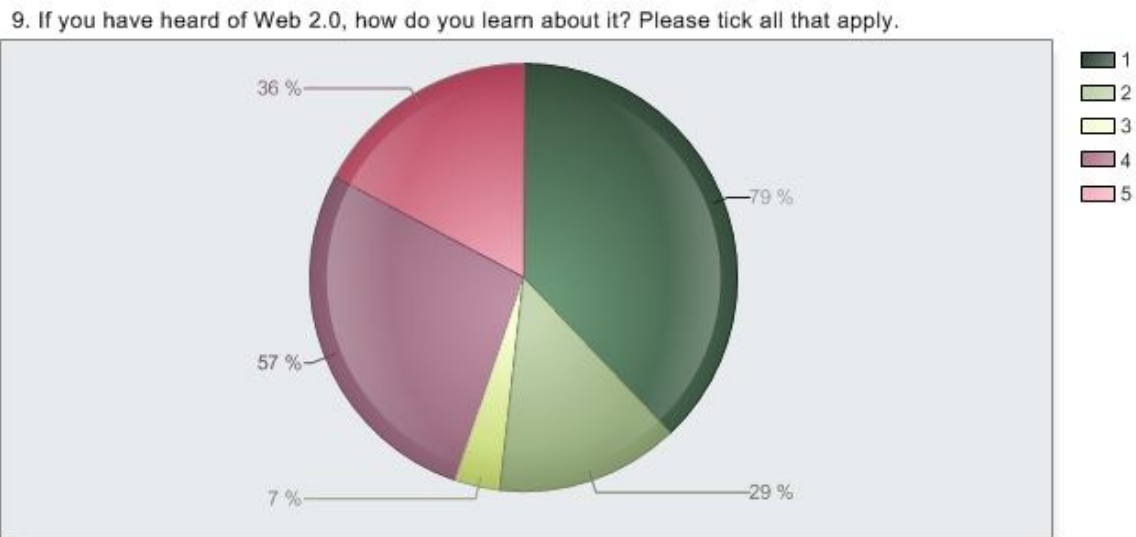
- 1 Internal communication in the Library is very effective
- 2 I always know what is going on in the Library
- 3 I hear about the latest developments in the Library via work colleagues
- 4 I get the latest developments in the Library via work e-mails
- 5 The Library blogs are used by myself to keep informed about what is happening in the Library
- 6 The minutes of the Management meetings are effective for internal communication

Figure 15. Respondent agreements about current internal communication

Other ways that staff knew about what is happening in the Library were indicated as well, including word of mouth such as work colleague discussions / conversations in the staff room / coffee break discussion, informal meetings in staff room, keeping an eye on the related information in the Library, and notices.

The perceptions about Web 2.0

Questions surveying the staff awareness of Web 2.0 knowledge and the approaches they learn about it were included within the online questionnaire. Most (68.2%) of the respondents had heard of the term or known about the concept of ‘Web 2.0’ before filling out the questionnaire. They learnt about it mainly by using it in practice (trial and error). This might be because of the fact that the Library had applied a number of relevant techniques for information literacy and study skills teaching, and other purposes. The next big percentage of the respondents had known the term ‘Web 2.0’ since the applications were a part of leisure activities outside work. (Fig. 16)



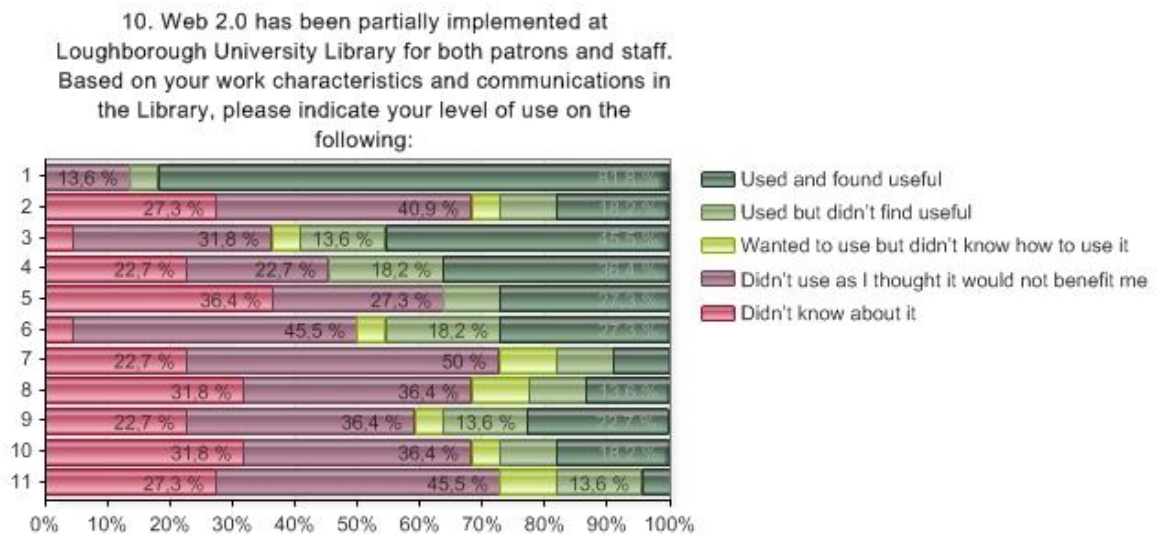
Alternatives

- 1 By using it in practice (trial and error)
- 2 By attending an external training course
- 3 By attending an internal Library course
- 4 As part of leisure activities outside work
- 5 Other, please specify

Figure 16. Respondent channels of learning about Web 2.0

Other methods that the staff learnt about Web 2.0 were specified; they were: in meetings, part of work and research, and learning from professional peers. One of the respondents learnt about the term 'Web 2.0' by reading newspaper articles about its application in local government, while another said Web 2.0 tools are a big part of his/her life.

As Web 2.0 has been partially implemented at Loughborough University Library for both patrons and staff, the staff were asked to indicate their level of use on these available technologies:

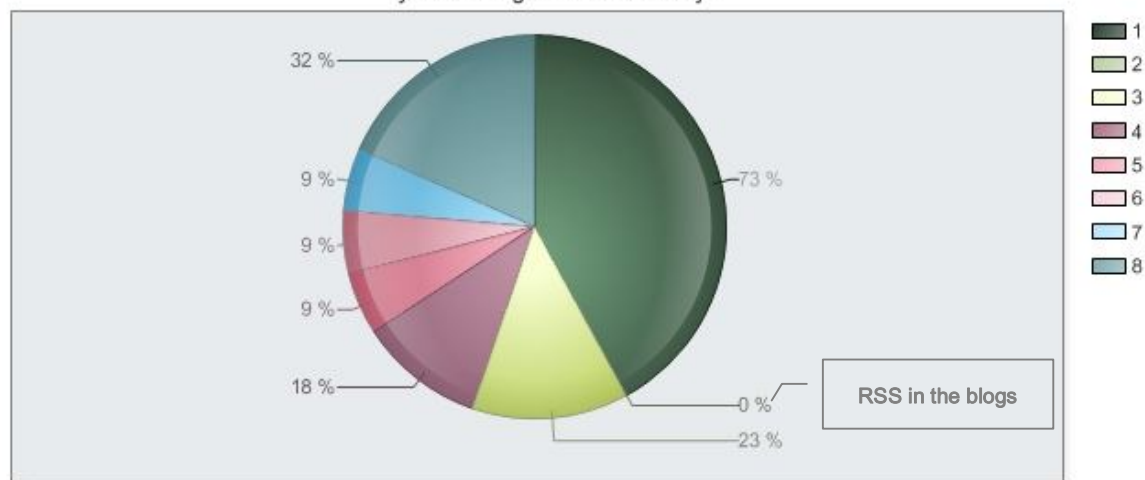


- Alternatives**
- 1 Blogs / Weblogs (ex. ad-lib, WordPress, etc.)
 - 2 RSS in the blogs
 - 3 Photo Sharing (ex. flickr)
 - 4 Video Sharing (ex. YouTube)
 - 5 Personalised Start Pages Gadgets (ex. iGoogle)
 - 6 Social Networking (ex. Facebook application)
 - 7 Podcasting (in Learn)
 - 8 Screencasting & Vodcasting (in Learn)
 - 9 Wikis (ex. PBworks)
 - 10 Social Bookmarking (ex. delicious)
 - 11 Instant Messaging (ex. Meebo)

Figure 17. Respondent attitudes towards the Web 2.0 implemented technologies

Although these Web 2.0 tools were used for both external and internal purposes in the Library (see Chapter 1 - Introduction), it seems that not every respondent were fully aware of their existences; not all of the applications were useful to the respondents as well. The implemented blogs / weblogs were the only ones which were utilised and accepted by the mass of the respondents (81.8%). Of those who had used video sharing and social networking, 18.2% did not find them useful. Amongst the respondents, 9.1% wanted to use podcasting, instant messaging, screencasting and vodcasting yet did not know how to use them. Approximate half of all respondents had not used RSS, social networking, podcasting, and instant messaging respectively because they thought these tools would not be beneficial. What's more, there were around one third of the respondents did not know the beings of iGoogle gadget, screencasting and vodcasting, social bookmarking which were exploited in the Library.

11. From the list below, please select all Web 2.0 technologies that you use when communicating with your colleagues in the Library:



Alternatives

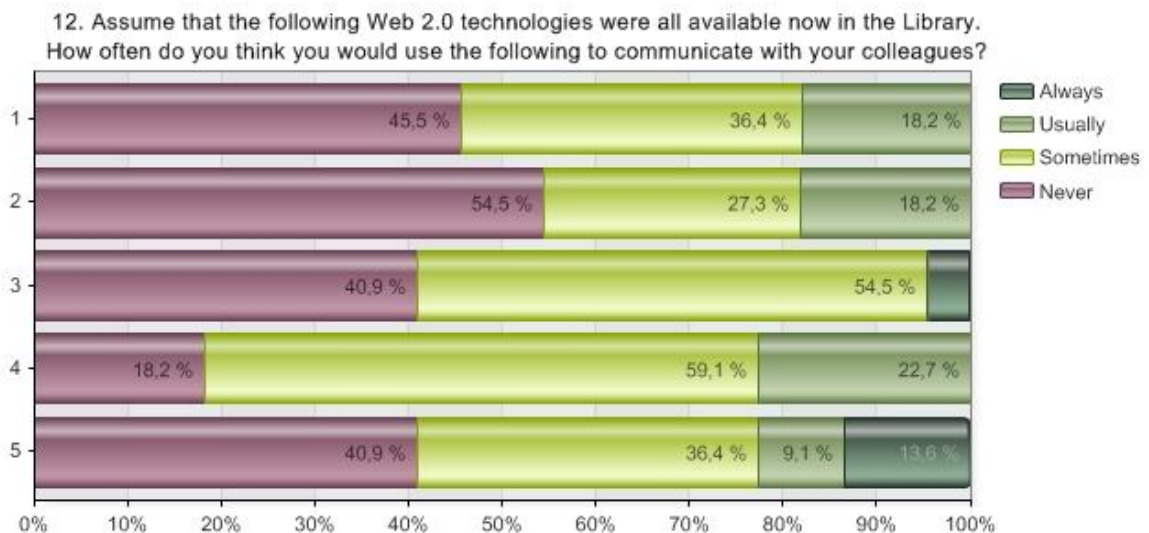
- 1 | Blogs / Weblogs
- 2 | RSS in the blogs
- 3 | Wikis
- 4 | Photo Sharing
- 5 | Video Sharing
- 6 | Social Networking
- 7 | Instant Messaging
- 8 | Other, please specify

Figure 18. Respondent Web 2.0 tools used for internal communication

Of all the Web 2.0 technologies implemented in the Library for internal communication, most (72.7%) of the respondents used blogs to communicate with colleagues, while no one used the RSS in the blogs. Another main communicating method between the colleagues mentioned by the respondents was e-mail. One of the respondents said that he / she only uses blogs to read, not for inputting information, while another expressed that he / she does not use any of above with colleagues.

The attitudes toward using Web 2.0 internally in the Library

Since Web 2.0 has only been partially implemented within Loughborough University Library for internal use, a series of questions were asked about staff attitudes towards possible Web 2.0 applications, and how frequent they would use them:



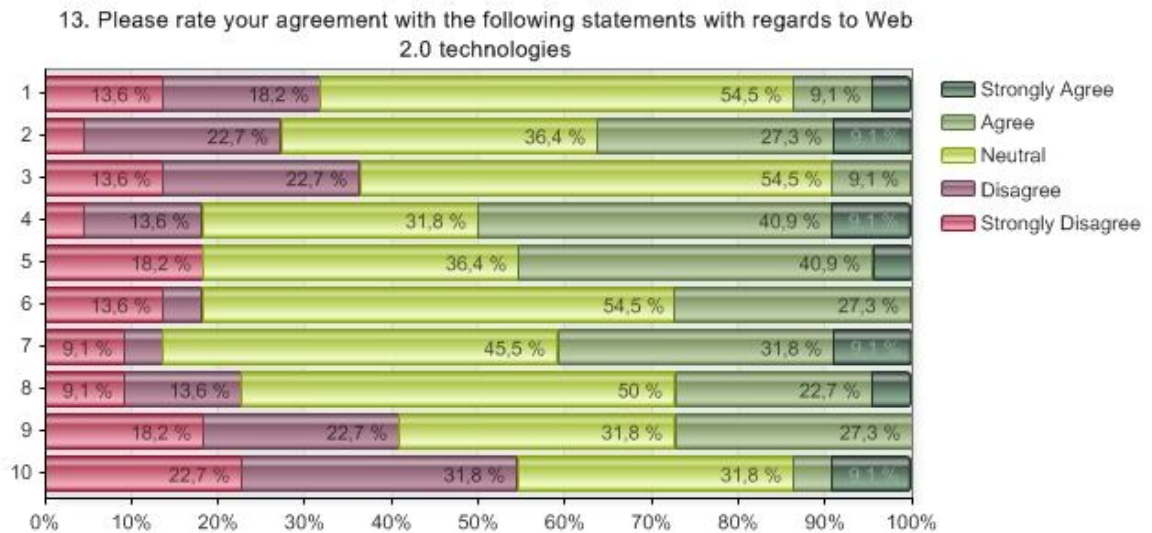
Alternatives

- 1 Use collaborative filtering (ex. Amazon, 'Customers who bought this item also bought...') to make recommendations or exchange ideas
- 2 Use social news (ex. Digg) to vote for the latest topics about the Library
- 3 Download staff meeting recordings either in an audio or video format
- 4 Download audio or visual content of library staff training sessions
- 5 Use productivity tools (ex. Google Doc) to collaborate working files

Figure 19. Perceptions on how often respondents would use Web 2.0 applications

From Figure 19, it is noticeable to discover that if other probable Web 2.0 technologies were implemented within Loughborough University Library, they would only seldom be used by the staff. However, there were more than half of the respondents who would like to download staff meetings and training sessions in audio, video or other visual format. In addition, 13.6% of the respondents stated that they will ‘always use productivity tools to collaborate working files’. It is expected that implementing these services would be advantageous.

In order to get further understanding of the staff’s attitudes towards Web 2.0 internal applications, each respondent was asked to evaluate the agreement related to possible pros and cons of using Web 2.0 for their work:



Alternatives

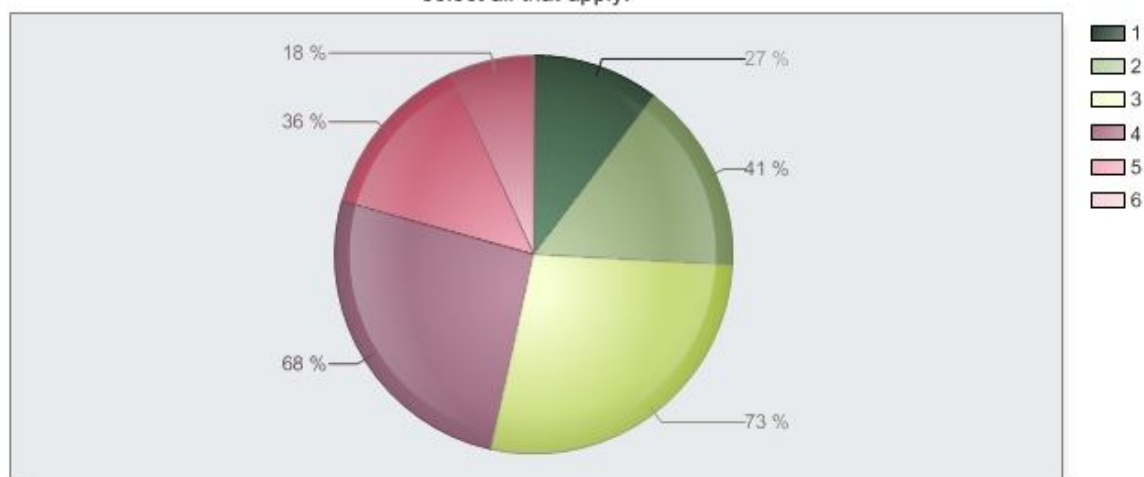
1	Web 2.0 would increase my confidence in working in the Library
2	Web 2.0 would help my working
3	Web 2.0 would help me create new friendships from existing colleagues
4	Web 2.0 would help in knowledge sharing with other colleagues
5	Web 2.0 would increase the quality of group work
6	Web 2.0 could help increase the quality of individual work
7	Web 2.0 would help new staff settle into their work in the Library
8	Web 2.0 would cause information overload
9	I would find no benefit using Web 2.0 technologies
10	I think implementing Web 2.0 would be a waste of time

Figure 20. Respondent attitudes towards using Web 2.0 technologies internally

According to Question 8, there were 32% of the respondents did not acknowledge of Web 2.0 before filling in the online questionnaire, which may cause the 32% - 55% of the respondents retained neutral positions about implementing Web 2.0 technologies for internal use here. In spite of this, over half (54.5%) of the respondents disagreed that implementing Web 2.0 would be a waste of time. Besides, 40.9% of the respondents approved that Web 2.0 would help in knowledge sharing with other colleagues and increase the quality of group work. Overall speaking, to those positive statements (Questions 13.1 to 13.7), only a small part of the respondents held disagreeable attitudes. For those negative statements (Questions 13.8 to 13.10), although most of the respondents chose the option 'neutral', the rest of the respondents mainly believed that implementing Web 2.0 tools for internal use could bring some benefits to the Library.

Since most of the respondents maintained neutral attitudes concerning using Web 2.0 tools internally, to explore in further detail regarding how to promote Web 2.0 internal use in the Library, the staff were asked to select all potential phases that would encourage them to use the applications more often:

14. What would make you use Web 2.0 technologies more for internal use in the Library? Please select all that apply.



Alternatives

- 1 If were made more accessible e.g. bigger links to these services on the intranet
- 2 More information on what Web 2.0 technologies are available to me
- 3 More information on how to use them
- 4 If were used by colleagues
- 5 If told to do so by faculty manager
- 6 Other, please specify

Figure 21. Respondents' opinions about encouraging staff to use Web 2.0 internally

Almost three quarters (73%) of the respondents expressed that if there could be more information on how to use them, they would use these Web 2.0 tools. Staff would be persuaded as well if the applications were used by colleagues (68%). Several supplementary ideas and suggestions were raised by respondents as listed in Table 2:

Table 2. Additional reasons to make staff willing to use Web 2.0 internally

Response	Comment
1	If required for my current job
2	If it related more to what I do day to day in my job. Currently I can see the benefits for others but in my area of work it has limited use at the moment.
3	If we were trained and encouraged to use them as a main means of communication.
4	More awareness for staff and encouragement to use

In the end of the online questionnaire, staff were asked if they would like to detail any other comments they may wish to make on the topic of Web 2.0 technologies for library internal communications. One of the respondents believed that 'Web 2.0 is a marketing term', while one said that his / her job was mostly about doing practical work, therefore he / she did not think there would be time to embrace all the Web 2.0 technologies and still get his / her job done. Several respondents commented a number of problems on their current internal communication methods such as meeting minutes, shared drive, and intranet. Plus they reflected that there was no need for a blog and a wiki at the same time, which might cause 'Web 2.0 overload'. In addition, some respondents expressed that getting staff to contribute

information and expertise to these internal websites is nigh on impossible. They suggested that the Library should select a number of applications to use if they are to be used effectively and in order not to overwhelm staff. Information on internal Web 2.0 tools needs to be more widely available, and more awareness and encouragement is needed for staff to use, and to see the benefits. Training would be useful for staff according to the respondents, especially those who don't tend to use Web 2.0 technologies outside work. If there could be a 'critical mass' of staff using these techniques, it would be really useful for the Library to implement these applications thoroughly.

4.2 Discussion

This research affirms the aspects relevant to using Web 2.0 for internal purpose brought up in the literature review in Chapter 2. These include the internal communication techniques, the explanations about how Web 2.0 applications attract and repel the staff, the suggestions about internal communication setting and approaches, and the re-definition of Web 2.0.

4.2.1 The internal communication schemes

The survey results from both key informant interview and online questionnaire show that the internal communication in Loughborough University Library could have further enhancements. Since the staff worked at different hours, it was especially difficult for all of them gathering together to have face-to-face physical communications or discussions, which is the most direct and optimal communicating way (Baltatzis et al., 2008). The most widespread internal communication approach in the Library was e-mail. Indeed e-mail has been considered a vital channel of communication, which enables people to make contacts in a fast, inexpensive and simple manner (McManus, Sankar, Carr & Nelson Ford, 2003); also the teams and staff who could not meet at the same time benefited from e-mail the most. Yet instead of saving time, this convenient and flexible way has begun to waste more time

(Conlin, 2005). The information was sent out, but the sender could not ensure if it was being read or absorbed by the receiver, which made the communication process incomplete. Other internal communicating approaches, such as printed circulated files and notes, meetings, and FTP system, were not as effective and helpful as they should be.

In addition to the procedures mentioned above, certain teams and projects of the Library exploited several Web 2.0 applications, for instance, blogs, wikis, and podcasts, which were massively examined in other literature and carried out in the cases revealed in Chapter 2, for collaboration. Although Web 2.0 tools were not extensively used by all the staff in the Library, there were still great percentages of the participants in this study who held optimistic attitudes towards the positive influences Web 2.0 methods brought.

4.2.2 How Web 2.0 technologies attract and repel the staff

A theme identified by the literature and this study was that Web 2.0 technologies did help knowledge sharing, hence improve the group work (Bilal & Muzahir, 2009; Stephens, 2006a; Stuckey and Arkell, as cited in Evans, 2007; Wall Street & Technology, 2008). In addition, the obvious advantages of Web 2.0 mentioned plenty of times in literature which are easy to manipulate, effective for collaborating, facilitating archiving, and improving efficiency, were the main motives to encourage the staff using these tools according to the interviewees. From this survey, it can be observed that staff could easily share ideas with other colleagues therefore improve better services for students and researchers on the campus; as well, more time was saved and the productivity was improved with Web 2.0 technologies.

The barriers putting Web 2.0 tools for internal use into action in the Library have been explored in this survey as well. Based on a number of literature (Fichter, 2005b; McIntyre & Nicolle, 2008), Web 2.0 tools are economical for organisations to implement. Nevertheless,

the security reasons addressed by Kelly, Bevan, Akerman, Alcock & Fraser (2009) and Perez (2009) were considered carefully in the Library particularly when there would be internal confidential information on the server. What's more, the time required to educate the staff and make them use Web 2.0 as often as possible was another consideration of the interviewees and the respondents.

4.2.3 The suggestions about internal communication

Loughborough University Library adopted a hierarchical structure. In addition, an interviewee mentioned that there were too much downwards and not enough upwards communications in the Library. In this survey, there were five respondents who were Member of Senior Management Team and Team Leader; the other 17 of them were Academic Librarian, Senior Library Assistant, Library Assistant, Support Services Librarian, etc. From Fig. 22 to Fig. 25 in Appendix 3, we can discover that the opinions about current internal communication and the attitudes towards Web 2.0 technologies were diverse between *Member of Senior Management Team and Team Leader*, versus *other employees (Academic Librarian, Senior Library Assistant, Library Assistant, Support Services Librarian, etc.)*. From Fig. 24, we can see that both managers and other staff used implemented Web 2.0 tools in the Library though they had different habits. The superiors believed that the internal communication in the Library was satisfactory (Fig. 22), the Web 2.0 techniques were useful (Fig. 23), and these new methods could lead the Library to a better internal communication environment (Fig. 25); while other employees disagreed on some current internal communication situations, their perceptions and acceptance about Web 2.0 tools were not as high as the superiors, and they held more conservative viewpoints about using Web 2.0 internally. This may justify why not all participants of this survey were entirely satisfied with the existing internal communication circumstances in the Library. The detailed comparisons can be found in Table 3 to Table 6 below.

Table 3. The comparison between superiors and employees about current internal communication

Alternatives	Positions	Member of Senior Management Team and Team Leader		Other employees	
		Strongly agree + Agree	Disagree + Strongly disagree	Strongly agree + Agree	Disagree + Strongly disagree
		%	%	%	%
Internal communication in the Library is very effective		80,0 %	20,0 %	88,3 %	11,8 %
I always know what is going on in the Library		40,0 %	60,0 %	41,2 %	58,8 %
I hear about the latest developments in the Library via work colleagues		100,0 %	0,0 %	82,4 %	17,7 %
I get the latest developments in the Library via work emails		100,0 %	0,0 %	76,5 %	23,5 %
The Library blogs are used by myself to keep informed about what is happening in the Library		100,0 %	0,0 %	70,6 %	29,4 %
The minutes of the Management meetings are effective for internal communication		100,0 %	0,0 %	70,6 %	29,4 %

Table 4. The comparison between superiors and employees about current Web 2.0 implementations

Alternatives	Positions	Member of Senior Management Team and Team Leader			Other employees		
		Useful	Not useful	Didn't know about it	Useful	Not useful	Didn't know about it
		%	%	%	%	%	%
Blogs / Weblogs (ex. ad-lib, WordPress, etc.)		100,0 %	0,0 %	0,0 %	76,5 %	23,5 %	0,0 %
RSS in the blogs		20,0 %	60,0 %	20,0 %	17,6 %	47,1 %	29,4 %
Photo Sharing (ex. flickr)		40,0 %	40,0 %	20,0 %	47,1 %	47,1 %	0,0 %
Video Sharing (ex. YouTube)		40,0 %	40,0 %	20,0 %	35,3 %	41,2 %	23,5 %
Personalised Start Pages Gadgets (ex. iGoogle)		40,0 %	40,0 %	20,0 %	23,5 %	35,3 %	41,2 %
Social Networking (ex. Facebook application)		60,0 %	40,0 %	0,0 %	17,6 %	70,6 %	5,9 %
Podcasting (in Learn)		20,0 %	40,0 %	40,0 %	5,9 %	64,7 %	17,6 %
Screencasting & Vodcasting (in Learn)		20,0 %	40,0 %	40,0 %	11,8 %	47,1 %	29,4 %
Wikis (ex. PBworks)		20,0 %	40,0 %	40,0 %	23,5 %	53,0 %	17,6 %
Social Bookmarking (ex. delicious)		40,0 %	20,0 %	40,0 %	11,8 %	53,0 %	29,4 %
Instant Messaging (ex. Meebo)		20,0 %	40,0 %	40,0 %	76,5 %	23,5 %	0,0 %

Table 5. The comparison between superiors and employees about Web 2.0 internal communicating usage rate

Positions \ Alternatives	Member of Senior Management Team and Team Leader	Other employees
	%	%
Blogs / Weblogs	100,0 %	64,7 %
Wikis	20,0 %	23,5 %
Photo Sharing	40,0 %	11,8 %
Video Sharing	20,0 %	5,9 %
Social Networking	40,0 %	0,0 %
Instant Messaging	20,0 %	5,9 %

Table 6. The comparison between superiors and employees about agreement with Web 2.0 internal practices

Positions \ Alternatives	Member of Senior Management Team and Team Leader			Other employees		
	Strongly Agree + Agree	Neutral	Disagree + Strongly Disagree	Strongly Agree + Agree	Neutral	Disagree + Strongly Disagree
	%	%	%	%	%	%
Web 2.0 would increase my confidence in working in the Library	20,0 %	60,0 %	20,0 %	11,8 %	52,9 %	35,3 %
Web 2.0 would help my working	80,0 %	0,0 %	20,0 %	23,5 %	47,1 %	29,4 %
Web 2.0 would help me create new friendships from existing colleagues	20,0 %	40,0 %	40,0 %	5,9 %	58,8 %	35,3 %
Web 2.0 would help in knowledge sharing with other colleagues	80,0 %	0,0 %	20,0 %	41,2 %	41,2 %	17,7 %
Web 2.0 would increase the quality of group work	60,0 %	0,0 %	40,0 %	41,2 %	47,1 %	11,8 %
Web 2.0 could help increase the quality of individual work	20,0 %	40,0 %	40,0 %	29,4 %	58,8 %	11,8 %
Web 2.0 would help new staff settle into their work in the Library	60,0 %	20,0 %	20,0 %	35,3 %	52,9 %	11,8 %
Web 2.0 would cause information overload	60,0 %	20,0 %	20,0 %	17,6 %	58,8 %	23,6 %
I would find no benefit using Web 2.0 technologies	40,0 %	0,0 %	60,0 %	23,5 %	41,2 %	35,3 %
I think implementing Web 2.0 would be a waste of time	20,0 %	0,0 %	80,0 %	11,8 %	41,2 %	47,0 %

Training was another issue that the participants concerned about. Since Web 2.0 applications were not authoritatively used in the Library for all the internal communication and collaboration, the Web 2.0 literacy levels of the staff varied. Not only the abilities of using

Web 2.0 technologies, but the confidence of the staff as well, were needed to be built during the training process. Moreover, persuading staff into participating in online cooperation and keeping the consistency of using Web 2.0 was necessary. In addition, if there were more information on how to use Web 2.0 tools in the Library and if Web 2.0 techniques were used by colleagues, the staff would be more encouraged to apply Web 2.0 tools into their work.

Although Web 2.0 is widely applied in organisations and most of the literatures approve its affirmative impacts, other types of formal and informal communication channels are still needed (Bryson, 1999). Effective individual and group communication, including speaking, writing, and active listening, are required to empower a library (Christopher, 2003). With sufficient face-to-face communication accompanied with well-organised backup schemes such as wikis, blogs, e-mails, etc., the internal communication in the Library would be more thorough and integrated. Furthermore, before implementing any technology whether it is Web 2.0 or not, the practical purpose had to be thought over cautiously, rather than putting a new approach into practice merely as it is new-fangled. As specified by a respondent, 'The primary purpose of the public blogs is in providing information for an external audience, not internal communication... This is not primarily designed to serve internal communication or our Library work'. No matter which manners of internal communication the Library applies, the communication quality, consistency, and quantity should be demanded so that the trust among the staff could be established (Christopher, 2003).

4.2.4 Re-define Web 2.0

From Table 4, we can realise that although there were 15 out of 22 staff working with their PCs more than 60% of their duty time, a high percentage of the respondents did not know what Web 2.0 is before the survey. Since not all of the staff were aware of Web 2.0, how to promote this modern concept would be the first barrier in the Library. Additionally, Web 2.0

tools such as blogs, wikis, instant messaging, and so forth are so general now that people get used to using them and do not realise these are called ‘Web 2.0’. As defined in the literature review, the term ‘Web 2.0’ is not a software version serial number but an Internet application evolution (Abram, 2005; Birdsall, 2007; Miller, 2005; Stephens, 2006b). Certain arguments from both the literatures and the participants of this survey also believed that Web 2.0 is simply a marketing term. As mentioned by a respondent, ‘Web 2.0 is a marketing term which helped hype a number of successful web sites/services. However the Web 2.0 bubble burst some time ago and the only people still talking about it are librarians and those in marketing’. In order to give the staff more confidence of manipulating and making the most use of Web 2.0 tools instead of clarifying its definition, it may be better not to label this kind of technology as ‘Web 2.0’, but treat it as other sort of Internet applications.

Table 7. The relationships between respondents’ working-with-a-PC average time and their perceptions of Web 2.0

8. Did you hear of the term or know about the concept of “Web 2.0” before filling out this questionnaire?	Total	5. In average, what percentage of time is spent directly using a PC when you work?				
		00% - 20%	20% - 40%	40% - 60%	60% - 80%	80% - 100%
Yes	68,2	100,0	0,0	66,7	75,0	57,1
No (Please go to next page)	31,8	0,0	0,0	33,3	25,0	42,9
N	22	1	0	6	8	7

4.3 Chapter Summary

This chapter demonstrated the summary of the survey results from both key informant interviews and online questionnaire responses. Several aspects of applying Web 2.0 for internal communication, such as the tools which have been used, why Web 2.0 technologies attract and repel the staff, the suggestions about internal communication setting and approaches, even how to define Web 2.0 nowadays, is compared with the literature review in Chapter 2 and discussed as well.

CHAPTER 5 - CONCLUSIONS & RECOMMENDATIONS

5.1 Survey Summary

This research emphasises that Web 2.0 is a social phenomenon, rather than a technology. With the features and advantages of Web 2.0, several organisations including libraries and corporations have started to implement its applications for internal communication. Web 2.0 tools are cost-effective and easy to use. Though they have several drawbacks such as security risks, inadequate content control, etc., the benefits, which are facilitating knowledge sharing and archiving, improving staff efficiency, engagement and collaboration, fostering trust, and fitting multiple locations and time zones, are identified as the motives for selecting Web 2.0 techniques for facilitating internal communication in an academic library.

The fashion of communication has been reformed since the Internet originated (Pressley, 2006). As Stephens (2005) said, 'Librarians should embrace Web 2.0 tools on a professional level'. Rather than being just another challenge, Web 2.0 technologies could be applied internally so that the community and harmony within the staff can be built in another way. Web 2.0 tools can be appreciated as an 'internal one-stop information resource' (Stephens, 2006b). On an internal Web 2.0 platform, staff can be offered opportunities for training, mentoring and coaching each other, thus knowledge sharing and teambuilding can be achieved. Web 2.0 technologies help to empower, engage, and unite library staff who have various capabilities; these tools have the potential to improve involvement, collaboration, and creativity in a library. With proper designed training sessions, staff can have a chance to adopt Web 2.0 for their work and continuous learning.

Both traditional and new technological communication methods have their advantages and weaknesses. Therefore Web 2.0 is not ‘an all-or-nothing prescription’ for a library or any organisation (Stephens, 2006b). The communicated information itself, which is the resource that provides the value, should be focused, not the delivering approaches (Tabrizi, as cited in Baltatzis et al., 2008). Web 2.0 tools are technical but human centric. Staff is the most important resource in an organisation. Before implementing Web 2.0 or any other type of technology internally, the necessity should be verified, and a well-planned strategy should be constructed.

5.2 Reflections of the Research

Although there were no formal hypotheses established for this study, a prediction that ‘Web 2.0 techniques can be implemented in Loughborough University Library for better internal communication’ was made. From the Library website and the survey results, it is found that several Web 2.0 tools, such as blogs, wikis, and podcasts, had been used for internal communication before this survey was carried out, and certain staff worked with these tools quite well. Although Web 2.0 applications are relatively new comparing with traditional communication methods such as e-mails or folders with printed paper files to circulate, the staff had the competences to learn other innovative media and further provide good quality services to the students and to their colleagues.

In addition, if this research could be done with other methods, more comprehensive and thorough aspects might be achieved. For example, via focus groups, the researcher could approach more staff in the Library and discover more additional elements related to the topic during focus groups’ discussions. If with observational studies, the survey could be more objective and closer to the authenticity.

5.3 Recommendations for Future Research

Based on the experiences of this research, the suggestions for future research would be:

1. To extend the survey to more libraries or organisations.
2. To deeply investigate internal use of Web 2.0 applications by tracking them over a long period of time.

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APPENDICIES

Appendix 1 – Interview Schedule

Dear colleagues,

This is Carol Yang studying in International Master in Digital Library Learning (DILL) in Norway. I have been here on my internship for one month and will go back to Oslo, Norway for my thesis in January. My thesis will be on role of Web 2.0 technologies on internal communication at Loughborough University Library. I would like to complete short (no more than 30 minutes) interviews with some Library staff about internal communication in the Library (and potential for Web 2.0) before developing an on-line questionnaire that I will circulate to Library staff in early 2010. Hope my thesis would be helpful to your library in improving future internal communication.

Thank you for the help.

Szu-Ping (Carol) Yang

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1. What is your role in the library?

- What types of activities have you been involved in?
- What tools have you used that have been particularly effective in reaching and motivating internal works?
- Who have your efforts been focused on? Who have you, and can you reach?
- Who have you collaborated with? For example, you may have held workshops with different teams in the library. How have you worked together?

2. In your opinion, why is good internal communication important in this library?

3. In your opinion, what internal communication works well? What does not work well?

4. From your knowledge and experience, what are some of the most and least effective methods you have used to communicate internally in this library?

- What has really worked and what problems have commonly been faced? Why do you feel that way?
- What do you think have been the keys to successful efforts? Why do you feel that way?
- What do you think have been the greatest obstacles? Why do you feel that way?

5. What Web 2.0 tools do you use? Do you use them for private life or for work?

6. Based on your experiences using Web 2.0, what do you think how Web 2.0 can help in internal communication and work in this library?

7. What Web 2.0 tools are currently being used in this library?

- What are their functions and purposes?
- What internal works are handled with Web 2.0 tools?
- What do these Web 2.0 tools help your work?

- Do you think the communications via these Web 2.0 tools work well?
- How good are the Web 2.0 tools? Why?
- So far is there any problem when using Web 2.0 tools to work internally in this library?

8. What are the special challenges of using Web 2.0 tools as communicating ways in the library?

- What suggestions do you have in terms of how we might meet these challenges?
- What do you think are the keys to conquer the challenges? Why do you feel that way?
- What do you think are the greatest obstacles to conquer the challenges? Why do you feel that way?

9. Do you have any thoughts or ideas about programmes, strategies, or activities that you think would be particularly effective for communicating internally by using any kind of Web 2.0 tools?

- What do you think are the best Web 2.0 tools for communicating internally among the library staff?
- How can they be applied?
- Will you suggest that staff in the library should use more Web 2.0 skills to communicate with each other and do their works?

10. Any other ideas or comments on internal communication and Web 2.0?

Thanks for your help and your time 😊

Appendix 2 – Questionnaire

(The Web-based questionnaire could be accessed at the following URL from 24/03/2010 to 30/04/2010: <https://Web.questback.com/szupingyang/Web20internaluse/>)

A Survey of Web 2.0 Technologies for Internal Communications

Dear sir / madam,

This is Szu-Ping Yang who is currently undertaking a dissertation for the final semester studying Digital Library Learning (DILL), a two-year International Master programme offered in cooperation between Oslo University College (Norway), Tallinn University (Estonia), and Parma University (Italy). The research aims to identify how Web 2.0 technologies can aid staff in a library, I would therefore appreciate it if you could spend just a couple of minutes filling out this short questionnaire to help me in my data collection.

The Researcher

You can contact me, Szu-Ping Yang, on my Oslo University College e-mail: s153423@stud.hio.no

Target Population

The target population for this questionnaire is the staff in Loughborough University Library.

Definition of Web 2.0

The term 'Web 2.0' is commonly associated with Web applications that facilitate interactive information sharing, interoperability, user-centred design, and collaboration on the World Wide Web. 'Web 2.0' can be defined as the application of interactive, collaborative, and multimedia Web-based technologies to Web-based functions and services.

These technologies can include, but are not limited to:

- Blog / Weblog: a shared on-line journal where people can post and comment entries about their personal experiences and hobbies
- RSS: 'Really Simple Syndication', used to publish frequently updated works, such as blog entries, news headlines, audio, and video, etc. in a standardised format.
- Wiki: a website that allows the easy creation and editing of any number of interlinked Web pages via a Web browser. It is often used to create collaborative websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems.
- Social Bookmarking: method for Internet users to share, organise, search, and manage bookmarks of Web resources.
- Photo and Video Sharing: the publishing or transfer of a user's digital photos and videos online, thus enabling the user to share them with others (whether publicly or privately).
- Social Networking: a website that consists of a profile of each user, his/her social links, and a variety of additional services, allowing users share ideas, activities, events, and interests within their individual networks.
- Instant Messaging: a form of real-time direct text-based communication between two or more people from any location.

Sections

This questionnaire is split into three sections:

- A bit about you and your work in the Library
- Your Web 2.0 use for internal communications in the Library
- Your opinions on Web 2.0 for internal communications in the Library

Please be assured that all your answers will be kept in confidence and will not be attributed to you.

Sincerely,

Szu-Ping Yang

24/03/2010

A bit about you and your work in the Library

1. Your gender is

Male

Female

2. Do you work full-time or part-time in the Library?

Full-time

Part-time

3. Please select your role

Member of Senior Management Team

Team Leader

Academic Librarian

Senior Library Assistant

Library Assistant

Shelving Assistant

Support Services Librarian

Other, please specify _____

4. Which team of the Library are you in?

Engineering Faculty

Science Faculty

SSH (Social Sciences and Humanities) Faculty

Administration

Customer Services

Support Services

Systems

E-Learning

Shelving Assistants

Archives

5. In average, what percentage of time is spent directly using a PC when you work?

00% - 20%

20% - 40%

40% - 60%

60% - 80%

80% - 100%

6. Please rate your agreement with the following statements with regards to the internal communication in Loughborough University Library

	Strongly Agree	Agree	Disagree	Strongly Disagree
Internal communication in the Library is very effective				
I always know what is going on in the Library				
I hear about the latest developments in the Library via work colleagues				
I get the latest developments in the Library via work e-mails				
The Library blogs are used by myself to keep informed about what is happening in the Library				
The minutes of the Management meetings are effective for internal communication				

7. Please detail other ways you get to know about what is happening in the Library

Your Web 2.0 use for internal communications in the Library

8. Did you hear of the term or know about the concept of ‘Web 2.0’ before filling out this questionnaire?

Yes

No (Please go to next page)

9. If you have heard of Web 2.0, how do you learn about it? Please tick all that apply.

By using it in practice (trial and error)

By attending an external training course

By attending an internal Library course

As part of leisure activities outside work

Other, please specify _____

10. Web 2.0 has been partially implemented at Loughborough University Library for both patrons and staff. Based on your work characteristics and communications in the Library, please indicate your level of use on the following:

	Used and found useful	Used but didn't find useful	Wanted to use but didn't know how to use it	Didn't use as I thought it would not benefit me	Didn't know about it
Blogs / Weblogs (ex. ad-lib, WordPress, etc.)					
RSS in the blogs					
Photo Sharing (ex. flickr)					
Video Sharing (ex. YouTube)					
Personalised Start Pages Gadgets (ex. iGoogle)					

Social Networking (ex. Facebook application)					
Podcasting (in Learn)					
Screencasting & Vodcasting (in Learn)					
Wikis (ex. PBworks)					
Social Bookmarking (ex. delicious)					
Instant Messaging (ex. Meebo)					

11. From the list below, please select all Web 2.0 technologies that you use when communicating with your colleagues in the Library:

Blogs / Weblogs

RSS in the blogs

Wikis

Photo Sharing

Video Sharing

Social Networking

Instant Messaging

Others, please specify _____

Your opinions on Web 2.0 for internal communications in the Library

12. Assume that the following Web 2.0 technologies were all available now in the Library. How often do you think you would use the following to communicate with your colleagues?

	Always	Usually	Sometimes	Never
Use collaborative filtering (ex. Amazon, 'Customers who bought this item also bought...') to make recommendations or exchange ideas				

Use social news (ex. Digg) to vote for the latest topics about the Library				
Download staff meeting recordings either in an audio or video format				
Download audio or visual content of library staff training sessions				
Use productivity tools (ex. Google Doc) to collaborate working files				

13. Please rate your agreement with the following statements with regards to Web 2.0 technologies

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Web 2.0 would increase my confidence in working in the Library					
Web 2.0 would help my working					
Web 2.0 would help me create new friendships from existing colleagues					
Web 2.0 would help in knowledge sharing with other colleagues					
Web 2.0 would increase the quality of group work					
Web 2.0 could help increase the quality of individual work					
Web 2.0 would help new staff settle into their work in the Library					
Web 2.0 would cause information overload					
I would find no benefit using Web 2.0 technologies					
I think implementing Web 2.0 would be a waste of time					

14. What would make you use Web 2.0 technologies more for internal use in the Library? Please select all that apply.

If were made more accessible e.g. bigger links to these services on the intranet

More information on what Web 2.0 technologies are available to me

More information on how to use them

If were used by colleagues

If told to do so by faculty manager

Other, please specify _____

15. Please detail any other comments you may wish to make on this topic of Web 2.0 technologies for library internal communications.

Thank you for filling out this questionnaire. Your help is much appreciated

Szu-Ping Yang

Digital Library Learning (DILL)

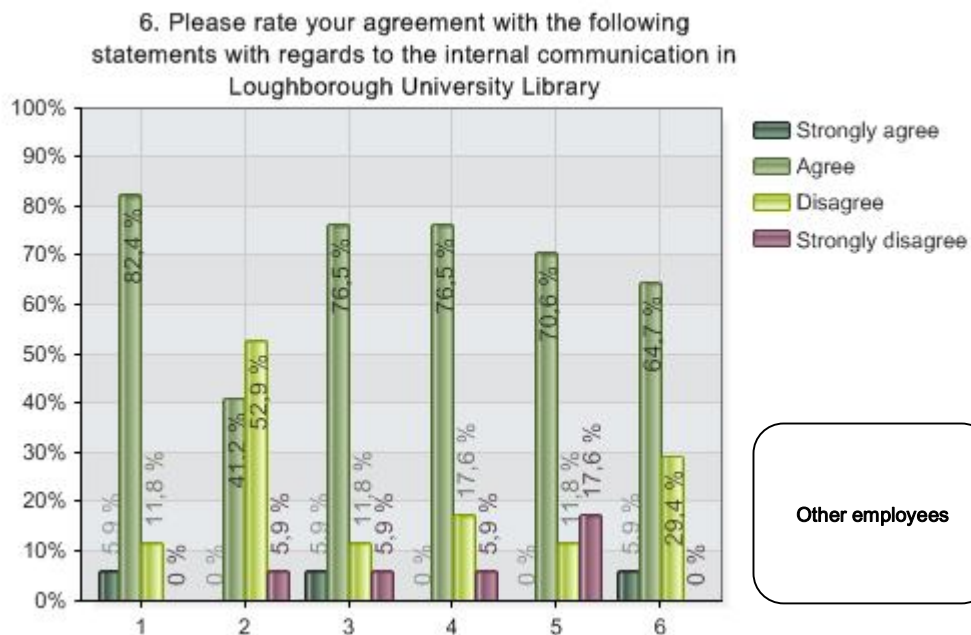
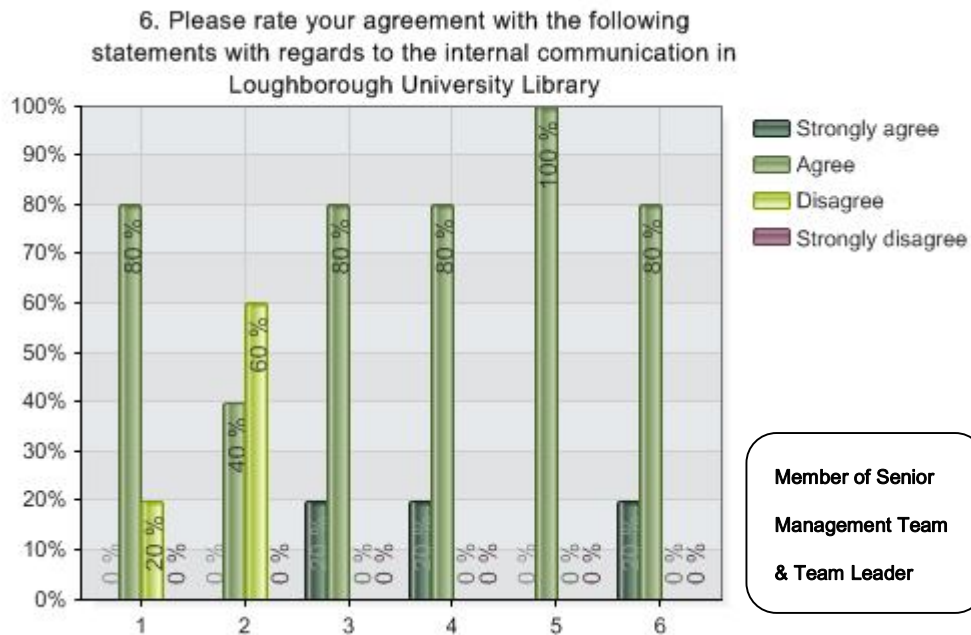
Faculty of Journalism, Library and Information Science

Oslo University College

Oslo, Norway

E-mail: s153423@stud.hio.no

Appendix 3 - The Comparisons between Positions in Different Hierarchy

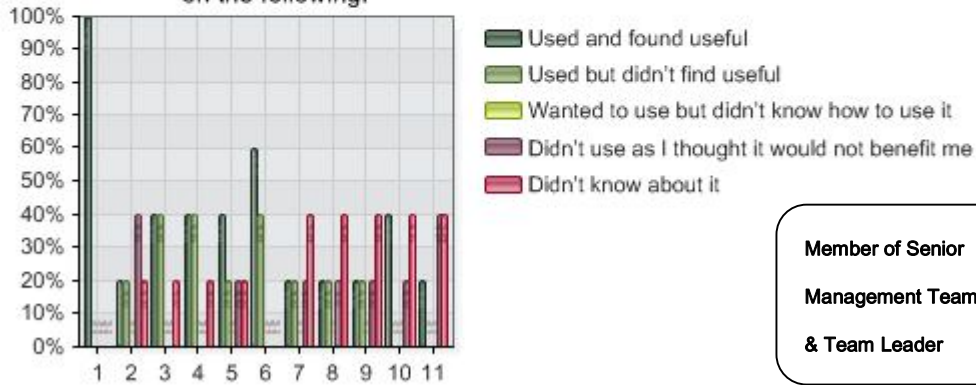


Alternatives

- 1 Internal communication in the Library is very effective
- 2 I always know what is going on in the Library
- 3 I hear about the latest developments in the Library via work colleagues
- 4 I get the latest developments in the Library via work emails
- 5 The Library blogs are used by myself to keep informed about what is happening in the Library
- 6 The minutes of the Management meetings are effective for internal communication

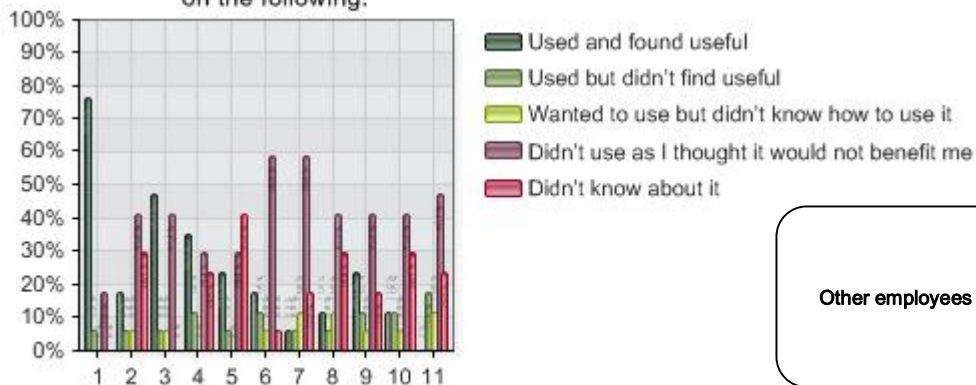
Figure 22. The comparison between superiors and employees about current internal communication

10. Web 2.0 has been partially implemented at Loughborough University Library for both patrons and staff. Based on your work characteristics and communications in the Library, please indicate your level of use on the following:



Member of Senior Management Team & Team Leader

10. Web 2.0 has been partially implemented at Loughborough University Library for both patrons and staff. Based on your work characteristics and communications in the Library, please indicate your level of use on the following:

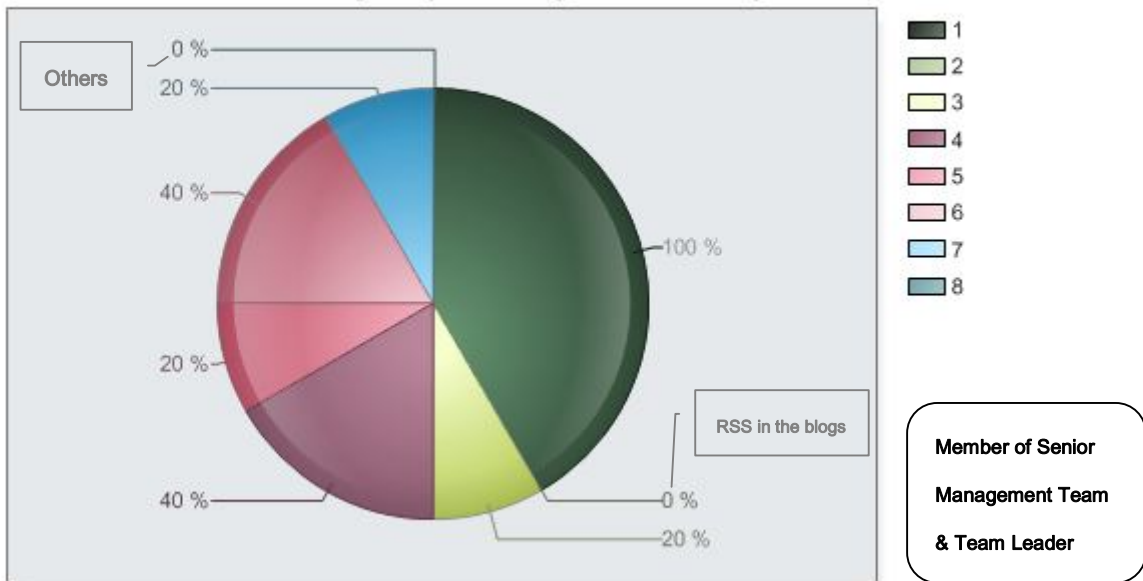


Other employees

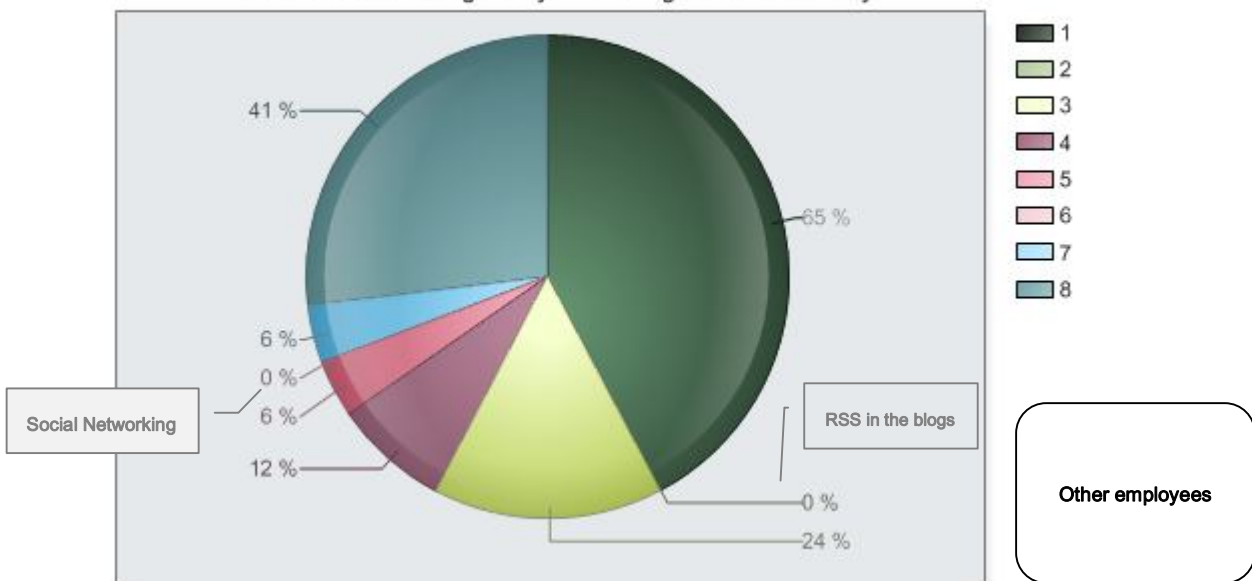
Alternatives	1	Blogs / Weblogs (ex. ad-lib, WordPress, etc.)
	2	RSS in the blogs
	3	Photo Sharing (ex. flickr)
	4	Video Sharing (ex. YouTube)
	5	Personalised Start Pages Gadgets (ex. iGoogle)
	6	Social Networking (ex. Facebook application)
	7	Podcasting (in Learn)
	8	Screencasting & Vodcasting (in Learn)
	9	Wikis (ex. PBworks)
	10	Social Bookmarking (ex. delicious)
	11	Instant Messaging (ex. Meebo)

Figure 23. The comparison between superiors and employees about current Web 2.0 implementations

11. From the list below, please select all Web 2.0 technologies that you use when communicating with your colleagues in the Library:



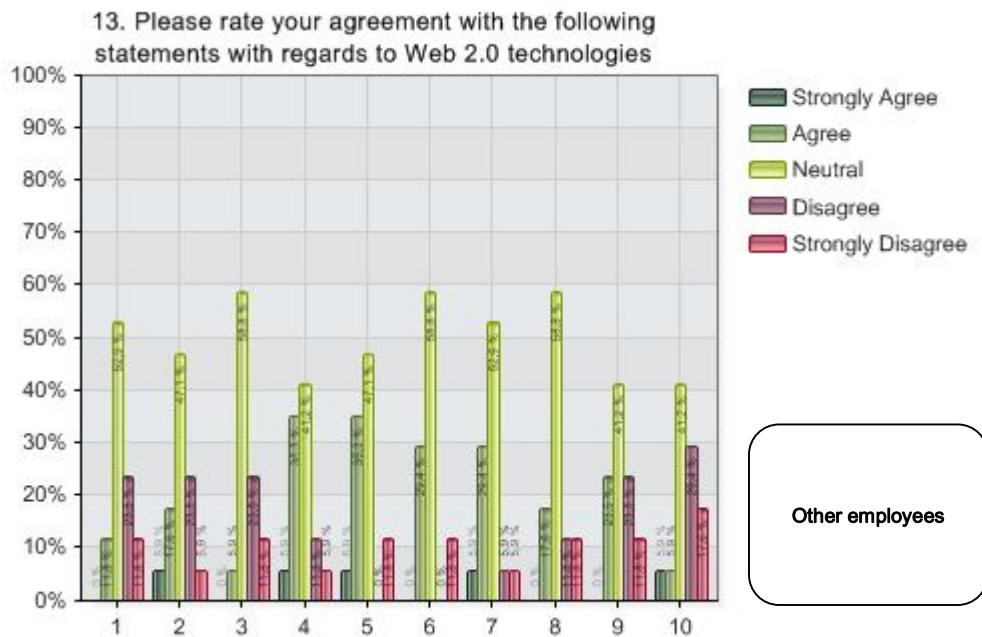
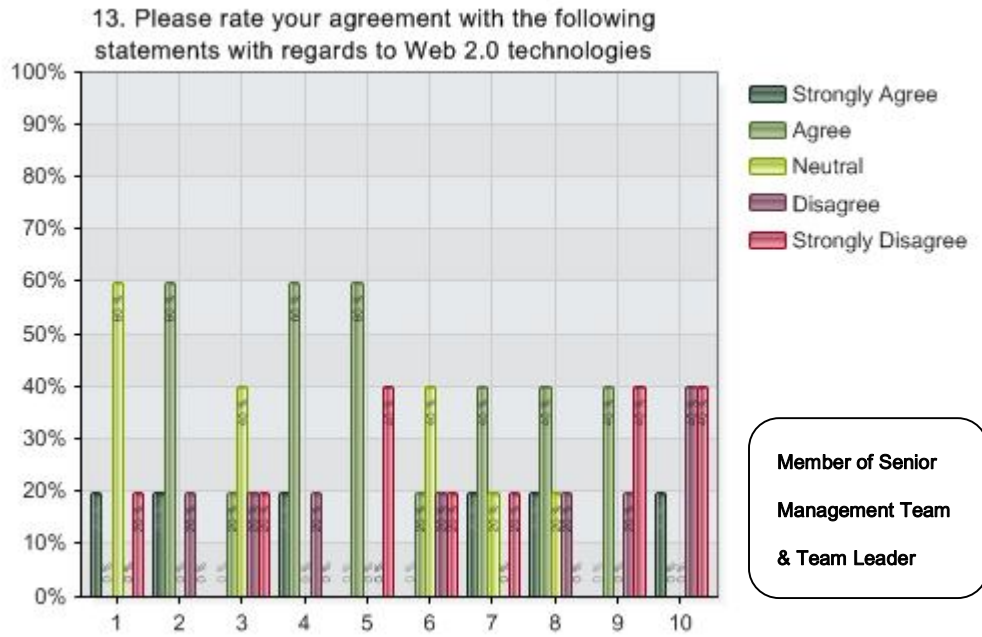
11. From the list below, please select all Web 2.0 technologies that you use when communicating with your colleagues in the Library:



Alternatives

- 1 Blogs / Weblogs
- 2 RSS in the blogs
- 3 Wikis
- 4 Photo Sharing
- 5 Video Sharing
- 6 Social Networking
- 7 Instant Messaging
- 8 Other

Figure 24. The comparison between superiors and employees about Web 2.0 internal communicating usage rate



Alternatives	Statements
1	Web 2.0 would increase my confidence in working in the Library
2	Web 2.0 would help my working
3	Web 2.0 would help me create new friendships from existing colleagues
4	Web 2.0 would help in knowledge sharing with other colleagues
5	Web 2.0 would increase the quality of group work
6	Web 2.0 could help increase the quality of individual work
7	Web 2.0 would help new staff settle into their work in the Library
8	Web 2.0 would cause information overload
9	I would find no benefit using Web 2.0 technologies
10	I think implementing Web 2.0 would be a waste of time

Figure 25. The comparison between superiors and employees about agreement with Web 2.0 internal practices