AN EXAMINATION OF THE PREVALENCE OF WEB 2.0 TOOLS IN IRISH PUBLIC AND ACADEMIC LIBRARIES AND THE IMPLEMENTATION OF WEB 2.0 TOOLS AS A MAJOR COMPONENT OF LIBRARY 2.0.

by

Nick Leonard

MSc Information & Library Management
Dublin Business School

September 2011

Student Number: 1431561

Word Count: 20,650
TABLE OF CONTENTS

TABLES AND FIGURES ........................................................................ iv
ACKNOWLEDGEMENTS ................................................................... vi
ABSTRACT ......................................................................................... vii
CHAPTER 1: INTRODUCTION ............................................................... 1
  1.1 Background .................................................................................. 1
  1.2 Research Aims .............................................................................. 2
  1.3 Approach ....................................................................................... 2
  1.4 Scope and Contributions of the Research ...................................... 3
  1.5 Organisation of Dissertation ....................................................... 3
CHAPTER 2: LITERATURE REVIEW .................................................... 4
  2.1 Introduction .................................................................................. 4
  2.2 Exploration of the concepts of Web 2.0 and Library 2.0 .......... 5
  2.3 Research on the Prevalence of Web 2.0 Tools in Libraries ........ 12
  2.4 Popular Web 2.0 Tools and Their Potential Uses In The Library Context ...... 15
    2.4.1 Blogs ..................................................................................... 15
    2.4.2 Wikis ..................................................................................... 17
    2.4.3 Social Bookmarking ............................................................... 20
    2.4.4 Syndication ........................................................................... 22
      2.4.4.1 RSS ............................................................................... 22
      2.4.4.2 Podcasts ......................................................................... 23
    2.4.5 Social Network Services ......................................................... 24
      2.4.5.1 Facebook ......................................................................... 24
      2.4.5.2 Twitter ............................................................................ 25
    2.4.6 Instant Messaging ................................................................... 27
    2.4.7 Video Sharing Services ............................................................ 27
    2.4.8 Virtual Worlds ....................................................................... 28
  2.5 Conclusion ................................................................................... 29
  2.6 Research Questions ....................................................................... 30
CHAPTER 3: RESEARCH METHODOLOGY ........................................ 31
  3.1 Introduction .................................................................................. 31
  3.2 Research Philosophy .................................................................... 32
  3.3 Descriptive Study .......................................................................... 34
  3.4 Choosing a Quantitative Method .................................................. 34
CHAPTER 4: RESEARCH METHODS .................................................................35
  4.1 Introduction .......................................................................................35
  4.2 Selection of Participants ....................................................................35
  4.3 Multimethod Study ............................................................................36
  4.4 Survey Design ..................................................................................39
    4.4.1 Reminder Stage of Survey Research ............................................41
    4.4.2 Survey Response Rate .................................................................41
  4.5 Content Analysis of Library Websites .............................................41
  4.6 Data Analysis ..................................................................................42
CHAPTER 5: FINDINGS ...........................................................................43
  5.1 Prevalence of Web 2.0 Tools .............................................................43
  5.2 Purposes of Web 2.0 Tool Implementation .......................................49
    5.2.1 Social Networks ..........................................................................49
    5.2.2 Blogs .........................................................................................50
    5.2.3 RSS ..........................................................................................50
    5.2.4 Video Sharing and Podcast Technology ....................................52
    5.2.5 Instant Messaging, Social Bookmarking, Wikis, and Other Tools ....53
  5.3 Implementation of Web 2.0 Tools in the Library Service and its Relation with Library 2.0 ............................................................54
CHAPTER 6: CONCLUSION ....................................................................57
  6.1 Library 2.0 and Web 2.0 Tool Implementation ..................................57
  6.2 Web 2.0 Tool Implementation in Irish Libraries ...............................58
CHAPTER 7. SELF REFLECTION ON OWN LEARNING AND PERFORMANCE .................................................68
CHAPTER 8: BIBLIOGRAPHY .................................................................74
CHAPTER 9: APPENDICES ....................................................................84
  APPENDIX A. Survey Questionnaire .....................................................84
TABLES AND FIGURES

Tables

4.1: Total amount of public and academic libraries forming the research population. ..........................................................36
5.1: Number of libraries implementing one or more Web 2.0 Tools ..........................................................43
5.2: Frequency distribution table for number of Web 2.0 tools used. ..........................................................43
5.3: Number of libraries adopting different Web 2.0 tools ..........................................................45
5.4: Purposes of blog implementation. ..................................................................................................................50

Figures

2.1: Dundalk Institute of Technology Library blog ..........................................................17
2.2: Mayo County Library Facebook page ..........................................................25
2.3: Cork City Libraries Twitter page ..........................................................26
3.1: The research onion ..........................................................................................................................31
4.1: LimeSurvey control panel ..........................................................40
5.1: Bar chart showing number of Web 2.0 tools implemented ..........................................................44
5.2: Percentage of Irish libraries using specific Web 2.0 tools ..........................................................46
5.3: Comparison of Web 2.0 tool implementation among public & academic libraries. ..........................................................47
5.4: Which Web 2.0 tools do libraries plan to implement in the future? ..........................................................48
5.5: Bar chart representing purposes of social network service implementation ..........................................................49
5.6: Bar chart representing purposes of blog implementation ..........................................................51
5.7: Bar chart representing purposes of RSS implementation ..........................................................51
5.8: Bar chart representing purposes of video sharing service implementation ..........................................................52
5.9: Levels of agreement with the statement ‘the implementation of Web 2.0 tools in library services is a major component of Library 2.0’. ..........................................................54
5.10: Levels of agreement with the statement ‘Web 2.0 Tools are effectively implemented in my library’. .................................................................55

5.11: Levels of agreement with the statement ‘Web 2.0 tools were implemented in my library as an attempt to 'be Library 2.0'’. .........................................................56

6.1: News updates on University College Cork Library Twitter page .......................61

6.2: Book Review on Dún Laoghaire-Rathdown County Library blog ....................63

6.3: Introductory video published by Carlow County Library on Vimeo ...................65

6.4: Instant messaging widget on Dublin Business School Library website ..........66

7.1: The Learning Cycle ...............................................................................................69
ACKNOWLEDGEMENTS

I would like to take the opportunity to thank all those who participated in the web survey. Your input was greatly appreciated.

I would like to thank my research supervisor, Caitriona Sharkey, whose support and guidance over the course of the dissertation process was extremely helpful. Many thanks also to fellow students on the Information and Library Management Masters course for their valuable friendship and assistance over the duration of the programme.

On a special note, I would like to express my gratitude to my parents for the continuous encouragement and assistance they gave me, without which the completion of this Masters course would not have been possible. Lastly, I wish to thank my friend Chioma, whose patience, understanding and intelligent advice over the past number of years have been hugely beneficial to me.
ABSTRACT

Libraries around the world are implementing a range of web technologies to improve the manner in which library services are delivered to users. The implementation of new technologies and functionalities is necessary if libraries are to remain relevant in the current information landscape.

This research paper reports on an investigation of the prevalence of blogs, RSS, social networks and other Web 2.0 tools/technologies in Irish public and academic libraries, along with the purposes for which these Web 2.0 tools are used. Also, the relation between implementation of Web 2.0 tools and Library 2.0 is examined in the Irish context. A mixture of survey research and content analysis was undertaken to obtain a complete set of data for a census on Web 2.0 tool implementation in public and academic libraries.

The research found that social networks are the most widely-implemented Web 2.0 tool among Irish libraries, followed by blogs and RSS technology. Other Web 2.0 tools have varying levels of prevalence. Irish librarians are of the opinion that implementing Web 2.0 tools in the library service is a major component of Library 2.0. Opinions were mixed on whether the implementation of Web 2.0 tools was motivated by a desire to achieve a Library 2.0 level of service.

The research provides a current picture of the state of Web 2.0 presence in modern Irish libraries, and works towards an understanding of the impact of technological developments on libraries. It is hoped that the research will be of interest to librarians and other information professionals interested in the implementation of Web 2.0 tools in the library setting.
CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

The removal of barriers to information publication arising from the rapid growth of the World Wide Web has meant that user expectations have changed when it comes to information access, and therefore new challenges are presented for information professionals in seeking to guide users towards authoritative, high quality information. Web 2.0 is seen by many as the second generation of the web, a movement reflecting changing attitudes among web users about the accessibility of information, and how it should be presented as well as the shift towards concepts of openness, collaboration and customisation.

The ever-changing nature of the information environment poses questions of libraries and other information institutions with regard to their place within this new environment. Questions arise as to the value that libraries provide in the current information landscape, and the likely relevance of libraries as more changes take place (Chad and Miller, 2005). Library 2.0 is a term used by many to describe the ‘modern’ library service, a library service which is influenced by Web 2.0 and is geared towards how users expect information needs to be addressed today.

The meaning, and indeed the importance, of the terms Web 2.0 and Library 2.0 are widely debated; the generally accepted view is that Web 2.0 encompasses a range of concepts and technologies. The widespread adoption of services such as Facebook and Twitter by people of all different ages is evidence of the evolving information sharing society. Libraries are always influenced by the changing nature of information technology and the potential opportunities new tools provide. Public and academic library services are implementing Web 2.0 technologies as part of the crucial process of service evaluation, in order to keep up with customer demands in an efficient manner (Casey and Savastinuk, 2006).

Studies have examined the differing perceptions of Library 2.0 among librarians (Shoniwa and Hall, 2007; Holmberg et al., 2009). There is a significant amount of
literature examining the use of Web 2.0 technologies within the library service (Chu and Meulemans, 2008; Cooper, 2008; Han and Liu, 2010; Harinarayana and Raju, 2010; Linh, 2008). There is a gap in the literature concerning information on the general prevalence of Web 2.0 tools in Irish public and academic libraries, and the purposes for which these tools are implemented within library services.

The choice of Library 2.0/Web 2.0 as a research topic would allow the author to capitalise on a range of knowledge gained over the duration of the Masters course in information and library management, as well as satisfying a personal interest in Web 2.0 and how it relates to libraries.

1.2 RESEARCH AIMS

This research project aims to measure the prevalence of Web 2.0 tools in Irish academic and public libraries and to discover the purposes for which Web 2.0 tools are being used in Irish libraries.

The research also aims to provide an Irish perspective on the relation of implementation of Web 2.0 tools to modern ‘Library 2.0’ services, and whether the implementation of these tools is motivated by Library 2.0.

1.3 APPROACH

The research aims will be satisfied by consulting the relevant literature with a view to clarifying the background of Web 2.0 and Library 2.0. The literature will identify the Web 2.0 tools, technologies and techniques currently being applied in libraries across the world. The literature will be examined to ascertain how these tools can potentially be used within library services.

A mixture of survey research and content analysis will provide data on the prevalence of Web 2.0 tools among Irish public and academic libraries, the purposes of Web 2.0 tool implementation, and the relation between this implementation and Library 2.0.
1.4 Scope and Contributions of the Research

The research helps to provide a snapshot of Web 2.0 implementation in Irish library services in the present day. It measures the popularity of different Web 2.0 tools among Irish public and academic libraries, including the purposes for which these tools are employed within library services. It will help to increase understanding of the changing nature of library services in the current and future information environments. It is hoped that the research will be of interest to information professionals seeking knowledge on modern library services in Ireland, particularly, the most widely used Web 2.0 tools and technologies and how they are used within the library service.

1.5 Organisation of Dissertation

Chapter one sets out the background to the research problem and discusses the research aims, the approach to be taken to satisfy those aims, the scope of the research, and the contribution of the study. Chapter two contains the literature review. It begins by examining the concepts of Web 2.0 and Library 2.0 and then moves on to address research conducted on the prevalence of Web 2.0 tools in libraries. This is followed by an analysis of all the major Web 2.0 tools currently being implemented in libraries, with a focus on how they can be used to improve the library service. Chapter three contains the research methodology. It examines the research philosophies that underpin the study, and explains the choice of a quantitative method. Chapter four details the research method, including the selection of participants and choice of data collection and data analysis procedures. Chapter five lists the findings. Descriptive statistics will lay out the data resulting from collection methods chosen. Chapter six contains the conclusions of the data findings. Chapter seven contains a self-reflective learning account which details some of the personal learning resulting from the MSc dissertation programme. Chapters eight and nine contain the bibliography and appendices respectively.
CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

According to Kumar (1999, p.26), the literature review has three functions: to assist the author to bring clarity and focus to the particular research problem; to improve the researcher’s methodology; and to broaden the researcher’s knowledge base in the research area. By completing a literature review, the researcher hopes to acquire an understanding of the research topic and to discover what research has previously been completed in the area, how it was done, and the issues raised by this research (Hart, 1998). This literature review aims to explore the implementation of Web 2.0 tools and other modern technologies in the library setting, and the relation of such implementation to the concept of Library 2.0.

Books on the subject of Web 2.0 and Library 2.0 were consulted to research the topic. Searches were conducted of the EBSCOhost database for recent journal articles on the area of Library 2.0 and Web 2.0. General keywords such as “library 2.0”, “web 2.0”, “web 2.0 and libraries”, “web 2.0 tools” were used to find general information on the concepts. Keywords such as “blogs and libraries”, “RSS and libraries”, etc. were used to find articles on the application of specific Web 2.0 tools and technologies in libraries. Relevant blog entries from authoritative information professionals were also consulted.

Section 2.2 begins by researching the concept of Web 2.0, examining its background and providing some views on what it represents. There follows an examination of Library 2.0, focusing on the discussion about the meaning of the concept, its influence on modern library services, and its relation to the implementation of Web 2.0 tools. Section 2.3 examines previous research conducted on the prevalence of Web 2.0 tools in the library setting. Section 2.4 investigates the Web 2.0 tools currently being applied in libraries around the world. Brief descriptions of the tools will be followed by information on their potential use in the library service, and wherever possible, concrete examples of their implementation in libraries. Section 2.5 contains a conclusion to the
literature review, while section 2.6 lists the research questions for the current study.

2.2 Exploration of the Concepts of Web 2.0 and Library 2.0

Tim O’Reilly, managing director and CEO of O’Reilly Media Inc., was a principal driving force behind Web 2.0 in its early stages. A conference brainstorming session involving O’Reilly and others, in which the possible future of the web following the dot-com collapse was discussed, led to the founding of the Web 2.0 Conference (O'Reilly, 2005). The conference session had settled on the notion that the events at the turn of the millennium marked a turning point for the World Wide Web; the term Web 2.0 addressed this shift in direction and the concepts and practices that were evident in a range of successful developments. Web 2.0 is a set of principles and practices that bring together a wide variety of applications and technologies: Web 2.0 does not possess a “hard boundary”, but, a “gravitational core” (O'Reilly, 2005).

A mounting body of early literature is concerned with the definition of the term ‘Web 2.0’. Bradley (2007, p.2) remarks that a definition of Web 2.0 is “hard to pin down”. Miller (2005) sees Web 2.0 as a label representing a wide range of concepts, such as sharing, participation, community, free movement of data, customisation, and virtual applications which can use data from a variety of sources to provide powerful functionality for users. Web 2.0 is described by Miller as being comprised of "equal parts evolution and revolution", as, while challenging attitudes towards information sharing and user rights, Web 2.0 builds upon longstanding information practices. Dvorak (2006) agrees that Web 2.0 builds on what has gone before; he believes that Web 2.0 is simply “blather”, as the concepts that drive the movement, such as self-service and efficiency, are ideas that have been around since the inception of the internet.

Web 2.0 in a simple sense is about online applications and tools that allow individuals to share and interact with information using the web as a platform (Godwin, 2008). Thompson (2008) outlines the difference between Web 2.0 and earlier incarnations of the internet by drawing an analogy between consuming
information online and visiting a physical library. Web 1.0 involved skilled programmers and information technology minded individuals uploading information to the internet, while users consumed this material in a similar fashion to taking out a book at the library. Web 2.0 is an involving experience; now the user not only reads the material, but may choose to contribute comments, alter the content, or interpret and share the information with users of similar interests (Thompson, 2008). Anderson (2007) argues that the term Web 2.0 was not coined to describe a group of technologies but rather a more amorphous idea. Eric Engleman, manager of web based news aggregator Bloglines, interprets Web 2.0 today as being mainly about ‘the application as platform; a mixture of user generated and application generated content working together to enrich the end user experience (Jones, 2008, pp.31-32).

Alan (2008) states that Web 2.0 is about “ideas, behaviours, technologies and ideals all at the same time.” He sees Web 2.0 as a conceptual framework that contains four elements: technology, economy, users and philosophy. According to Kamel Boulos and Wheeler (2007), successful Web 2.0 environments, in allowing users to actively engage with content, foster a sense of community, empowerment and ownership. They state that as the amount of user contribution increases, the 'collective intelligence' increases also. Wikipedia is cited as the most recognisable example of amateur knowledge combined with the right systems and tools surpassing professional knowledge (Kamel Boulos and Wheeler, 2007, p.4). With many applications and tools classed as being part of Web 2.0, the part that makes them Web 2.0, the “2.0-ness” is not necessarily something new, but rather a fuller realisation of the potential of the web platform (O'Reilly, 2005). iTunes and TiVo, by their effective use of collective intelligence and their harnessing of the power of the web platform, are demonstrative of many of the core principles of Web 2.0 (O'Reilly, 2005).

Curran et al. (2007) propose that despite the fact the term 'Web 2.0' has no clear definition, it is still useful because it allows non-technical users to define the complicated set of concepts and technologies, and enables companies to promote their web sites without having to explain the array of technologies used to create the application.
The literature shows an acceptance of Web 2.0 as a term neither possessing nor needing a precise definition, rather the term is accepted as representing a wide variety of concepts and movements, including collective intelligence, web-based applications, user-generated content, involvement of the information user, user-empowerment, etc.

Web 2.0 is of great relevance to information institutions such as libraries, as the applications and technologies used to achieve Web 2.0 principles can be employed by these institutions to better reach and serve audiences, in times of evolving user expectations and needs. Libraries are presented with an opportunity to challenge perceptions that more traditional institutions are redundant in the face of user empowerment and direct access to information and resources, by ensuring that the valuable content, expertise and services which libraries have to offer are reaching new audiences while also serving existing audiences better (Miller, 2005).

Wan Wee Pin (2008) believes that a library can no longer rely on simply being a trusted information source, as the Web 2.0 revolution has empowered the average user to such an extent that he/she expects information needs to be satisfied immediately, in a manner convenient to him/her. The library must ensure that it is providing access to information in a manner that is convenient to users; the library must not seek to influence user habits, rather an attempt should be made to fit into this new environment. Therefore it is not surprising that libraries around the world are implementing Web 2.0 technologies in the library service. The term Library 2.0 arrived to describe the evolution of the library service as more Web 2.0 technologies and applications were incorporated, along with new ideas based on user participation and re-evaluation of services in the digital age. There is an ongoing debate among information professionals concerning Library 2.0, particularly, what Library 2.0 means, or should mean, and whether the term is needed.

Casey and Savastinuk (2006) see user-centred change as being at the heart of Library 2.0. They argue that any service, whether physical or virtual, that successfully reaches users, is evaluated frequently, and makes use of customer input is a Library 2.0 service. Maness (2006) suggests that Library 2.0 be defined
as “the application of interactive, collaborative, and multi-media web-based technologies to web-based library services and collections”. Wallis (2007) sees Library 2.0 as “a conjunction between libraries, and their traditional ethos for serving their users, with Web 2.0”. The change in how services are provided to users enables libraries to keep pace with the rapid changing of user expectations and information needs in the face of technological and sociological advances (Kwanya et al., 2009).

As is the case for Web 2.0, a significant amount of literature relating to Library 2.0 is concerned with a definition or accepted view of core concepts. Michael Casey, Ken Chad and Paul Miller are credited as being the earliest users of the term (Black, 2007). Chad and Miller (2005) saw Library 2.0 as the democratisation of information, i.e. challenging presumptions about restrictions on information and the movement towards a library without barriers. They argue that the harnessing of technology to encourage and enable active participation and meet the expectations of the modern user is at the core of Library 2.0. Library 2.0 is libraries combining traditional strengths with facilitative information tools, ultimately ensuring the user’s needs are satisfied:

“The concept of Library 2.0 builds upon all that has been best about libraries to date, harnesses technological potential and community capability in order to deliver valuable, valued and world-class services directly to those who stand to benefit from them, whether they (ever) physically enter a library building or not” (Chad and Miller, 2005, p.11).

Kwanya et al. (2009) outline some of the different schools of thought concerning Library 2.0's influence on library services. While many see Library 2.0 as revolutionary, others see it as simply evolutionary, and others don't believe that it is either revolutionary or evolutionary. Kwanya et al. (2009) see Library 2.0 as being concerned with combining Web 2.0 with core concepts of librarianship such as change and assessment of user needs in order to remain relevant to those needs. Blyberg (2006) believes that the Library 2.0 movement is a unique and revolutionary movement, one that is bringing sweeping changes to library services. He states that Library 2.0 is driven by the influence of the post-Google information environment, and that the changes brought about by Library 2.0 require a significant amount of restructuring within libraries. Blyberg credits Library 2.0 with the increased levels of self-questioning by libraries today, and
goes on to say that the movement raises questions about the manner in which libraries have traditionally managed authority of materials. He believes that Library 2.0 is essential for the survival of libraries in the modern day and the fact that technology is an important component of Library 2.0 means that libraries must consider carefully which technologies to implement and the budgetary justifications for different services.

According to Crawford (2011), the analysis of what a library can and should do within the current information society, including the calculation of where resources should be directed, is a longstanding practice, one which doesn’t necessarily owe its existence to Library 2.0, which, as a term, isn’t majorly important for libraries as they attempt to improve and introduce services using new tools and applications. Crawford (2011) also suggests that the term ‘Library 2.0’ is often used in a slightly confrontational manner, to imply that librarians are not susceptible to change, that the new technologies and information philosophies coming to the fore in society are at odds with what librarians have been doing for many years. Farkas (2008a) sees Library 2.0 as being comprised of a number of non-revolutionary practices, practices which librarians have always been doing. These practices include: the development of a culture of assessment of services to meet changing user needs, listening to users and involving them in the future direction of library services, the willingness to experiment and improve services through trial and error rather than making efforts to define the perfect service, examining emerging technologies and trends and giving staff time to try them out, and looking outside the library world to see how other institutions implement technologies and how the public use these services (Farkas, 2008a).

A study of academic libraries in the United Kingdom set out to test the assumption that Library 2.0 is the implementation of Web 2.0 tools in the library (Shoniwa and Hall, 2007). Respondents to a web-based survey were asked to indicate their level of agreement with the assertion that Library 2.0 is about the implementation of Web 2.0 tools such as blogs, etc. in the library. 63 per cent of respondents agreed with the statement, while 31 per cent indicated strong agreement. Taking these together, 94 per cent of respondents agreed that Library 2.0 is the implementation of Web 2.0 tools and techniques within the library. Follow up interviews were carried out with the librarians deemed to have a strong
interest in Library 2.0. All interviewees agreed that the emphasis of Library 2.0 was to increase web presence of the library through the use of Web 2.0 tools. However, some respondents stated that little discussion took place about Library 2.0, but rather on the potential application of Web 2.0 tools in the library context. For them, the implementation of Web 2.0 tools was not motivated by an effort to implement Library 2.0. The author concluded that Library 2.0 involved a selective choosing from Web 2.0 tools, without any compulsion on the part of the library to necessarily attempt to be Library 2.0. The research showed that for most librarians, Library 2.0 does not present a new paradigm, as the focus is the same as it has always been: on meeting user needs.

In Finland, an attempt was made to provide a definition of the Library 2.0 concept by taking an empirical and consensual crowdsourcing approach (Holmberg et al., 2009). Academic and public librarians were asked “What is Library 2.0” and their responses were indexed and keywords were analysed using co-word analysis. This resulted in seven proposed focal components of Library 2.0: interactivity, users, participation, libraries and library services, web and Web 2.0, social aspects, and technology and tools.

While many agree that Library 2.0 is largely concerned with the implementation of Web 2.0 tools in the library environment, there are differing opinions as to the actual substance to the term ‘Library 2.0’. Meredith Farkas believes that Library 2.0 has been defined in many different ways by many different people:

“Trying to capture the essence of Library 2.0 is like trying to capture the wind” (Farkas, 2008a).

T. Scott Plutchak (2006a) believes that the Library 2.0 tag is “logically vacant”, as the use of Web 2.0 tools does not create a radical shift from what has gone before; the use of Library 2.0 as a term implies a revolutionary departure from Library 1.0, which, according to Plutchak, has always been about customer service and embracing change. He disagrees with those who pronounce Library 2.0 as a revolutionary development:

“..whenever I hear the denizens of the biblioblogosphere proclaiming that we need to figure out how to embrace change and use technology effectively and engage our users in new ways, etc., etc., as if these are startling new ideas, I'm left scratching my head. For many of us, this is what librarianship has always been about (Plutchak, 2006b).
Farkas (2008a) is of the opinion that the considerable hype around the Library 2.0 movement has meant that many librarians, rather than focusing on patron needs, have focused too much on how they can implement new technologies and applications in an attempt to be more Library 2.0, often resulting in the introduction of tools which are not necessary and fall into disuse, e.g. blogs that are updated for a short while and then abandoned. She believes that this Library 2.0 movement has had some negative impact, and little of real value resulted from the discussion around the concept (Farkas, 2008a). According to Blyberg (2008), the pursuit of Library 2.0 should not simply mean the implementation of Web 2.0 tools as a quick fix, without careful consideration of the library's "internal information ecology":

"...we cannot expect to retrofit our libraries with tomorrow’s technology. The true pursuit of Library 2.0 involves a thorough recalibration of process, policy, physical spaces, staffing, and technology so that any hand-offs in the patron’s library experience are truly seamless." (Blyberg, 2008).

According to Crawford (2011, p.110), the peak year for discussion of Library 2.0 has passed and the term is likely to fade into the background in the coming years.

In conclusion, the literature shows general acceptance that the implementation of Web 2.0 tools in the library is a big part of what Library 2.0 represents (Kwanya et al., 2009; Curran et al., 2007; McLean, 2008; Shoniwa and Hall, 2007). The influence of Library 2.0 on modern library services is widely debated, however, it is accepted that many of the core concepts of Library 2.0, such as change, technology, participation, service assessment, etc., have longstanding roots in traditional library practices (Crawford, 2011; Farkas, 2010; Kwanya et al., 2009; Plutchak, 2006b). Libraries around the world are implementing a variety of Web 2.0 tools. It has been the experience of some librarians that the implementation of Web 2.0 tools in their libraries did not represent an effort to implement Library 2.0, but only a desire to implement Web 2.0 tools (Shoniwa and Hall, 2007).

Opinions on many aspects of Library 2.0 vary widely. A widely held view is that Library 2.0 primarily involves the implementation of Web 2.0 tools in the library service. It has been argued that Library 2.0 is nothing new. Librarians don’t necessarily see the implementation of Web 2.0 tools in their libraries as having any connection to an attempt to implement Library 2.0, but merely evidencing an
There is little published research on the general subject of Library 2.0 in the context of Irish libraries, or whether Irish librarians see the implementation of Web 2.0 tools in libraries as a major component of Library 2.0. Given that there is a wide range of opinions concerning the value of the Library 2.0 concept, and also the motivations for implementing Web 2.0 tools in libraries, the view that implementation of Web 2.0 tools in libraries is a major component of Library 2.0 is not guaranteed to be shared by all, and as such the question is worth researching in the Irish context. Furthermore, it is not clear whether Irish librarians see the implementation of Web 2.0 tools in their libraries as motivated by an attempt to implement Library 2.0. Research has shown that it is possible for librarians to hold the view that implementation of Web 2.0 tools is primarily what Library 2.0 is concerned with, while at the same time claiming that the implementation of Web 2.0 tools in their libraries was not motivated by attempts to introduce Library 2.0 (Shoniwa and Hall, 2007). An Irish perspective on these points would be a welcome addition to the discussion. Researching these questions would provide knowledge that could underpin the knowledge gained on prevalence of Web 2.0 tools, as it would throw light on the view of Web 2.0 implementation and its relation to a wider Library 2.0 ideal, and also the motivations for introducing new technologies to libraries, in the Irish context.

2.3 RESEARCH ON THE PREVALENCE OF WEB 2.0 TOOLS IN LIBRARIES

Han and Liu (2010) remark that most of the publications analysing the application of Web 2.0 tools in libraries have a focus on a single Web 2.0 technology or a single service provided by libraries integrated with Web 2.0. Research-based literature on overall development of Web 2.0 application in the library community is rare.

Linh (2008) conducted a quantitative survey to determine the application of Web 2.0 technologies in Australasian university libraries. This involved the creation of a list of 47 Australasian universities, followed by the accession of all these listed library web sites with the aim of identifying the existence of Web 2.0 technologies. This provided a research sample of university libraries. Four Web
2.0 technologies were used: RSS, blogs, podcasts and instant messaging. 64 per cent of libraries surveyed used RSS, making it the most common technology employed. Blogs were the second most popular technology, with 36 per cent of libraries claiming to use them.

A survey by Shoniwa and Hall (2007), conducted to establish uptake of Web 2.0 technologies by UK academic libraries, again revealed RSS feeds and blogs as the top technologies implemented. The survey revealed that there had not been a great uptake of some services such as folksonomies, user tagging and social sites, despite the fact, as the authors note, that these technologies are the ones that epitomise Web 2.0. Rutherford (2008) researched social software use in New Zealand public libraries and found that among the kinds of social software they were using, blogs were by far the most popular, with the majority of blogging libraries using multiple blogs. In 2008 a sample of 57 international universities drawn from the Times's list of world university rankings was researched to examine the types of Web 2.0 technologies in place in university library websites and the purposes of the use of these technologies (Harinarayana and Raju, 2010). RSS was found to be the most widely used technology, followed by instant messaging services. Other technologies used by the university libraries examined were blogs, social networking services, podcasting, vidcasting and social bookmarking services.

Chua and Goh (2010) researched the prevalence of Web 2.0 applications in both public and academic libraries in North America, Europe and Asia. The paper sought to examine how Web 2.0 applications were being used in these libraries, and whether the presence of Web 2.0 applications enhanced the quality of library websites. The library websites chosen for the study were subjected to a content analysis with the aim of identifying the availability of Web 2.0 applications and the purposes for which these applications were being used. A quality evaluation framework was used by graduate research assistants to appraise the quality of the websites selected. The study found that while prevalence of Web 2.0 applications varied across the geographical regions, blogs were found to be the most widely used application, with 56 per cent of libraries making use of blogging technology. RSS was the second most popular tool with 50 per cent adoption, followed by instant messaging (46.6 per cent), social networking services (20 per cent), wikis
(16.6 per cent) and social tagging services (16.6 per cent). Libraries from different regions embraced Web 2.0 applications to varying extents. Despite the fact that the academic libraries examined showed higher adoption rates of all Web 2.0 applications, the difference in prevalence of Web 2.0 applications between the public and academic libraries studied was not found to be statistically significant, therefore Web 2.0 applications were held to have similar prevalence in academic and public libraries. The presence of Web 2.0 applications was found to have an influence on the quality of library websites.

A study by Anttiroiko and Savolainen (2011) remarked on the lack of research into Web 2.0 tools in public libraries:

“So far, there is a dearth of studies on how Web 2.0 technologies, applications and services have been taken into use in public libraries, particularly, the types of Web 2.0 applications adopted and how they were being used to improve the library service” (Anttiroiko and Savolainen, 2011, p.91).

Lee and Bates (2007) investigated the use of blogs in the Irish library community by examining the extent to which Irish librarians are using blog technologies and the factors that impact the uptake of blogs by librarians. They found that a significant proportion of Irish librarians read weblogs but did not use weblogs as an information resource, preferring other methods such as email and websites. 81.39 per cent of libraries surveyed maintained a web page, while only 5.81 per cent maintained a blog. Two cited purposes for maintaining a blog were the “sharing and dissemination of information” and “communications and interaction.” In a research paper looking at the online presentation of local studies collections by Irish public libraries, 28 of the 32 public library authorities had local studies websites or pages. Of the four highest scoring local authorities in this evaluation, three of the four showed evidence of Library 2.0 concepts such as virtual communities, user empowerment, user-generated content and adaption of Web 2.0 technologies.

There is a gap in the literature regarding the prevalence of Web 2.0 tools in Irish public and academic libraries. Research in this area would provide information on how widespread Web 2.0 tools are in Irish libraries, and how these tools are being used.
2.4 Popular Web 2.0 Tools and Their Potential Uses in the Library Context

The rise of user generated content, collaboration, sharing and active participation by the user in the information community is well covered by the literature (Al-Daihani, 2009; Alexander, 2006; Kamel Boulos and Wheeler, 2007; Linh, 2008; O'Reilly, 2005; Wallis, 2007). A considerable amount of literature has been published on Web 2.0 tools, technologies, applications and techniques and how these can be used to improve the library service. The use of mashups in the library service is also discussed (Fichter, 2006; Maness, 2006) The term ‘mashup’ is used to refer to the combination of two or more services, sources of data, functionalities, etc. to create a new service (Maness, 2006). A popular type of mashup is the overlaying of map data with data from other sources (Mills, 2005). The most commonly discussed Web 2.0 technologies in relation to implementation in libraries include: RSS and other syndication tools; podcasting; blogs; wikis; social networking sites; communication tools such as instant messaging systems; video sharing services and social bookmarking sites (Kamel Boulos and Wheeler, 2007; Kroski, 2010; Linh, 2008; O'Reilly, 2005; Stephens, 2008). In the following sections, these common Web 2.0 technologies will be examined with a particular focus on how they can be implemented in the library service.

2.4.1 Blogs

Blogs, or weblogs, are websites maintained by an individual, or group of people, in either a professional or personal capacity (Natarajan, 2007). A wide variety of content can be added to blog entries, and the format allows readers to rate, comment on and share content with other people. Blog entries are often added in the form of a diary, and are usually displayed in reverse chronological order. Blogs are frequently described as personal online journals, however such a definition is not entirely helpful, considering the differences between traditional journals and blogs (The Economist, 2006). There are varying views on what exactly a blog is, and the concept has changed over the years. The term weblog was originally used to refer to a server’s log files, but was later adopted to
describe the keeping of a personal electronic journal (Natarajan, 2007). In
December 1997, Jorn Barger coined the term "weblog" to describe the collection
of links on his website that tracked or logged the interesting web material that he
had discovered (Barger, 1999; Wortham, 2007). Peter Merholz is credited with
first using the word blog to describe an online journal; in 1999 he broke the word
weblog into ‘we-blog’ (Skinner, 2003; The Economist, 2006). Merholz states:

Sometime in April or May of 1999 (I can't say for sure when I exactly did
it), I posted, in the sidebar of my homepage: "For What It's Worth I've
decided to pronounce the word "weblog” as wee'- blog. Or "blog" for short”.
(Merholz, 2002).

The word ‘blog’ caught on with the internet community and its widespread
acceptance over the term weblog was ensured when companies such as Pyral used
the term to promote its weblog platform, Blogger (Merholz, 2002; Skinner, 2003).

The power of blogging software lies in its ease of use and archiving capabilities
(Fichter, 2003). Blogging software has simplified the process of publishing
information content online. Free blogging services such as Blogger and
Wordpress offer a wide range of sophisticated features to users. Blogs can be
customised with ease, an important benefit for information institutions, as
template and colour choices can be designed to tie in with promotional materials,
letterheads, etc. (Evans, 2009, p.7). Stephens (2008) describes librarians who blog
as ‘bibliobloggers.’ He argues that keeping a blog allows a librarian easy access to
the most important bits of information and knowledge, as the blog is a searchable,
archived personal management tool. Libraries can use blogs to publish library
news, details on how to access resources, or information on the wider information
community (Figure 2.1). Students can ask questions and share criticisms and
thoughts concerning the material through the comment function. Fichter (2003)
outlines some of the ways that librarians are using blogs, among them: library
news, promotion of library events, promotion of materials, user discussions, and
community services. Bradley (2007, p.41) discusses how library blogs can
provide value for librarians and assist them in meeting the needs of patrons. A
blog can be used to inform patrons about opening hours, library services and new
resources, while also encouraging debate and involving staff and users. Stephens
(2006a) suggests that blogs can be used to promote and market library activities,
highlight materials from the collection, and publish library news.
2.4.2 WIKIS

Wiki software is used to create wikis. A wiki, meaning quick in Hawaiian, is an online application that enables users to quickly create and publish websites with minimal web design knowledge and experience. Wikis are widely used as a collaborative tool, through which users create and revise versions of pages by using either a WYSIWYG (What You See Is What You Get) editor or some form of editing interface. Users may be required to register to help identify sources of page edits, or the application may permit anonymous editing. A well known example of a wiki is Wikipedia (http://www.wikipedia.org/), an online encyclopedia project founded in 2001 and supported by the Wikimedia Foundation. As of May 2011, there are 282 language versions and over 19 million articles (Wikipedia, 2011).

Libraries are currently implementing wiki software for a range of uses. A library interested in implementing wiki software can choose to select a particular wiki
software package, either paid or free, and install it on the library's own hosting space. Alternatively, an externally hosted wiki service can be configured and setup relatively easily. Mediawiki (http://www.mediawiki.org/) is an example of a free, open-source wiki software package. The software was originally designed for Wikipedia but is currently used on many other wiki sites.

Bejune (2007) provides a classification of library collaboration types:

1. Collaboration among libraries (extra-organisational)
2. Collaboration among library staff (intra-organisational)
3. Collaboration among library staff and patrons
4. Collaboration among patrons (Bejune, 2007, p.29)

He then goes on to provide examples of library wikis for each of these types of collaboration. A wiki for library instruction featuring instruction resources contributed by a variety of libraries would be an example of collaboration among libraries. An example of collaboration among library staff is the University of Connecticut Library’s staff wiki, containing information technology service documents, user manuals, frequently asked questions, computer instructions, etc. St. Joseph County Public Library Subject Guides wiki is provided as an example of collaboration among library staff and patrons. The wiki contains a large variety of resource information to assist library patrons. Finally, an example of collaboration among library patrons is given in the Wiki WorldCat, a pilot service from the OCLC which allowed users to add book reviews to items in the Open WorldCat.

Bejune classified thirty-two library wikis according to which type of collaboration they were being used to create. The majority of wikis (77.1 per cent) were classified in the first two types of collaboration: collaboration among libraries (45.7 per cent) and collaboration among library staff (31.4 per cent). The author attributes the high level of wiki usage for collaboration among library staff to the traditional legacy of collaboration and co-operation within libraries; librarians share a common experience of budgetary challenges to provision of high quality services, therefore, librarians are open to collaboration with other librarians, both internally and externally, as such collaboration comes naturally to them. Reasons for the low usage of wikis for collaboration among library patrons are not entirely clear, but one possible explanation provided by Bejune is the traditional one-way
relationship between librarians and patrons, whereby librarians are seen as
gatekeepers of information and a true collaborative atmosphere among librarians
and patrons is not present. The use of wikis for collaboration with patrons might
require a reconceptualisation of libraries by librarians and patrons. Bejune also
mentions the concerns surrounding issues of authority and responsibility that
come with allowing patrons to edit library resources.

Stephens (2006d) outlines specific ways in which wiki applications can be used
within the library service; these include: subject guides, project planning, policy
manuals, resource listings and training resources. Farkas (2005) discusses a range
of ways in which wiki software can be integrated in the library service. First, she
outlines the benefits of using wiki software for subject guides. She states that
wikis are very suitable formats for creating library subject guides, as the fact that
they can be freely edited means that the lists of resources are less likely to contain
dead links and out of date information. Librarians can moderate the wiki
contributions as much or as little as suits, to ensure the development of high
quality subject lists. Subject guides featuring contributions from patrons are more
likely to reflect the interests of users as a whole. She then mentions the potential
for implementing wiki functionality in library catalogues, for example, allowing
users to add reviews and other information to title pages. Creating such
functionality would be an effective way of incorporating patron reading
experiences into the catalogue. Wiki software could also be used by a library as an
internal tool. Staff could use the software to collaborate on group projects.
Relevant project documents would be easy to update by project members and
would be accessible to all. Publishing project information on the wiki would cut
out the need for time-consuming, repetitive email communications. A wiki could
be used to create a collaborative community information hub, featuring content
from members of the public. The wiki could encompass a wide variety of
community information, such as trade information, restaurant reviews, local
events, etc.
2.4.3 SOCIAL BOOKMARKING

Social bookmarking services allow users to share and categorise content. Users may upload content, or simply share their lists and bookmarks of favourite content already on the web. Users categorise the content by tagging, i.e. adding search terms to assist other users to locate the resource. The adding of tags in this fashion brings content of similar subject matter together in groups. Thomas Vander Wal, an American blogger, is credited with coining the term ‘folksonomy’ as a way of describing ‘the bottom-up organisational categories that emerge when individuals tag or describe information and images and those tags are pooled’ (McClellan, 2005). Folksonomies usually consist of clusters of tags, rather than hierarchies, and are organic by nature (Weinberger, 2006). Among some of the major advantages folksonomy and tagging systems possess are: that they encourage a spirit of sharing and community; they take advantage of the wisdom of crowds and that the use of such systems can offer insight into user behaviour (Kroski, 2005).

There are hundreds of different social bookmarking resources in use (Bradley, 2007, p.83). It is therefore helpful to analyse the more important or widely documented social bookmarking tools. Social bookmark services appearing frequently in the literature concerning Library 2.0/social bookmarking services are Delicious, LibraryThing and Flickr (Bradley, 2007).

Delicious is a social bookmarking service, allowing users to store, share and categorise web bookmarks (Delicious, n.d.; Green, 2010). In a survey of social software in libraries conducted by the Association of research libraries, Delicious was the most widely used social bookmarking service, used by 61 per cent (Bejune and Ronan, 2008). Delicious was acquired by Chad Hurley and Steve Chen, founders of YouTube, in May 2011 (Delicious, 2011). Rumours that the service would be discontinued caused concern among information professionals (Kennedy, 2011).

The collaborative tagging system allows users of the free service to discover access and view websites tagged by members of the community under their chosen terms. For example, a visit to http://delicious.com/tag/informationtechnology will display all websites recently
tagged under the term *informationtechnology*. The user can see how many members of the community have bookmarked these websites. Delicious has a feature called tagroll, which allows users to reproduce their tags on an external blog or web page through the use of JavaScript code, allowing those without coding knowledge to easily present their bookmarks in their chosen setting (Green, 2010). Delicious can be used in instruction sessions, to teach students to discover, categorise and share resources (Green, 2010). Delicious bookmarks can be organised into topic bundles, and integrated into subject guides in a manner that is consistent with the visual design of the library website (Farkas, 2008b).

Flickr is an image hosting website and online community where users upload photographs and other image content to tag and share with the rest of the Flickr community (Flickr, n.d.). While Flickr is primarily thought of as an image hosting website, it is frequently described as a social bookmarking service, albeit one which involves bookmarking and sharing of images rather than web links. Tagging can be used to describe content, copyright status or even the make and model of camera used to create the photograph. Users can create groups and communities for sharing content of their favourite subject matter, and can also interact by commenting on images. Flickr can be used by librarians to provide pictorial tours of the library space, showcase photographs of library events, publish historical photographs, and many other ways Bradley (2007).

LibraryThing is an online cataloguing service which uses information from the Library of Congress, Amazon and other world libraries providing open access to their collections to catalogue items (LibraryThing, n.d.). Users can involve themselves in an information community centred on books, e.g. one can connect with people who like similar books and receive recommendations. LibraryThing for Libraries provides libraries with a means to enhance their catalogue; the service can be used to incorporate book reviews from other LibraryThing users in the subscribing library's catalogue.
2.4.4 SYNDICATION

The syndication of internet content involves the placement of content in multiple destinations, allowing content creators and advertisers to benefit from greater reach, and enabling users to access high-quality content more easily (Internet Content Syndication Council, 2008).

2.4.4.1 RSS

The RSS acronym can stand for a number of different meanings, among them Rich Site Summary, RDF Site Summary and Really Simple Syndication. RDF Site Summary was the earliest syndication format to be called RSS; it was developed by the Netscape internet software company as a way to offer people news from multiple sources on a single page (Lerner, 2004). There have been numerous RSS standards developed over the years; RSS 2.0 was created by Dave Winer, head of Userland Software. RSS 0.91, RSS 0.92, RSS 1.0 and RSS 2.0 are the major standard developments (W3 Schools, n.d.). RSS and ATOM allow web content published in XML format to be reproduced in HTML and transferred to a variety of reader applications.

RSS involves the maintenance of a list of notifications called an "RSS Feed", which can be checked by people who want to be updated on the latest headlines and changes. Computer programs called "RSS aggregators" automatically access RSS feeds of websites for the user and organise the results in a convenient layout (Software Garden, 2004). This process removes the need to visit the actual content providers, and enables users to receive only the most relevant information, quickly and in an easy-to-read format (Tennant, 2003; Casey, 2007). RSS is simple to implement, and staff training requirements are low (Miller, 2004).

Feeds can be embedded on the front page of a library website, displaying news updates, details of new resources, blog updates, etc. An innovative use of feeds in the library setting is the publishing of relevant third party content. External news feeds or more specific information searches can be fetched and embedded on the library website (Bradley, 2007). Portals are created by collating material from numerous RSS feeds and presenting a list to the end user (Wusteman, 2004).
Using RSS technologies to create library portals is a very effective way for libraries to deliver targeted content to users (Byrne, 2005). Commercial dashboard services such as Netvibes use RSS technology to gather together and display a variety of content. Intelligent use of RSS feeds can free up valuable time for librarians, e.g. automated library collection updates (Stephens, 2006c). Mississippi State University Library uses RSS feeds to display new materials, enabling users to subscribe to feeds by subject, branch or special collection and be updated by feedreader when new titles arrive (Williams, 2008). A study by Harinarayana and Raju (2010) revealed some of the ways that top international universities are making use of RSS feeds. The majority of libraries surveyed used RSS feeds for the dissemination of library news, announcements, etc. Other uses documented include: the provision of information concerning instructional programmes, access lists to published podcasts and information on new titles acquired by the library. According to Han and Liu (2010), there are three main purposes of the application of RSS technologies in Chinese university libraries: dissemination of information such as news, events, book details and database information to patrons; notification of personal information generated by use of the library service; and the syndication of subject-related information.

2.4.4.2 Podcasts

A podcast is an audio recording syndicated for playback on computer or mp3 player. The word podcast, derived from the words iPod and broadcast, was used by Ben Hammersley in 2004 as a possible alternative for the word audioblogging (Bradley, 2007; Hammersley, 2004). The word ‘audiobook’ is usually used to refer to a complete audio work, while ‘podcast’ usually refers to audio files delivered in episode structure. Podcasting in the early days referred to the use of RSS and feed readers to transfer audio files to mp3 players or other user devices, but the term has increasingly been used to refer to any audio or video file that is downloaded to be played digitally (Worcester and Barker, 2006).

The ways that podcasting can be used in the academic library setting are varied, e.g. audio books, tutorials, news bulletins, lectures, interviews, etc. (Gordon-Murnane, 2005). Clark (2007) mentions the use of podcasting to create a virtual
library orientation or library guides as an example of podcasting’s cost-effectiveness for library service providers.

2.4.5 Social Network Services

Boyd and Ellison (2007) define social network sites as web-based services that enable users to create a profile and form connections with other users of the service. Interacting in a virtual environment with other users on online social network sites can enrich social links and it offers opportunities for social discovery and the forging relationships with people that share interests, experiences, etc. (Mathews, 2007). Social networking sites can be used by libraries to advertise their services and reach users outside of the traditional library space. The use of social networking services must be part of a wider, well-planned strategy if they are to be used effectively (Dickson and Holley, 2010). Two of the more prominent social network sites in use today are Facebook and Twitter.

2.4.5.1 Facebook

Facebook is the world’s largest social networking site, with over 750 million registered users as of August 2011 (Facebook, 2011). The use of Facebook by librarians is an effective way to reach and interact with users. Students’ awareness of new resources and services can be increased by the library using Facebook updates effectively (Thornton, 2009). Facebook pages are a supplement to library web sites in terms of marketing and outreach (Ganster and Schumacher, 2009). Facebook fan pages can operate as library portals, increasing the visibility and accessibility of library services (Farkas, 2007; Dickson and Holley, 2010). There are many ways in which Facebook can be used to improve the library service: to provide news updates, market events and exhibitions, promote discussion, showcase new additions to the collection, display feeds of relevant external information, provide an Ask-A-Librarian service to patrons, etc. (Thornton, 2009; Cooper, 2008). Figure 2.2 shows the Facebook page of Mayo County Library.
Figure 2.2: Mayo County Library Facebook page. Available at:  
http://www.facebook.com/pages/Mayo-County-Library/136071573095630

2.4.5.2 Twitter

Twitter is a social network and microblogging service, based in San Francisco (Twitter, n.d.-a). Twitter has over 200 million registered users as of March 2011 (Shiels, 2011). Users of the service post ‘tweets,’ i.e. short messages of 140 characters or less from their mobile device, through the web, or through a desktop-based Twitter client. A user can choose to follow and be followed by other Twitter users, ensuring that they have access to only the most relevant or interesting information. The Twitter information stream gives an accurate view of what people are discussing all around the world. Users can attach hashtags to their tweets, e.g. adding #librarystudies to a tweet ensures that people searching for tweets with that hash tag will see it (Twitter, n.d.-b). The use of hashtags results in real-time categorised streams of information.
Twitter is commonly used in the library context, usually as a means to provide news updates and information on new collections and services. RSS feeds can be set to automatically publish to Twitter, e.g. notifications of blog updates or collection additions could be sent to Twitter, with links to the relevant resources contained in each tweet. Similarly, Twitter updates can be reproduced in real-time on library blogs or websites using custom HTML provided by Twitter, e.g. a library homepage could feature a real-time stream of Twitter updates pulled from a number of different Twitter users, or containing a specified search term. A library Twitter account enables staff to interact with patrons; staff can receive suggestions, recommendations, reviews, etc. from interested students. Students can be encouraged to share interesting resources or provide feedback on aspects of the library service. Library staff can use Twitter as a form of reference desk, answering questions from students about resources and services. Twitter can also be used to gauge perceptions and expectations of library services, by monitoring user comments and criticisms (Mathews, 2008). Figure 2.3 is a snapshot of the Twitter page of Cork City Libraries.

Figure 2.3: Cork City Libraries Twitter page. Available at: https://twitter.com/corkcitylibrary
2.4.6 Instant Messaging

Instant messaging involves real-time, direct communication between two or more people over a network, who send text-based messages or share files, using an instant messaging client (Davis, 2007). Maness (2006) states that instant messaging systems predate the Library 2.0 movement; however he believes that these systems fit neatly into the 2.0 world by encouraging collaboration, offering a dynamic experience and, in the library context, contributing towards creating feature-rich multimedia chat reference services for patrons. Schmidt and Stephens (2005) liken instant messaging reference services to ‘sped-up’ email transactions. Stephens (2006b) analysed by means of a brief survey some of the benefits instant messaging systems provide to librarians. Respondents mentioned, among other benefits, that they made communication and collaboration easier. Some widely-used instant messaging services are Google Talk, AIM, Windows Live Messenger, Facebook Chat, Skype, Yahoo! Messenger and AOL Instant Messenger (Jayasuriya and Brillantine, 2007; Schmidt and Stephens, 2005; Kroski, 2010).

2.4.7 Video Sharing Services

Video-sharing services are used to upload video content to the internet, for sharing purposes. Libraries can use video sharing services to host a variety of video content, such as: video blogs (vlogs) about different aspects of the library service; promotional videos of library events; instructional videos on the use of library technologies, e.g. how to use RFID machines, instructional guides on searching electronic databases, etc.; video profiles of library staff; interviews with people of interest; information on new materials acquired; guided tours of the library space, etc. (Power, 2010). The most popular video sharing service is YouTube, a site based in California which was founded by Steve Chen, Chad Hurley and Jawed Karim in 2005 (YouTube, n.d.). It is currently the third most visited website globally (Alexa, 2011).
2.4.8 Virtual Worlds

Virtual Worlds are digitally animated, three-dimensional online environments in which people can interact using avatars, or digital representations of themselves. Perhaps the most well-known example of a virtual world is Second Life, created by Linden Lab in 2003. Massively multiplayer online role-playing games, commonly known as MMORPGs, are a type of video game where large numbers of people play and interact in virtual worlds. An example of a popular MMORPG is World of Warcraft. Virtual worlds differ from MMORPGs in that they are usually free environments without set goals or levels; MMORPGs require users to complete tasks in order to progress through the game (Barker, 2011). Sidorko remarks that a large body of literature refers to Second Life as a MMORPG, despite the fact that its creators classify it as a virtual world. Users of Second Life can explore the virtual space with their avatar and interact with other users in the virtual community. One can trade real money for units of Second Life’s currency, called Linden Dollars, and use this money to purchase goods and services within the game. Money can also be made by running businesses within Second Life, and property can be purchased. Second Life offers great collaboration and networking opportunities to information professionals around the world (Parker, 2008).

Hedreen et al. (2008) discuss The Second Life Library 2.0 project, founded in April 2006 by Alliance Library System and Online Programming for All Libraries (OPAL). The project aimed to explore the provision of virtual library services, promote the physical library within the Second Life world, and discover which services are successful in the virtual space. An island within Second Life was christened Info Island, and this housed the main library building. A reference service was created at a number of locations within and outside the main library building. Librarians provided reference through instant messaging technology. An information literacy instruction session was held in Second Life by a college librarian. Clickable book objects on shelves were linked to online resources such as dictionaries and encyclopaedias. Public domain texts were converted to a suitable format for viewing within Second Life. Computers and newspapers within the virtual library linked to government information websites. Book discussions take place in the virtual library, as well as discussion groups attended by librarians, cataloguers and other information professionals.
2.5 CONCLUSION

Web 2.0 is extensively covered in the literature; numerous publications debate the meaning of the term and how it has changed the information sharing ethos. There is an ongoing debate on the influence of Library 2.0 on modern library services. Opinion is divided on whether Library 2.0 presents a new paradigm; it is seen by some as revolutionary, by others as evolutionary. There is a wide range of views on the concept of Library 2.0, however the implementation of Web 2.0 tools in the library service is seen to align closely with the concept of Library 2.0 (Holmberg et al., 2009; Kwanya et al., 2009; Curran et al., 2007; McLean, 2008; Shoniwa and Hall, 2007).

There is a significant amount of literature focusing on the potential uses of Web 2.0 tools within the library service and the benefits that they can provide, as well as examples of actual implementations of Web 2.0 tools in libraries.

Research has shown that RSS and blogs are both very popular Web 2.0 tools in the library context; studies have repeatedly discovered these two tools as the most widely implemented Web 2.0 tools (Han and Liu, 2010; Linh, 2008; Rutherford, 2008; Shoniwa and Hall, 2007). Other Web 2.0 tools have varying levels of adoption in different libraries.

There is a gap in the literature concerning the prevalence of Web 2.0 tools in Irish public and academic libraries and the purposes for which Web 2.0 tools are being used in the library service.
2.6 RESEARCH QUESTIONS

1. Is the implementation of Web 2.0 tools in the library service a major component of Library 2.0, in the Irish context?
2. Which Web 2.0 tools and technologies are currently implemented in Irish public and academic libraries?
3. For what purposes are these Web 2.0 tools and technologies being applied in Irish public and academic libraries?
CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The research design refers to the issues involved in planning and carrying out a research project, from the formulation of research questions to the collection and analysis of data, through to the reporting of results (Punch, 2005 p.62). An effective research design involves careful consideration of the various philosophies and approaches to be undertaken when conducting research. The research process as such is multilayered; the peeling of the ‘research onion’, shown in Figure 3.1, will guide the researcher in choosing the methods and philosophies best suited to the study (Saunders et al., 2007).

![The research onion](image)

*Figure 3.1: The research onion (Saunders et al., 2007, p.102)*
3.2 RESEARCH PHILOSOPHY

According to Saunders et al. (2007), the research philosophy chosen during the course of a research project contains assumptions about how the researcher views the world, assumptions which underpin the research methods undertaken. There are three branches of research philosophy: epistemology, ontology and axiology. Epistemology refers to the question of what constitutes acceptable knowledge in the field of study; ontology is concerned with the nature of reality; while axiology is about judgements of value (Saunders et al., 2007).

Two of the major epistemological approaches used in the social sciences are the interpretivist and positivist approaches. The interpretivist approach is closely aligned with the qualitative method, while the positivist approach is aligned with the quantitative method. According to Holloway (1997), the interpretivist approach in social science involves focusing on human beings and the way that they make sense of reality. This approach rejects the positivist view that there are measurable, objective realities; rather the interpretivist approach argues that there are multiple, subjective realities among people in society. The interpretivist epistemological position with regards to research stresses that people are social actors, not objects, therefore the researcher must understand the research subject's view of the world. Research undertaken within an interpretivist research paradigm treats the data collected as a basis for exploration and insight, rather than mathematical analysis. The interpretivist researcher presents conclusions based on his/her understandings and insights into the realities constructed by research subjects, rather than statistical proofs.

The positivist view on the other hand is that valid knowledge is produced by the measurement of objective realities. A proponent of the positivist approach assumes that things can be studied as facts and that relationships between facts can be established as scientific laws possessing the nature of truth (Smith, 1998, p.77). A positivist approach to research means placing faith in the scientific method, which involves: the formulation of a research question, creation of hypotheses, research design and data collection, followed by the interpretation of data with a view to accepting or rejecting the formulated hypotheses (Gliner & Gliner, 2000). A criticism of the positivist approach is that it is not suitable for
providing in-depth knowledge about human behaviours and feelings (Crossan, 2003). Guba and Nelson believe that research methods are of secondary importance to research paradigms. They define research paradigms as:

"The basic belief system or worldview that guides the investigator, not only in choices of method but in ontologically and epistemologically fundamental ways” (Guba & Lincoln, 1994, cited in Tashakkori & Teddlie, 1998, p.21).

Tashakkori and Teddlie (1998, p.21) disagree with this position. They take a pragmatic approach, believing that the research question is more important than the selected methods or research paradigms underlying those methods. The researcher should avoid the ongoing, often distracting debates concerning concepts such as truth and reality. The researcher should:

“Study what interest and is of value to you, study it in the different ways that you deem appropriate, and use the results in ways that can bring about positive consequences within your value system” (Tashakkori and Teddlie 1998, p.30).

When formulating a research design, the making of a strict choice of position with regards to epistemological, ontological and axiological approaches is not always appropriate for the particular study. The pragmatic approach to research involves an acceptance that the research question should be the most important guiding factor when choosing which epistemological, ontological and axiological positions to adopt (Saunders et al., 2007). Variations in these positions are often appropriate. A core claim advanced by pragmatists is that the researcher should be free to choose the methods and techniques that best meet their needs and purposes (Creswell, 2003).

In the current study, a pragmatic approach is taken, i.e. the primary consideration that guides the study is the research question. A strict choice of epistemological, ontological and axiological positions is not appealing, in the author’s opinion, as the study will measure elements both subjective and objective. Furthermore, the study will be a multimethod study. A multimethod study involves the use of more than one method of data collection with associated analysis methods. In multimethod studies, the different methods used are compatible with the research paradigm, as opposed to mixed methods studies, which involve mixing methods
from different research paradigms, e.g. mixing quantitative and qualitative methods of data collection and data analysis in one study.

3.3 DESCRIPTIVE STUDY

The current study can be classified as descriptive research. According to Robson, as cited by Saunders et al. (2007, p.134), the purpose of descriptive research is to "portray an accurate profile of persons, events or situations." The current study will not attempt to establish causal relationships between variables, but will concern itself with providing descriptive statistics on the implementation of Web 2.0 tools in Irish libraries.

3.4 CHOOSING A QUANTITATIVE METHOD

Quantitative research involves the collection of data that can be expressed numerically, enabling the researcher to use statistical and mathematical procedures in data analysis, with the aim of producing findings for interpretation and presentation in a study. The quantitative researcher reduces research problems to questions, variables and hypotheses, and collects data using predetermined instruments such as surveys (Creswell, 2003). Quantitative research is suitable for large samples or research populations. Qualitative research on the other hand seeks to investigate understandings and experiences and is best suited to small samples (Silverman, 2005). Qualitative research is interpretive, as the researcher must rely on personal interpretations of data collected in order to identify themes and draw conclusions (Creswell, 2003). A quantitative approach is appropriate for the current study. The research will involve the collection of data through the use of both a survey instrument and content analysis. The data collected will undergo statistical analysis with a view to providing descriptive statistics on the research population in question, accompanied by the presentation of any relevant conclusions. The research questions will determine the selection of variables to be quantified and collected.
CHAPTER 4: RESEARCH METHODS

4.1 INTRODUCTION

When collecting data for the purposes of research, designing the processes to be carried out is necessary to ensure that all the appropriate data is collected to satisfy the research goals. This section will detail the research strategy, which encompasses the procedures to be followed in the selection of participants for the study, the collection of data and the analysis of data collected.

4.2 SELECTION OF PARTICIPANTS

The collection and analysis of data from all possible cases or group members is known as a census (Saunders et al., 2007, p.232). Saunders (2007) discusses the factors that determine when sampling should be used as an alternative to a census, including: the frequent impracticability of surveying an entire population, budgetary constraints and time constraints. With regard to the current study, the surveying of the complete population, Irish academic and public libraries, is not impracticable as the population is not prohibitively large. Budgetary constraints are not prohibitive either, as there are minimal costs involved in the survey design. Time constraints are a significant factor to consider in the current study, however, the time involved in administering an online survey by email to the institutions involved is not considered to be majorly prohibitive. This study will include a census, as the research population in question, Irish academic and public libraries, is sufficiently small to target in whole. The survey will seek one response per participating library.

An Chomhairle Leabharlanna, or The Library Council, manages library.ie, a website containing news and information about Irish libraries. The site maintains a list of contact details of all academic, public, government, educational, health and special libraries in Ireland (An Chomhairle Leabharlanna, n.d.). The participants to be included in this survey are drawn from the lists of academic and public library contacts in Ireland featured on the Library Council website. The
academic library list includes university libraries, institute of technology libraries, private college libraries and libraries of other third level academic institutions. The total amount of suitable academic library institutions to be included in the study is 33. The public library list consists of the 32 public library authorities in Ireland. The full research population therefore comes to 65 Irish academic and public library institutions (Table 4.1).

The research population, consisting of public and academic librarians, will serve as the basis for an investigation of the prevalence of Web 2.0 tools in Irish public and academic libraries and also whether the implementation of Web 2.0 tools in libraries is a major component of Library 2.0.

<table>
<thead>
<tr>
<th>Type of Library</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>32</td>
</tr>
<tr>
<td>Academic</td>
<td>33</td>
</tr>
<tr>
<td>TOTAL</td>
<td>65</td>
</tr>
</tbody>
</table>

*Table 4.1: Total amount of public and academic libraries forming the research population.*

**4.3 Multimethod Study**

This study will take the form of a multimethod study. A multimethod study involves the collection, analysis and mixing of multiple forms of either quantitative or qualitative data (Creswell & Clark, 2007). The central point of multimethod studies is that the different methods used are compatible with the research paradigm. This study uses more than one method of data collection, and each method of data collection and analysis in the study is grounded within the quantitative paradigm. According to Brewer and Hunter (2006), the use of a multimethod approach to research enables the researcher to use the strengths of different methods and also to compensate for their weaknesses and limitations. This study will feature two quantitative methods used sequentially, with one method (web survey) being dominant.
The selection of a multimethod design in the current research was guided by a number of factors, including: time constraints, budgetary constraints, and previous methods of data collection and research suggested by the literature in this specific area. Employing two modes of collection is necessary in the current study, as a census of the Irish library population’s application of Web 2.0 tools requires a complete set of data on Web 2.0 tool implementation. The survey research instrument is the primary method of data collection, as direct responses from librarians on the particular tools implemented in their libraries are adjudged to provide the most complete and accurate data. The analysis of library websites for visible Web 2.0 tools is the supplementary mode of data collection.

Recording Web 2.0 tool implementation by means of a content analysis is significantly more time consuming, and there is also a potential risk of inaccurate data if the content analysis does not follow a careful structure. The content analysis mode of data collection in this research helps to complement the survey instrument by filling in the blanks left by non-respondents to the web survey. As the research findings are intended to provide an up-to-date, complete view of Web 2.0 implementation in all Irish public and academic libraries, a multimethod approach was anticipated in the early stages of the project’s design. The research was conducted during the summer months, and therefore, a high response rate to the survey instrument was not expected. Nevertheless, a data collection design consisting of a content analysis method on its own was not deemed to be suitable, for a number of reasons. Firstly, the study aimed to discover information not available from a content analysis, particularly: views from Irish librarians on whether Web 2.0 tools were implemented in their libraries in order that the library service be Library 2.0; whether Irish librarians perceive Web 2.0 tools to be implemented effectively in their library; and which Web 2.0 tools Irish libraries were planning to implement in the future. Secondly, while the content analysis of websites in order to identify Web 2.0 tools provides an accurate picture of prevalence of Web 2.0 tool implementation, there remains the possibility that a complete set of data not be obtained, as information on Web 2.0 tools implemented internally is not readily available from a content analysis. Thirdly, a content analysis of all library websites was deemed undesirable, due to time constraints. A major advantage of the survey instrument over content analysis for
collection of data about Web 2.0 implementation is that it would collect relevant, accurate data in a much shorter timeframe.

The main focus of this study is to determine the presence of Web 2.0 tools in each library. Previous studies researching Web 2.0 and Library 2.0 tools in information institutions have made use of two different data collection methods: survey questionnaire and content analysis (Han & Liu, 2010; Linh, 2008; Shoniwa and Hall, 2007). In measuring the application of Web 2.0 tools in Australasian university libraries, Linh (2008) developed a research instrument in the form of a checklist. This was used to collect research data from library websites. The relevant library websites were visited and the checklist measuring Web 2.0 tool applications completed for each. Linh concluded with the opinion that future research in the area of Web 2.0 application in libraries might benefit from a combination of different methods such as content analysis and survey, so that researchers can seek opinions of information professionals and explore other aspects of Web 2.0 tool implementation in libraries. Research on the application of Web 2.0 tools in Chinese universities by Han and Liu (2010) involved the use of a combination of survey research and content analysis. The checklist applied by Han & Liu was based on the checklist research instrument used by Linh. Using a combination of data collection methods was justified by the authors as enabling collection of as much accurate data as possible on the application of Web 2.0 tools. Shoniwa and Hall (2007) measured the implementation of Web 2.0 tools in UK Higher Education and Research libraries by visiting library web sites and recording the visibility of Web 2.0 tools.

There were two main stages of actual data collection in the current study, along with two reminder stages. The first data collection stage was a web survey which was distributed to the research population. The initial invitation to participate in the survey was followed by a reminder email to non-respondents several days after the initial contact. This was a pure reminder, and as such had no impact on mode of data collection. A second reminder was then sent to non-respondents a couple of days before the closing of the survey. In all, the survey was active for a period of twelve days.
The second mode of data collection employed was content analysis of library websites. A checklist based on the survey instrument was used to record the Web 2.0 tools applied by all non-respondent libraries and the visible purposes for implementation. This content analysis mode supplemented the survey mode as it allowed the completion of the data collection on the main focus of the current research, Web 2.0 prevalence in Irish libraries. Secondary aspects of the research goals, such as the investigation of the connection between Web 2.0 tool implementation and Library 2.0 and the motivation for implementing Web 2.0 tools could not be examined in the content analysis stage as they necessitated the collection of subjective data from respondents.

4.4 Survey Design

A survey design is often employed to provide a quantitative or numeric description of trends, attitudes, opinions of a population by studying a subgroup of that population, known as a sample (Creswell, p.253). Sampling is the process of selecting a subgroup of people from a larger group to use as the basis for making estimations or predictions about facts, situations and outcomes concerning the larger group (Kumar, 1999, p.148). To carry out survey research, the researcher selects a sample and administers a standardised questionnaire (Babbie, 2010). By following scientific procedures in methods of data collection and analysis, generalisations can potentially be made from the sample to the larger group, or the population (Powell and Connaway, 2004, p.84). Descriptive surveys are used to describe characteristics of the population studied, estimate proportions, make predictions, and test associational relationships (Powell and Connaway, 2004, p.87).

This research will include a survey design as the primary method of data collection. There are numerous advantages to adopting a survey design. A significant advantage is the low cost involved. Furthermore, surveys can be distributed to large numbers of people with ease. According to Kumar (1999, p.81), cross-sectional study designs are the most common type of survey design used in the social sciences. The cross-sectional design involves one contact with the population under study at one point in time. A cross-sectional survey design
will be used in the current study, as direct contact through a survey instrument will be made with Irish librarians at one point in time.

Survey questions were formulated with the key research goals in consideration. The survey asked respondents to indicate which Web 2.0 tools were present in their respective libraries, and the purposes for which they were used. Questions on the connection between the implementation of Web 2.0 tools and Library 2.0 were included. There were also minor questions included on other technological developments and future and past Web 2.0 tool implementation.

The collection of survey data was managed by LimeSurvey (Figure 4.1). Lime Survey is a free, open-source survey application available at limesurvey.org. This survey application was chosen as it contains a range of features, including unlimited surveys and survey responses, skip logic, token management, etc. Alternative online survey providers such as SurveyMonkey provide limited functionality without signing up for expensive premium memberships. As LimeSurvey is free, the only cost involved was for hosting of the application. The application was hosted on a website owned by the author, which had previously been used for information technology projects undertaken in course modules.

![LimeSurvey control panel](image)

*Figure 4.1: LimeSurvey control panel.*

Once a database was set up and the application was installed, the survey was created by adding the necessary question groups, questions and sub questions. Skip logic, or survey conditions were added, to ensure that respondents were presented with questions relating to purposes of Web 2.0 tools only on the
particular tools that they had selected as currently being applied in their library. Token management was chosen as a means to track the number of respondents, organise invitation and reminder emails, and ensure each respondent only answered once. This was achieved by importing the list of 65 Irish library contacts into the survey application and generating unique tokens for each Irish library. Invitation emails to the research population contained unique URLs with tokens.

4.4.1 REMINDER STAGE OF SURVEY RESEARCH

With regard to survey research, mixed mode data collection involves the use of multiple methods of data collection from the sample or research population under study, e.g. telephone interview, web survey, face-to-face interview, etc. Mixed-mode designs can encompass mixed modes of actual data collection and methods of communication with respondents. Follow-up phases are frequently employed in survey research to raise response rates. According to De Leeuw (2005), a reminder in a mode different to the data collection mode is effective in reducing non-response error, and a 'pure' reminder provides no threats to measurement. There were two reminder stages in the current study.

4.4.2 SURVEY RESPONSE RATE

Out of 65 libraries invited to participate in the survey, the number of complete responses was 29, giving a survey response rate of 45 per cent.

4.5 CONTENT ANALYSIS OF LIBRARY WEBSITES

Content analysis is a process that involves summarising texts, images, maps, numerical records or other meaningful matter, with a view to the transformation of non-quantitative documents into quantitative data (Cohen et al., 2007; Krippendorff, 2004). Effectively analysing meaningful content with a context in mind can lead to the production of valid, replicable data. Content analysis is frequently used to analyse the occurrence of words, concepts, etc. in materials such as texts and films (Powell and Connaway, 2004). Websites are a valid
subject of content analysis. According to Han and Liu (2010), websites are becoming one of the main types of material subjected to content analysis. Content analysis of Irish library websites was undertaken in the current study to produce quantitative data on the implementation of Web 2.0 tools and their purposes. A checklist comprising of the survey questions examining the implementation and purposes of Web 2.0 tools was created. A list of the 36 non-respondent library websites was compiled. The website of each of these libraries was visited and analysed for the purpose of identifying Web 2.0 tool implementation. This involved a number of key procedures:

1. Carefully analyse library homepages and sitemaps for visible presence of Web 2.0 tools and their purposes.
2. Visit library information, online services, electronic resources, help, and other pages. Examine other relevant second, third and fourth level pages.
3. Use the built in search functionality of library web pages to find evidence of the implementation of relevant Web 2.0 tool applications.
5. Complete searches on social network, blog, video-sharing sites, etc. for library presences.

Checklists were marked according to the presence and functions identified from these procedures. Data were quantified and entered into a Microsoft Excel spreadsheet.

4.6 DATA ANALYSIS

Data collected by both the survey instrument and content analysis were entered into Microsoft Excel for processing and statistical analysis. Descriptive statistics were used to present the information gained from the research instrument. The purpose of descriptive statistics is to describe or summarise data obtained quantitatively, in a meaningful way. They provide information on variables and values measured in the study. Graphical displays such as pie charts, bar graphs, histograms, etc. are used to portray characteristics of cases or people with respect to measured variables (Powell and Connaway, 2004). Adobe Illustrator was used to create bar charts displaying the relevant data. Descriptive statistics are the most commonly used form of data analysis in library and information science (Powell and Connaway, 2004).
CHAPTER 5: FINDINGS

5.1 PREVALENCE OF WEB 2.0 TOOLS

78.5 per cent of public and academic libraries implement one or more Web 2.0 tools, while the remaining 22.5 per cent do not use any (Table 5.1). Table 5.2 is a frequency distribution table for the number of Web 2.0 tools implemented by libraries. Figure 5.1 represents this data in the form of a bar chart.

<table>
<thead>
<tr>
<th>No. of Web 2.0 Tools</th>
<th>No. of Libraries</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>One or More Tools</td>
<td>51</td>
<td>78.5</td>
</tr>
<tr>
<td>No Tools</td>
<td>14</td>
<td>21.5</td>
</tr>
</tbody>
</table>

Table 5.1: Number of libraries implementing one or more Web 2.0 Tools.

<table>
<thead>
<tr>
<th>No. of Tools Used</th>
<th>No. of Libraries</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>14</td>
<td>21.54%</td>
</tr>
<tr>
<td>1</td>
<td>11</td>
<td>16.92%</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>15.38%</td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>13.85%</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>12.31%</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
<td>9.23%</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>9.23%</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>1.54%</td>
</tr>
</tbody>
</table>

Table 5.2: Frequency distribution table representing number of Web 2.0 tools used.
Table 5.3 introduces the numbers of libraries implementing various Web 2.0 tools, while Figure 5.2 shows a graphical representation of the data in the form of a bar chart. Social networks are the most prevalent tool in Irish public and academic libraries, with 56.92 per cent of libraries using a social network account. 53.85 per cent of all Irish public and academic libraries have a Twitter account, and 46.15 per cent maintain a Facebook page. 41.54 per cent of all libraries have both a Twitter and Facebook account while 73 per cent of libraries using social networking use both services. Blogs (47.69 per cent) are the second most prevalent tool, followed by RSS (46.15 per cent), video-sharing (26.15 per cent), podcasting services (26.15 per cent), social bookmarking (18.46 per cent), and instant messaging services (16.92 per cent). 21.54 per cent of Irish libraries apply no Web 2.0 tools or technologies in their library service.
<table>
<thead>
<tr>
<th>Tool</th>
<th>Number of Libraries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blogs</td>
<td>31</td>
</tr>
<tr>
<td>RSS</td>
<td>30</td>
</tr>
<tr>
<td>Wikis</td>
<td>5</td>
</tr>
<tr>
<td>Social Networks</td>
<td>37</td>
</tr>
<tr>
<td>Podcasts Services</td>
<td>17</td>
</tr>
<tr>
<td>Social Bookmarking</td>
<td>12</td>
</tr>
<tr>
<td>IM</td>
<td>11</td>
</tr>
<tr>
<td>Video Sharing</td>
<td>17</td>
</tr>
<tr>
<td>Virtual Worlds</td>
<td>1</td>
</tr>
<tr>
<td>Mashups</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
<tr>
<td>None</td>
<td>14</td>
</tr>
</tbody>
</table>

Table 5.3: Number of libraries implementing various Web 2.0 tools.

Virtual world technologies and mashups are the least popular Web 2.0 tools, both being implemented by only one library (1.54 per cent). In the survey, 3 (4.62 per cent) respondent libraries selected ‘other’ Web 2.0 tools, webcasts and QR codes being the answers specified.

Figure 5.3 compares the prevalence of Web 2.0 tools in public and academic libraries. Social networks are the most popular Web 2.0 tool among Irish public libraries, with 62.50 per cent of all public libraries having a social networking account. Two thirds of academic libraries publish a blog or blogs, making blogs the most widely implemented tool among academic libraries. RSS (57.58) and social networks (51.52 per cent) are the next most popular technologies among academic libraries. Academic libraries show higher adoption rates of all Web 2.0 tools apart from social networks and podcasts.
Figure 5.2: Percentage of Irish libraries using specific Web 2.0 tools.

Analysing social network usage, Twitter is the most popular social networking tool overall, with 53.85 per cent usage among all libraries using social networks. Almost 42 per cent of all libraries forming the research population had both Twitter and Facebook accounts. In public libraries, Twitter is the most widely used service (53.13 per cent), followed by Facebook (50 per cent). 40.63 per cent of all public libraries maintain both a Twitter and Facebook account. Twitter is the most popular social network service used by academic libraries (54.55 per cent) while Facebook is used by 42.42 per cent. All academic libraries implementing Facebook are implementing Twitter also. One library indicated use of LinkedIn.
Figure 5.3: Comparison of Web 2.0 tool implementation among public & academic libraries.
Librarians were asked to indicate which Web 2.0 tools they had used in their library service in the past but then discontinued. Wikis, virtual worlds and instant messaging were selected by one library each as previously used Web 2.0 tools. Blogs and video-sharing sites were each selected by two respondents. 71 per cent of question respondents selected ‘none’. There was also a question on which Web 2.0 tools libraries planned to implement in the future (Figure 5.4). Blogs were the most widely chosen tool, selected by 31 per cent of survey respondents. Social networks, instant messaging and video-sharing were the tools next most chosen by respondents. Virtual worlds were the only tool not having planned implementation among respondents, and 22 per cent of respondents indicated no planned implementation of Web 2.0 tools.

Figure 5.4: Which Web 2.0 tools do libraries plan to implement in the future?
5.2 PURPOSES OF WEB 2.0 TOOL IMPLEMENTATION

5.2.1 SOCIAL NETWORKS

Figure 5.5 presents the data on purposes of social networks. It shows that all libraries currently using social network services use them for the dissemination of library news. The marketing of library services is another major purpose of blog implementation, along with user outreach and the publication of collection updates.

Figure 5.5: Bar chart representing purposes of social network service implementation.
5.2.2 BLOGS

Table 5.4 introduces the findings on purposes of blog implementation. Figure 5.6 represents the findings in a bar chart. Blogs are primarily used (87.10 per cent) by libraries to provide general news updates. 67 per cent of library blogs are used to market library services. Blogs are also used to provide instructions on electronic resource access. Blog entries on new acquisitions, collections, etc. are used by more than half of all libraries using a blog.

<table>
<thead>
<tr>
<th>Purposes of Blogs</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library news</td>
<td>27</td>
</tr>
<tr>
<td>Marketing of library services</td>
<td>21</td>
</tr>
<tr>
<td>Information on resource access</td>
<td>19</td>
</tr>
<tr>
<td>Information on new acquisitions</td>
<td>16</td>
</tr>
<tr>
<td>Information management tool</td>
<td>5</td>
</tr>
<tr>
<td>Wider community information</td>
<td>4</td>
</tr>
<tr>
<td>Other (Book reviews, providing information to library staff)</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5.4: Purposes of blog implementation.

5.2.3 RSS

Figure 5.7 represents the findings on purposes of RSS implementation within libraries. RSS technologies are primarily used for the dissemination of library news and the reproduction of blog updates on the library website (78.33%). Another major use of RSS is the reproduction of external information on the library website.
Figure 5.6: Bar chart representing purposes of blog implementation.

Figure 5.7: Bar chart representing purposes of RSS implementation.
5.2.4 Video Sharing and Podcast Technology

The fourth and fifth most widely used Web 2.0 tools are video-sharing services, such as YouTube and Vimeo, and podcast services. YouTube is the most popular video share site, with 76 per cent of respondents indicating implementation of video sharing using YouTube. Vimeo is used by 23 per cent of respondents. One respondent indicated the use of iTunes U to share videos. Video sharing is primarily used by Irish libraries to assist users in using the library: 64 per cent of respondents publish instructional videos, while 41 per cent publish video tours of the library space (Figure 5.8).

![Figure 5.8: Bar chart representing purposes of video sharing service implementation.](image)

Promotional videos are used by 29 per cent of respondents to publicise events and initiatives, inside and outside the library. Other uses indicated included streaming webcasts, widening user participation through showcasing student-generated films about the library, and the promotion of library collections and acquisitions.
Podcast usually refers to periodic media content released in an episode structure, while audiobooks are complete audio resources of information content. 82 per cent of respondents indicating podcast use specified audio podcasts. Video podcasts were used by 35 per cent of podcast users. Audiobook services are provided by more than half of respondents indicating podcast use (58 per cent). Podcasts featuring interviews with people of interest are provided by 29 per cent, while lecture podcasts are also provided by 29 per cent of libraries using podcasts. Podcasts featuring instructional tutorials on library services and resources are used by 23 per cent. Respondents selecting ‘other’ on the survey specified the provision of oral history podcasts as part of their podcast service.

5.2.5 INSTANT MESSAGING, SOCIAL BOOKMARKING, WIKIS, AND OTHER TOOLS

Social bookmarking services used include Delicious (33.33 per cent), LibraryThing for Libraries (25 per cent), Flickr (66.67 per cent) and Pearltrees (8.33 per cent). The two primary uses for Social bookmarking services are the collection and storing of web links of interest (58.33 per cent), and sharing of images and other rich media content (58.33 per cent). Subject guides are also created using by using social bookmarking to collect and classify resource (41.67 per cent). Libraries are also using social bookmarking accounts to interact with users and engage with the wider community (41.67 per cent).

Instant messaging technology is used primarily by libraries to create an Ask-A-Librarian service. One library indicated the use of instant messaging for internal staff communication. The mixture of content analysis and survey research resulted in evidence of five Irish libraries using wiki technology. Among these, wikis are mainly used as library instruction resources and spaces for book discussion groups. Subject guides, knowledge management tools, frequently asked question lists and community information resources are all ways in which wikis are used by the library implementing wiki technology. All libraries indicating wiki use in the web survey specified collaboration among library staff as the type of collaboration created by implementation of the technology.

One library specified the use of mashups, i.e. the combination of multiple sources of data, functionalities, services etc. to create a new service. The mashup specified
was the combination of information from Google maps and Flickr. A virtual
world service was used by one library, which had a virtual library on Second Life.
On the date of visiting the library in Second Life, a number of features were
visible, including a gateway to news, blogs and other online resources, and a
seminar and lecture zone.

5.3 IMPLEMENTATION OF WEB 2.0 TOOLS IN THE LIBRARY SERVICE
AND ITS RELATION WITH LIBRARY 2.0

Respondents were asked to specify their level of agreement, on a scale ranging
from strongly agree to strongly disagree, with the statement that the
implementation of Web 2.0 tools in the library service is a major component of
Library 2.0. Figure 5.9 introduces the results.

![Pie Chart]

Figure 5.9: ‘The implementation of Web 2.0 tools in library services is a major
component of Library 2.0’.
A quarter of respondents indicated strong agreement that Web 2.0 tools in the library are a major component of Library 2.0. Over 60 per cent of respondents indicated agreement with the statement. 7.14 per cent of respondents disagreed, and 7.14 per cent neither agreed nor disagreed. No respondents registered strong disagreement.

![Pie chart showing levels of agreement/disagreement.]

**Figure 5.10:** ‘Web 2.0 Tools are effectively implemented in my library’.

Respondents were also questioned on their opinion of Web 2.0 tool implementation in their respective libraries (Figure 5.10). They were asked to indicate their level of agreement with the statement ‘Web 2.0 tools are effectively implemented in my library’. 15.38 per cent of respondents strongly agreed with this statement, while 34.62 per cent indicated agreement. 30.77 per cent of respondents neither agreed nor disagreed. 15.38 per cent disagreed that Web 2.0 tools were effectively implemented, and 3.85 per cent strongly disagreed. Aggregating these levels of agreement and disagreement, 50 per cent of respondents agree that Web 2.0 tools are effectively implemented in their
libraries, while slightly fewer than 20 per cent disagree, and 30 per cent have no opinion.

![Pie chart showing responses to the question: 'Web 2.0 tools were implemented in my library as an attempt to 'be Library 2.0''.]

Figure 5.1: ‘Web 2.0 tools were implemented in my library as an attempt to 'be Library 2.0'’.

A question on the motivation for Web 2.0 tool implementation asked respondents if they agreed that Web 2.0 tools were implemented in their libraries because of an attempt by the library to be ‘Library 2.0’ (Figure 5.11). Opinions were more evenly divided among respondents, with 26.92 per cent agreeing and a similar percentage disagreeing. The percentage of those that strongly agreed (15.38 per cent) was higher than that of those that strongly disagreed (7.69 per cent), while slightly over 23 per cent of respondents had no opinion either way. Aggregating levels of agreement, 42 per cent of respondents agreed that Web 2.0 tool implementation was motivated by a desire to achieve a Library 2.0 service. On the other hand, almost 35 per cent were of the opinion that Web 2.0 tools were not introduced in their libraries through any attempt to implement Library 2.0.
CHAPTER 6: CONCLUSION

6.1 LIBRARY 2.0 AND WEB 2.0 TOOL IMPLEMENTATION

The research provided an Irish perspective on a number of points concerning the relation between implementation of Web 2.0 tools in libraries and Library 2.0. There was strong acceptance among Irish librarians of the statement that the implementation of Web 2.0 tools in the library service is a major part of Library 2.0, with over 86 per cent of those surveyed indicating agreement (Figure 5.9). An important component of the Library 2.0 service model is the purposeful change and evaluation of both virtual and physical services (Casey and Savastinuk, 2006). Libraries use Web 2.0 tools to improve aspects of their service, introduce new elements, and keep pace with user needs. Important elements of Library 2.0 include a culture of assessment, experimentation and awareness of new technologies and trends, elements that arguably are part of traditional library service models (Farkas, 2008a). By using Web 2.0 tools, libraries are implementing aspects of the Library 2.0 concept.

Implementing Web 2.0 tools effectively within the library service enables libraries to reach out to more users and also to serve existing users better. It is a way to achieve some of the agreed core principles of Library 2.0. Web 2.0 tools help to increase levels of openness and collaboration between libraries and patrons, and are a cost-effective method of introducing new communication channels (Curran et al., 2007). Web 2.0 tools help libraries to position themselves within the evolving information environment by making it possible to deliver a high quality library service to users beyond the library walls. The implementation of Web 2.0 tools is highly beneficial to libraries, regardless of whether this implementation is guided by Library 2.0 or not.

While the implementation of Web 2.0 tools is accepted as a major component of Library 2.0, the literature had shown that librarians did not necessarily introduce Web 2.0 tools to their library services because of a desire to achieve Library 2.0, rather the motivation was to simply introduce tools to increase the online presence of the library (Shoniwa and Hall, 2007). Opinions among Irish librarians are
mixed, with 42 per cent agreeing that Web 2.0 implementation was motivated by Library 2.0, 35 per cent disagreeing that the desire to achieve Library 2.0 acted as a motivation, and 23 per cent neither agreeing nor disagreeing. The influence of Library 2.0 on modern library services is widely debated, however it is accepted that the use of blogs, social networks, instant messaging, etc. is a central part of what it represents. While there is healthy debate on whether the term adds value to modern library service models, the concepts that it refers to are a crucial part of effective library services. Whether libraries are arriving at Library 2.0 by design or otherwise, it can be said with certainty that Library 2.0 is evident in modern library services.

Research has shown that Irish librarians view the implementation of Web 2.0 tools and technologies as being closely entwined with Library 2.0. Whether or not the implementation of these tools is motivated by an attempt to achieve Library 2.0 varies from library to library. Half of respondents to a question concerning effective implementation of Web 2.0 tools agreed that Web 2.0 tools were effectively implemented in their libraries. The findings support the view that the introduction of Web 2.0 tools to library services does not necessarily depend on the guidance of some higher concept such as Library 2.0. Libraries have always been interested in harnessing the potential of technological tools and trends (Plutchak, 2006a). The implementation of Web 2.0 tools is entirely in keeping with the traditional goal of librarians, which is to serve patrons (Crawford, 2011; Farkas, 2010; Kwanya et al., 2009; Plutchak, 2006b). Using Web 2.0 tools allows librarians to serve patrons better.

6.2 Web 2.0 Tool Implementation in Irish Libraries

The literature on Web 2.0 application in libraries reveals that the prevalence of different Web 2.0 tools varies among different regions and library types (Han & Liu, 2010; Chua & Goh, 2010; Linh, 2008; Shoniwa and Hall, 2007). Functionalities and applications of the Web 2.0 sphere are constantly changing, and the prevalence of Web 2.0 tools in libraries is likely also to undergo frequent change, as are many aspects of library services in what are challenging times for libraries. As such, any study of Web 2.0 tool implementation serves as a snapshot
of current adoption and helps document the increase or decrease in prevalence of different services and functionalities.

Half of respondents to a question on effective implementation of Web 2.0 tools agreed that such tools were effectively implemented in their libraries, whereas a fifth of respondents believed that they were not implemented effectively. 78.5 per cent of Irish public and academic libraries implement at least one Web 2.0 tool, with varying adoption rates of different tools among public and academic libraries. Most of the Web 2.0 tools studied had higher adoption rates in academic libraries, with social networks, podcasts and mashups being the only tools more prevalent in public libraries. A possible explanation for academic libraries having a higher adoption rate of Web 2.0 tools than public libraries is that academic library users in general are likely to be more technologically proficient, whereas public library user bases consist of a wider cross-section of society.

Social networks are the most widely used Web 2.0 tool in Irish public and academic libraries, with over half of all libraries maintaining a presence on a social networking site. Of these libraries, a high percentage use both Twitter and Facebook, the two main social network services in use by libraries, Twitter being the more popular of the two. Facebook and Twitter are two of the largest social networks in operation. There was a strong take-up of social networking tools by both public and academic libraries in Ireland, with a larger percentage of public libraries having implemented social networks. Looking at the levels of adoption of social networking among libraries in different regions revealed by previous research, an audit of UK library websites in 2007 showed that there was a low uptake of social networks; a possible reason given by librarians interviewed was that there had been little practical benefits identified for implementation of certain Web 2.0 tools (Shoniwa and Hall, 2007). It is worth noting that this audit was completed in February 2007, and the use of social networks in general has increased greatly since then. Harinarayana & Raju (2010) investigated the application of Web 2.0 features among a sample of 57 library websites drawn from a ranked list of the world’s top 100 universities. This sample was selected according to language usage and implementation of at least one Web 2.0 feature or tool. Social networks had a low prevalence, with over 8 per cent of sampled university libraries using them. Han & Liu’s (2010) study examining the
application of Web 2.0 tools in top Chinese University libraries found that the implementation of social networking services was very low (11 per cent) among university libraries, despite the huge popularity of social networking among the student population. Content analysis completed on 120 highly ranked public and academic library websites from North America, Europe and Asia revealed social networking services to be the fourth most popular tool, with 20 per cent implementation among libraries (Chua and Goh, 2010).

The high uptake of social network services is unsurprising, given that they offer libraries an effective and low-cost means of targeting library users and promoting the library service (Ganster and Schumacher, 2009). Services such as Twitter and Facebook are widely used by members of the public; this makes these services an obvious choice for libraries attempting to reach as many users as possible. Over forty per cent of all libraries implement both Facebook and Twitter services. These services are frequently used to complement each other, with similar content appearing on each. Using such services together makes sense, as reproducing content on a number of online spaces serves to maximise reach, e.g. sending feeds of news, events, announcements, blog updates, etc. to both services. Many libraries send blog updates to both Twitter and Facebook.

Providing updates on library news and events are the main purpose of social network use in Irish libraries. News updates are disseminated by libraries through their social networking account either by entering manual updates, or by sending news feeds from the library website to the service automatically (Figure 6.1). Libraries using Facebook largely use their ‘wall’ to display updates. The wall is the primary space on Facebook for sharing and posting a wide variety of content. Wall updates contain permalinks, allowing library users to share individual updates, as well as rate and comment on news entries. Members who wish to receive updates from the library can have library wall entries appear in their own news feeds. An RSS Feed of the library’s Facebook wall posts is also available to users. The time and content devoted to maintenance of library social network pages can vary according to the needs and resources of the particular library. Some libraries reproduce the library news RSS feed on Facebook and Twitter, with no further input. Others use the library Facebook page to display a mixture of automatic and manual updates containing images and videos, to invite comment
from users, to integrate polls and discussion topics, and to answer queries and requests.

Another reason for the widespread adoption of social networks is that they offer libraries an opportunity to extend the library’s presence in the online space (Dickson & Holley, 2010). A large percentage of Irish libraries using social networks use them as a means to market and promote different aspects of the library service, and also to reach and engage with users of the library and the wider community. Services such as Facebook, Twitter, etc. are relatively easy to set up and maintain. Multiple library staff can contribute to the maintenance of the library's page, which can then reflect a uniform library identity. Formulating marketing campaigns through Facebook is a low-cost option for information institutions, and offers the potential for wide reach. Facebook's Insights service enables administrators to view detailed statistical intelligence on user response to marketing campaigns.

![Tweets](UCCLibrary UCC Library Sage Research Methods Online - Trial now available until the end of August. Access via IP. 13 Jul)

![Tweets](UCCLibrary UCC Library New Trial Database - Henry Stewart talks: Management and Marketing (includes lectures from world business leaders) - hstalks.com/go/browse 7 Jul)

![Tweets](UCCLibrary UCC Library Book bin in Quad Reading Room to return items to the Boole Library after library closes. Quad Reading Room open Mon to Thur 16:30 - 20:45 7 Jul)

*Figure 6.1: News updates on University College Cork Library Twitter page.*
A major benefit of using social networking services for user outreach is that it helps to target users through services that these users are using in large numbers, meaning that the library is offering them additional ways to access library information, in a manner convenient to them, therefore maximising the impact of the library service in a resource effective manner (Ganster and Schumacher, 2009; Mathews, 2007). Libraries have always attempted to bring the library service to patrons, and user outreach through social services is a continuation of this tradition (Farkas, 2007).

Blogs and RSS were the second and third most prevalent Web 2.0 tools respectively with each being implemented in almost half of all libraries. The percentage of academic libraries implementing blogs was more than twice the percentage for public library adoption. RSS also had a higher adoption rate in academic libraries. Irish library blogs are mainly used to publish library news and events. Libraries also use blogs to market the library service, provide information to users on how to access different electronic and physical resources, and publish updates on new acquisitions and features of the library's collection. A small percentage of libraries add regular book reviews as blog entries (Figure 6.2).

Studies have consistently shown blogs and RSS to be two of the most widely implemented Web 2.0 tools in libraries. Shoniwa and Hall's 2007 study found RSS and blogs to be the two most popular tools implemented in British academic libraries. The connection between the two services was noted by the authors, with many library RSS feeds being used to offer subscription functionality to blogs. In a study of top Chinese university libraries, while implementation was relatively low, RSS and blogs were the second and third most implemented tools respectively (Han and Liu, 2010). In Linh’s (2008) study, of the four Web 2.0 technologies implemented by Australasian university libraries, RSS and blogs were the most popular. RSS and blogs were found to be the most widely implemented Web 2.0 tools among the sample of 57 universities collected by Harinarayana and Raju (2010).
Blogs and RSS were again the first and second most widely adopted tools among a sample of library websites from across the world (Chua and Goh, 2010). RSS and blogs are frequently used together, e.g. RSS feeds of blog updates embedded on pages of library website, external RSS feeds embedded in sidebars of blog, etc. The popularity of blogs among librarians can be explained by a number of factors, including: ease of implementation, the wide variety of blogging services, ease of use, low-cost involved, the opportunity for customisation, ease of integration with other tools, and their effectiveness in promoting collaboration (Natarajan, 2007; Stephens, 2006a). Blogs are effective ways to disseminate information that was traditionally published in manuals, pamphlets, etc., which weren’t necessarily
effective in reaching the maximum amount of users (Shoniwa and Hall, 2007). Similarly, RSS's clear purpose and ease of implementation is a reason for high rate of adoption (Stephens, 2006c; Linh, 2008).

Media sharing technologies such as podcasts and video sharing services, while having lower rates of adoption than social networks, blogs and RSS, are implemented in over a quarter of all libraries studied. The use of podcasting technology, particularly audiobook services, is popular among public libraries, with lectures, interviews and oral history accounts being popular uses for podcasts. Video sharing services are primarily used for hosting instructional videos and tours of the library space (Figure 6.3). YouTube is by far the most popular service implemented.

Social bookmarking/tagging services are implemented by 18 per cent of libraries, with Flickr, the social tagging community based around the sharing of images, being the most popular service. Delicious and LibraryThing for Libraries are also implemented by a small percentage of libraries, and are mainly used to store links and content of interest, form library subject guides, and engage with the community. Instant messaging technology is primarily used to provide a virtual reference service, or ‘Ask a Librarian’ service, to users. This primarily takes the form of an instant messaging widget embedded on the library website which invites users to ask questions of library staff (Figure 6.4). The web survey indicated one library using instant messaging as an internal staff communication tool. There is a higher rate of instant messaging adoption among academic libraries. Instant Messaging services are a very effective tool for librarians in attempting to reach users, as they can be implemented for free, and easily integrated with the library's website. Using instant messaging services brings librarians closer to the point of need of information seekers (Stephens, 2006b).
Figure 6.3: Introductory video published by Carlow County Library on Vimeo

There appears to be a relatively low rate of adoption of wiki technologies within Irish libraries. Of the five wikis found to be implemented in Irish libraries, four are used for internal collaboration among library staff. Purposes of wiki implementation included library instruction, subject guides and knowledge management.

Survey respondents indicated a low rate of abandonment of Web 2.0 tools, with 71 per cent of librarians responding to a question asking them to indicate which Web 2.0 had been implemented in their library and then abandoned selecting ‘none’. Of this 71 per cent, 17 per cent currently had no Web 2.0 tool
implementation. The tools selected as having been used and then discontinued were blogs, video-sharing services, wikis, virtual worlds and instant messaging.

There is a danger that librarians can become caught up in the hype of Library 2.0 and begin to introduce Web 2.0 in their library services because of a perceived need to follow other libraries by introducing popular Web 2.0 tools (Farkas, 2008a; Blyberg, 2008). The low rate of abandonment of Web 2.0 tools by Irish libraries suggests that Irish librarians are implementing Web 2.0 tools in the correct manner, i.e. by carefully integrating Web 2.0 tools into the library's information framework, and only the tools which are judged to fulfil a genuine purpose within the library service.

![Image](image.png)

*Figure 6.4: Instant messaging widget on Dublin Business School Library website.*

Regarding the future implementation of Web 2.0 tools, 77 per cent of respondents to the question asking them to select any tools that they planned to implement in their libraries selected one tool or more. The tool selected the most was blogs, with almost a third of respondents planning to introduce a blog in their library service. Social networks, RSS, video-sharing, wikis, instant messaging, podcasts
and social bookmarking services were all selected also. No respondents selected virtual worlds. According to the survey responses, there is a strong likelihood that implementation of the majority of Web 2.0 tools in Irish library services will increase in the future. Web 2.0 tools are an effective way to improve aspects of library services and libraries are increasingly open to introducing these tools.

In conclusion, the majority of public and academic libraries in Ireland implement at least one Web 2.0 tool. Social networks are the most popular Web 2.0 tool among Irish public and academic libraries. Social network services such as Facebook and Twitter are used by libraries to disseminate library news and events, market the library service, and reach out to users by extending the library’s presence in the online space. Blogs and RSS are the second and third most prevalent tools. Blogs are a popular choice for future Web 2.0 tool implementation in Irish libraries, and are used to provide users with news updates and market aspects of the library service, as well as providing information on new additions to the library collection. RSS is widely used to enable users to subscribe to blog updates, and also to embed information from external feeds in library blogs and pages. Irish librarians largely agree that the implementation of Web 2.0 tools in the library service is a major component of Library 2.0. Implementation of Web 2.0 tools by Irish librarians in their library services is frequently motivated by a desire to achieve a Library 2.0 level of service, however a significant proportion of librarians surveyed disagreed that Library 2.0 was a motivator of Web 2.0 tool implementation. The widespread adoption of Web 2.0 tools by Irish libraries is evidence of the concept of Library 2.0 in Irish library services. However, the implementation of technological tools to better serve patrons is a practice which libraries have traditionally embraced; therefore the presence of Web 2.0 tools in modern library services does not necessarily imply that Library 2.0 is a major concern for many libraries in deciding to introduce new technologies.
CHAPTER 7. SELF REFLECTION ON OWN LEARNING AND PERFORMANCE

This self-reflection section will set out some of the personal learning that has taken place over the course of the dissertation programme. As a brief introduction, I feel it necessary to provide some background on learning styles theory and my personal learning style. Some information on how my personal learning style has affected my education in the past will be detailed, as I feel it helps to demonstrate how my learning style has had both positive and negative influences in the past and feeds into my educational development over the course of the MSc dissertation programme. I will attempt to explain the manner in which my learning habits and methods of approaching academic challenges have been influenced by the dissertation programme. I hope to show how this influence has added value to me personally, including the ways I hope to capitalise on the personal learning in my future career.

Kolb developed a four-stage ‘experiential’ model to describe the learning cycle. The stages of the Kolb model encompass the processes of experiencing, observing and reviewing, thinking and planning. Honey and Mumford adapted Kolb’s experiential learning model to develop a learning cycle model that can be tied in with their classification of four types of learners, activist, reflector, theorist and pragmatist (Figure 7.1). Mumford (1995) provides a summary of the different types of learners and which stage of the four-stage learning cycle they are more suited to. Tate (2004) outlines the reflective learning cycle advanced by Boud, Keogh & Walker. The first step in the reflective learning cycle is to describe an incident experienced, recording the actions, thoughts and feelings which resulted from that experience. One should then reflect upon the incident in order to identify changes in patterns of thoughts and feelings. The goal should be to identify new ways of thinking and feeling caused by the experience. The focus should then shift to how to carry forward those new ways of thinking so that one can think and act differently in future situations.
Regarding my personal learning style, I view myself as a reflector. Reflector learners are closely aligned with the reviewing stage of Honey & Mumford’s learning cycle model. I perform to the best of my ability when I have considerable time to organise myself and carefully assess different aspects of the research project. I am very well organised and feel that I am very capable of bringing clear focus to problems, provided that I can take my time and gain an understanding of the problem in my own way. I prefer to listen to and observe others. I enjoy a deductive style of reasoning, examining rules and theories and then carefully applying them during the research process. I am very thoughtful and usually feel uncomfortable with being put on the spot, or being rushed into a contribution without being given a chance to focus properly on it. One of the main reasons I was drawn to a degree in Law a number of years ago was that I deemed it to be well suited to my individual learning style.

The completion of this dissertation project is the culmination of a long period of academic and personal development, the majority of which I found to be challenging and at times stressful. I have encountered challenges at different stages of the research process, and how I faced these challenges along the way has had a real impact on my learning and way of thinking when it comes to research.
Successfully seeing the research project through, despite being faced with these challenges, has been hugely beneficial for me, in an educational sense, and perhaps more importantly, in a personal sense. The successful completion of the programme was challenging, as it forced me to step outside my usual way of thinking to achieve results. I had to approach challenges in creative ways, learning how to be more open-minded when undertaking a research project. I believe that the dissertation research process developed my research skills significantly.

Two significant experiences during the development of my dissertation proved to be the source of personal learning. A major personal signpost on the way to completion of the dissertation research project was the Scientific Research Methods module undertaken in semester two of the first year of the Masters programme. The module was the earliest stage of the dissertation project. An assignment of the module was the creation and presentation of a research proposal. The most important part of this process was the exploration of areas of interest with the final dissertation project in mind. The course taught me to approach possible research areas with an open mind, and also to begin to think scientifically concerning the research methods that were most appropriate to explore our chosen areas. The research methods module was crucial for me, as I had never completed a dissertation or thesis before, and the module introduced me to different methodologies and research designs. I found it to be a valuable process in formulating a long-term research strategy. I learned about sourcing relevant academic literature and critically reviewing it. Giving a short presentation of the literature review on aspects of the research topic helped me to reflect on my learning over the course of the module, and also to take on board suggestions and criticisms of course instructors. A valuable insight gained was the potential for reflection arising from mistakes made and difficulties encountered. I learned that unforeseen circumstances during the course of research have the potential to impart valuable lessons for the researcher. Insights gained during the research methods module were of great assistance to me during the dissertation process, as my researching abilities were significantly strengthened by the module. While completing the literature review, I brought to bear my personal learning style. An organised approach was taken in sourcing and consulting a wide body of academic research articles and material from a wide variety of sources. The result
was a literature review which blended together a range of academic views related to the research topic. I learned how to better interpret and contextualise to form a clear and logical progression towards the research objectives. The value of learning to me personally as a result of researching and writing a detailed literature review has been significant. I feel that I became more skilled in critical analysis; my ability to extract the most relevant information and theories from pieces of academic literature and compare and contrast them to other related pieces has been greatly improved by the process. The practice of classifying research, laying out ideas and arguments expressed and using them to arrive at the research questions has been effective in increasing my understanding of the research process. My own personal style of learning means that I spend a long time analysing every aspect of an issue, from many perspectives. I need to gather as much information as possible about elements of an issue before I feel comfortable with trying to gain an understanding of it. This has the result that I need a long time to organise and study information. A disadvantage of this is that I frequently become stressed when completing research projects with deadlines. A negative impact of the way I learn is that I sometimes tend to become too caught up in the small details, with the effect that I sometimes take my mind off the bigger picture. As a result, I frequently need to step back from my work and reassess. One of the main things I learned during the dissertation project is how to better identify theories and threads to link elements together. Due to the limited timeframe allowed, I was forced to better learn how to focus on theories, key points and links between different material, rather than painstakingly focusing on every piece of information equally. I found my ability to critically analyse much improved by the research project. The personal value in these learning outcomes is that I am more confident and enthusiastic about partaking in research projects in the future. I welcome the improvement in critical thinking as a result of drawing together a number of different threads and using them to weave a logical progression of ideas and opinions into a solid piece of analytical work that helped frame the research questions. I believe that I could use these skills to add value to a future career in the information management sphere. Completing the literature review has been a learning process, and on reflection I am of the opinion that should I partake in any research projects in the future, large or small, I will be able to bring a clearer focus from the outset to what is required from the literature
review. I am confident that in a future career working in a legal setting I would be able to apply some of the improved critical analysis skills. I would apply those skills to carefully analyse case law material and gain an understanding of the cogent legal principles and rules to extract and apply in practice. My improved skills in organisation and time management will be crucial for future employment in the legal sector.

A significant learning experience during the dissertation project was the formulation of research methods for the study. To answer the research questions, there was a requirement for as complete a set of data as possible, to enable the creation of an accurate picture of Web 2.0 tool implementation in Irish libraries. A web survey was the best method of data collection to employ, as it would deliver data on Web 2.0 tools, and subjective views from librarians on the relation of Web 2.0 tools to Library 2.0. Content analysis of library websites would collect data on Web 2.0 tools; many of the previous research projects on Web 2.0 implementation made use of content analysis. The problem to address was that no single method of data collection could guarantee the complete set of data required by the study. Using a web survey alone would not return a complete set, as a 100% response rate was highly unlikely, while content analysis would not deliver subjective information from librarians. The challenge of selecting suitable research methods was a significant one. Initially, it inspired feelings of frustration and disappointment, as there was a worry that I would not be able to investigate the research questions to the extent planned. A creative approach to the problem was crucial, an approach more closely suited to those of the activist learning style. In a limited timeframe, I had to research study designs and determine the best fit for the current research. I am usually uncomfortable tackling problems without a chance to look at all the issues from a number of different perspectives in a thoughtful and methodical way. The short timeframe meant that I was forced into activities more suited to an activist style of thinking, in that I needed to tackle an immediate problem in a creative fashion. The process of choosing an appropriate research method was a very challenging one for me personally. In addition to using brainstorming and tackling the issue in a timely fashion, I also brought strengths associated with the reflector learning style by using my organisational and analysis skills to make sure that the multimethod study was appropriate for
the study and the type of data required to be collected. The choice of multiple methods of data collection was the result of a pragmatic approach to formulating a research design. The use of a pragmatic research design meant that rather than focusing too much on the research methods with underlying research paradigms, the researcher should let the research questions be the primary guiding factors on the study. I believe that being pragmatic in this manner about research methods went against the way I usually operate, and I learned the value of being more flexible when it comes to problem solving, i.e. that the thoughtful, carefully-structured style of approach is not always the best approach to take to a problem. A career in the information sector, a career requiring problem-solving and creative thought, would offer the opportunity to take advantage of the skills learned during the research process.
CHAPTER 8: BIBLIOGRAPHY


BEJUNE, M. & RONAN, J. (2008). 'SPEC Kit 304: Social software in libraries - Executive summary', Available at:


APPENDIX A. SURVEY QUESTIONNAIRE

This survey is being undertaken as part of a dissertation researching the prevalence of Web 2.0 tools in Irish public and academic libraries, and the implementation of Web 2.0 tools as a major component of Library 2.0.

The survey should take no longer than 5-10 minutes to complete; length of the survey will vary according to the Web 2.0 tools chosen.

The survey will not require any personal identifying information, however, respondents can choose to enter such information for the purposes of a draw for an Amazon voucher. Any such information supplied will not be published.

Any questions or comments to nicktleonard@gmail.com. Alternatively, you may contact the dissertation supervisor Caitriona Sharkey at caitriona.sharkey@dbs.ie

Thank you again for participating in this survey.

Regards,

Nick Leonard

Section One - Your Details

1 [001] Please specify the nature of your library. *

Please choose only one of the following:

- Public
- Academic
- Other

Section Two - Library 2.0

Introductory Note: 'Web 2.0' is generally used to refer to the second generation of the world wide web. Similarly, Library 2.0 is used by many to describe transitions in library service models in the face of technological developments, changing user needs, etc. The meaning and value of Library 2.0 and its impact on libraries is widely debated.

This question refers specifically to the application of Web 2.0 tools such as blogs, wikis, social networks, etc. and its relation to Library 2.0.
2 [002] Please indicate your agreement with the following statements:

Please choose the appropriate response for each item:

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree</th>
<th>Agree</th>
<th>Neither agree nor disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The implementation of Web 2.0 tools in library services is a major component of Library 2.0.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Web 2.0 tools are effectively implemented in my library.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Web 2.0 tools were implemented in my library as an attempt to 'be Library 2.0'.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

3 [003] Which web 2.0 tools/technologies are currently used by your library? *

Please choose **all** that apply:

- Blogs
- RSS
- Wikis
- Social Networks
- Podcasts
- Social Bookmarking/Folksonomies
- Instant Messaging
- Video-sharing (YouTube, etc.)
Virtual Worlds

Mashups

None

Other (Please Specify):

Blogs

4 [004] For which purposes are blogs used by your library?

Only answer this question if the following conditions are met:
° Answer was 1 'Blogs' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

- Library news
- Marketing of library services
- Information on resource access
- Information on new acquisitions
- Information management tool
- Wider community information
- Other:

RSS

5 [005] For which purposes is RSS technology used by your library?

Only answer this question if the following conditions are met:
° Answer was 2 'RSS' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

- Library news
- Collection updates
- Embedded external feeds
- Information on instructional programmes
- Blog updates
- Social media updates
Subject information
Portals, dashboards (e.g. Netvibes), etc.
Other:

Wiki

6 [006] For which type(s) of collaboration is the Wiki software used, in your library?

Only answer this question if the following conditions are met:
° Answer was 3'Wikis' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:
- External Collaboration with other libraries
- Internal Collaboration among library staff
- Collaboration among library staff and patrons
- Collaboration among patrons
- Other:

7 [007] For which purposes are Wikis used by your library?

Only answer this question if the following conditions are met:
° Answer was 3'Wikis' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:
- Knowledge Management
- Library instruction
- Subject Guides
- Frequently Asked Questions
- Community Information
- Other:
Social Networking

8 [008]Which social networking services does your library use?

Only answer this question if the following conditions are met:
° Answer was 'Social Networks' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Facebook
☐ Twitter
☐ MySpace
☐ Google+
☐ Bebo
☐ LinkedIn
☐ Other:

9 [009]For which purposes are social networks used by your library?

Only answer this question if the following conditions are met:
° Answer was 'Social Networks' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Library news
☐ Marketing of library services
☐ User outreach
☐ Collection updates
☐ Reference service
☐ Promoting discussion
☐ Other:
Podcasts

10 [010] Which type(s) of podcast does your library use?

Only answer this question if the following conditions are met:
° Answer was 5 'Podcasts' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Audio
☐ Video

11 [011] For which purposes are podcasts used by your library?

Only answer this question if the following conditions are met:
° Answer was 5 'Podcasts' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Audio books
☐ Tutorials
☐ News bulletins
☐ Lectures
☐ Interviews
☐ Virtual library orientation
☐ Library guides
☐ Other:

Social Bookmarking/Folksonomy Services

12 [012] Which social bookmarking/folksonomy services does your library use?

Only answer this question if the following conditions are met:
° Answer was 6 'Social Bookmarking/Folksonomies' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Delicious
☐ LibraryThing for Libraries
For which purposes are social bookmarking services used by your library?

Only answer this question if the following conditions are met:
° Answer was 6 'Social Bookmarking/Folksonomies' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Storing web links of interest
☐ Discovering links of interest
☐ Subject guides
☐ Engaging with community
☐ Sharing images and other media
☐ Other:

Instant Messaging

For which purposes are instant messaging technologies used by your library?

Only answer this question if the following conditions are met:
° Answer was 7 'Instant Messaging' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Staff communication tool
☐ Ask a librarian service
☐ File sharing
☐ Other:
Video Sharing

15 [015] Which video sharing service(s) does your library use?

Only answer this question if the following conditions are met:
° Answer was 8‘Video-sharing (YouTube, etc.)’ at question ‘3 [003]’ (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

Yes: □ YouTube
□ Dailymotion
□ Vimeo
□ Metacafe
□ Other:

16 [016] For which purposes are video sharing services used by your library?

Only answer this question if the following conditions are met:
° Answer was 8‘Video-sharing (YouTube, etc.)’ at question ‘3 [003]’ (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

□ Video blogging
□ Promotion of library events
□ Instructional videos
□ Library staff profiles
□ Interviews
□ Information on new materials
□ Virtual tours
□ Other:

Virtual Worlds

17 [017] Please indicate which virtual world service your library uses.

Only answer this question if the following conditions are met:
° Answer was 11‘Virtual Worlds’ at question ’3 [003]’ (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:
18 [018] For which purpose(s) is virtual world software used by your library?

Only answer this question if the following conditions are met:
° Answer was 11 'Virtual Worlds' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please choose all that apply:

☐ Reference service
☐ Discussion groups
☐ Library marketing
☐ User outreach
☐ Other:

Mashups

19 [019] Please provide information on which Web 2.0 applications/services your library combines.

Only answer this question if the following conditions are met:
° Answer was 12 'Mashups' at question '3 [003]' (Which web 2.0 tools/technologies are currently used by your library?)

Please write your answer here:

Web 2.0 Tools Part Two

20 [020] Please select any web 2.0 tools/technologies which your library previously used, but no longer uses.

Please choose all that apply:

☐ Blogs
☐ RSS
☐ Wiki
☐ Social Networks
☐ Podcasts
☐ Social Bookmarking/Folksonomies
21 [021] Please select any web 2.0 tools/technologies which your library plans to implement in the future.

Please choose all that apply:

- Blogs
- RSS
- Wiki
- Social Networks
- Podcasts
- Social Bookmarking/Folksonomies
- Instant Messaging
- Video-sharing (YouTube, etc.)
- Virtual Worlds
- None
- Other (Please Specify):

Draw

22 [022]

If you wish to be included in a draw for a £50 Amazon voucher, please enter your name and personal email address.

Please note that your details will not be shared or published.

Please write your answer here:

Submit your survey.
Thank you for completing this survey.